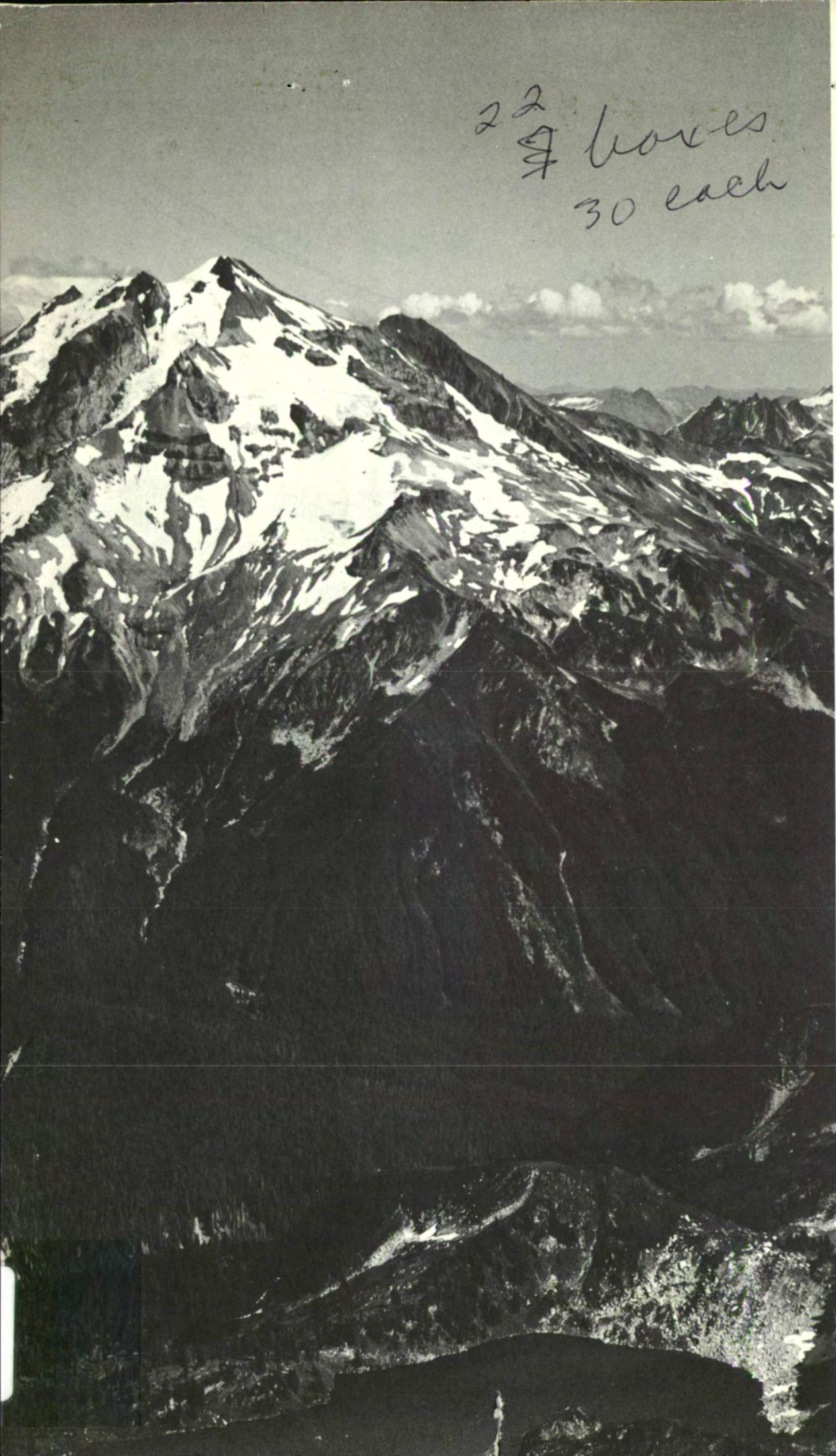


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THE NORTH CASCADES

A report to the Secretary of the Interior
and the Secretary of Agriculture

BY THE NORTH CASCADES STUDY TEAM

AC 21132
U.S. DEPARTMENT OF THE INTERIOR • U.S. DEPARTMENT OF AGRICULTURE

OCTOBER 1965

"A joint study should be made of Federal lands in the North Cascade Mountains of Washington to determine the management and administration of those lands that will best serve the public interest. These lands for the most part have been under the administration of the Forest Service as national forests for many years. A study team should explore in an objective manner all the resource potentials of the area and the management and administration that appear to be in the public interest. The study team will consist of representatives of the two Departments and will be chaired by an individual jointly selected by us.

"Recommendations of the study group will be submitted to us and we in turn will make our recommendations to you."

. . . Excerpt from letter of January 28, 1963, to President John F. Kennedy from Secretary of Agriculture Orville L. Freeman and Secretary of the Interior Stewart L. Udall.

The heart of the issue is what to do with the National Forest area north of the Cascade Pass.

Essentially three alternatives are proposed involving major changes in the Mount Baker, Wenatchee, and Okanogan National Forests.

The chairman recommended a new National Park which would include the Picket Range country, Ross Lake, and the Eldorado Peaks-Stehekin Valley vicinity. Combined with this would be Forest Service administration of (1) Glacier Peak Wilderness Area; (2) the portion of the present North Cascade Primitive Area lying east of Ross Lake, as a Wilderness Area; and (3) the Mount Baker area with emphasis primarily for recreation, as at present.

A second alternative, recommended by the two Agriculture members, would create a National Recreation Area under Forest Service administration for the Eldorado Peaks-Stehekin Valley country, including Ross Lake. Combined with this would be wilderness classification for the North Cascade Primitive Area east and west of Ross Lake; and continuation of the present Glacier Peak Wilderness Area. Also as part of this alternative is continued Forest Service administration of the Mount Baker-Mount Shuksan areas, with emphasis on management for general-type recreation.

The third alternative, supported by the two Interior representatives, is a National Park which would include the Mount Baker-Mount Shuksan country, the Picket Range country, Ross Lake and the Eldorado Peaks-Stehekin Valley vicinity. Combined with this would be Forest Service-administered wilderness for the Glacier Peak Wilderness Area and for the part of North Cascade Primitive Area east of Ross Lake.

We plan to give the report our careful personal attention in an effort to resolve these differences in the best public interest.

The study team was composed of Dr. George A. Selke, consultant to the Secretary of Agriculture; Arthur W. Greeley, Deputy Chief, Forest Service, USDA; George B. Hartzog, Jr., Director, National Park Service, USDI; Dr. Owen S. Stratton, consultant to the Secretary of the Interior; and Edward C. Crafts, Director, Bureau of Outdoor Recreation, and Chairman of the study team.





NORTH CASCADES STUDY TEAM

Department of Agriculture

Dr. George A. Selke
Consultant to the Secretary

Arthur W. Greeley
Deputy Chief—Forest Service

Department of the Interior

Dr. Owen S. Stratton
Consultant to the Secretary

George B. Hartzog, Jr.
Director—National Park Service

Chairman

Edward C. Crafts
Director—Bureau of Outdoor Recreation





UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF OUTDOOR RECREATION
WASHINGTON, D.C. 20240

December 6, 1965

Hon. Orville L. Freeman
Secretary of Agriculture

Hon. Stewart L. Udall
Secretary of the Interior
Washington, D.C.

Dear Mr. Secretaries:

On behalf of the North Cascades Study Team, I am pleased to submit its report, *The North Cascades*, in fulfillment of your instructions of March 5, 1963.

In accordance with those instructions, the report reviews all the resource potentials of Federal lands in the North Cascade Mountains of Washington and includes recommendations as to management and administration of those lands that will best serve the public interest.

The report of the study team is the result of a truly joint undertaking. The team effort included field exploration, numerous meetings and discussions, extensive public hearings, the preparation of special resource reports and much other material, and an exhaustive examination of existing information, including that which is publicly available as well as internal records of the Forest Service and National Park Service.

Much valuable information and advice were freely given by the State of Washington, local governments, and a large number of private organizations and individuals.

Throughout the work of the study team, there was the finest type of cooperation and interchange among team members.

Also, there was general agreement on the facts. There was consensus on most of the recommendations although it is only fair to other team members to make clear that the exact wording and presentation of material is that of the chairman.

Your attention is called to the individual views of other team members appearing at the close of the report. These relate to the last review draft and many of their comments were accommodated in the final report. Where there are still differences of viewpoint, the individual opinions of team members should be considered as alternate recommendations.

The recommendations of the Forest Service and National Park Service, summarized in the report and appearing in full in Appendices B and C, predated the letters from individual team members. In some respects the individual letters differ substantively from the agency positions prepared earlier. Thus, in reviewing the agency recommendations, special attention should be given to the individual letters from team members dated September 27-December 3, 1965.

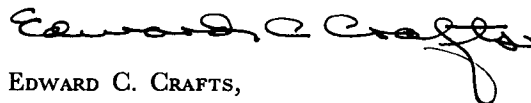
Whether there should be a new National Park in the North Cascades is the one fundamental issue on which there is disagreement. The two representatives of the Department of the Interior favor a new National Park, including the Mount Baker area. The two representatives of the Department of Agriculture oppose any new National Park in the North Cascades.

The views of the chairman and the recommendations set forth in the body of the report lie in between these divergent views. I favor a North Cascades National Park in the Eldorado Peaks-Picket Range area, but not including Mount Baker. The proposal in the report differs from any that have been advanced previously. I do not favor the establishment of a National Recreation Area as a substitute for a National Park. My views have been arrived at after full consideration of the September 27-October 27 comments of the individual team members, and are not altered by the Selke-Greeley letter of December 3.

The recommendations in the report are interrelated and should be evaluated as a whole. They would result in the creation of four new Wilderness areas, a new National Park, and, at the same time, would increase the supply of available commercial timber and have minimal adverse impact on other resources.

It has been a privilege to serve in this interdepartmental undertaking. All members of the study team are hopeful that the study and resulting report will have rendered a public service.

Respectfully,



EDWARD C. CRAFTS,
Chairman, North Cascades Study Team.

ACKNOWLEDGMENT

Washington, D.C.
October 1965

The following report on the management and administration of all the resources of the Federal lands in the North Cascades of Washington is the result of an extraordinary interdepartmental effort.

It was a privilege to serve as chairman of the study team. The individual members, despite the press of other duties, gave high priority to this assignment, discussed issues with utmost candor, cooperated to the fullest extent possible, and approached the complicated and controversial questions in a completely statesman-like manner.

The Forest Service and the National Park Service gave unstintedly of their personnel and facilities, made their records fully available, and supplied special information requested by the team to the extent of their abilities.

About 50 Federal and State resource specialists participated in the individual resource reports prepared at the request of the study team, or in the preparation of the final report.

The agencies represented on these efforts included the National Park Service, Forest Service, several departments of the State of Washington, the Bureau of Sport Fisheries and Wildlife, Bonneville Power Administration, Geological Survey, Bureau of Reclamation, Corps of Engineers, Federal Power Commission, Bureau of Land Management, Bureau of Mines, Soil Conservation Service, Columbia Basin Inter-Agency Committee, the Resources Program Staff of the Department of the Interior, the Department of Health, Education, and Welfare, and the Bureau of Outdoor Recreation.

The Commissioner of Public Lands for the State of Washington, as the State's designated representative, cooperated fully with the team, took part in some of the field inspections, and sat with the team during public hearings.

The report does not necessarily reflect the views of any of the cooperating agencies or individuals, or the State of Washington.

Edward C. Crafts
Study Team Chairman, and
Director, Bureau of Outdoor Recreation

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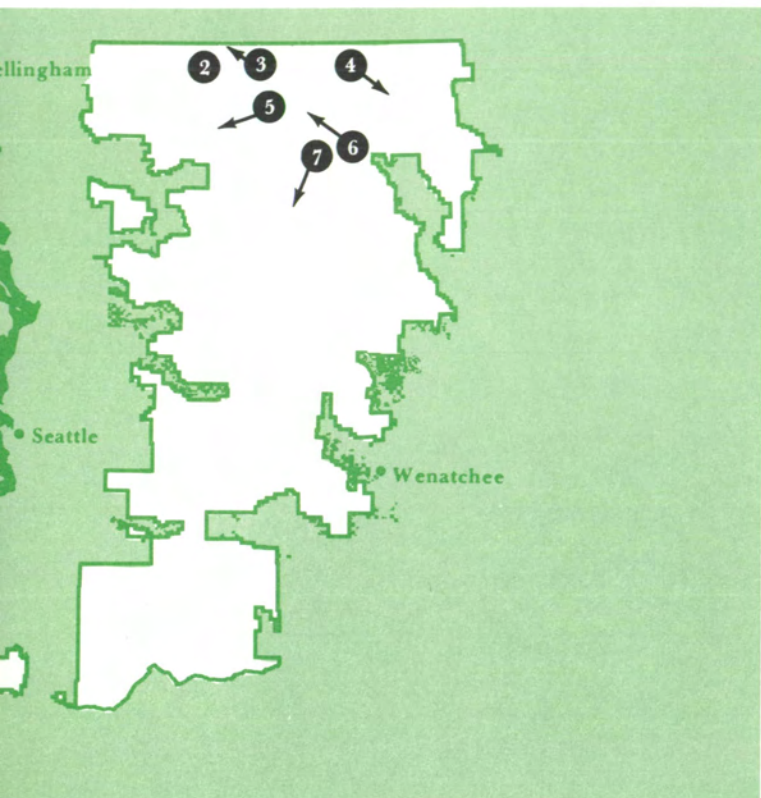


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in pictures



① Heather Meadows in the foreground—summer and winter recreation playground. Mount Baker in the background. Looking southwest. (photo FS 64-433)



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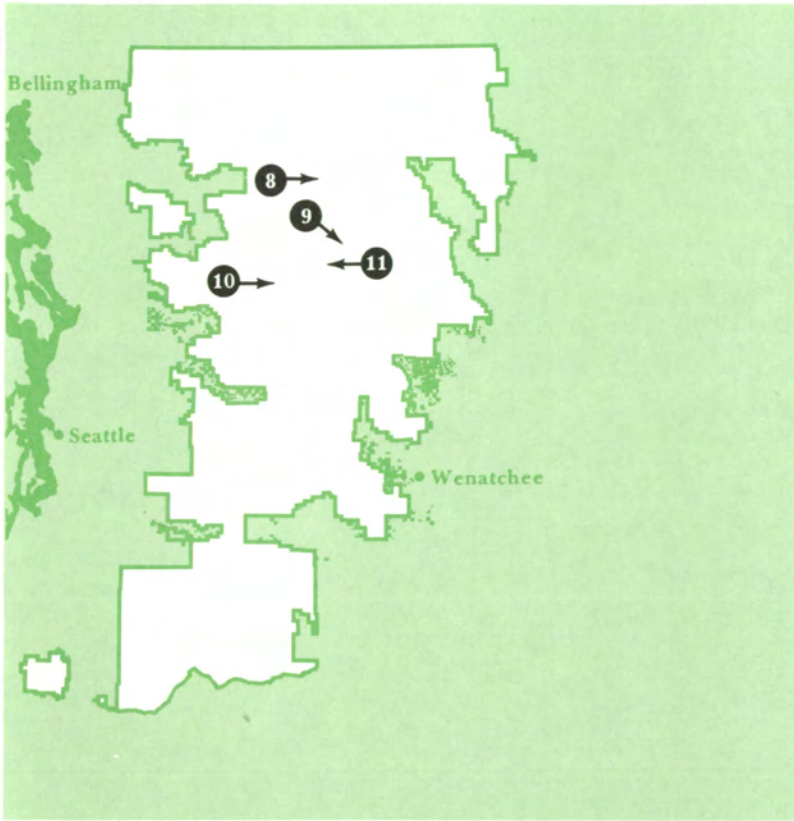
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8. North Fork of the Cascade River. Cascade Pass in the V-notch just above center. Forbidden Peak on the left. Hidden Lake in lower right. Looking east (photo FS 64-450)



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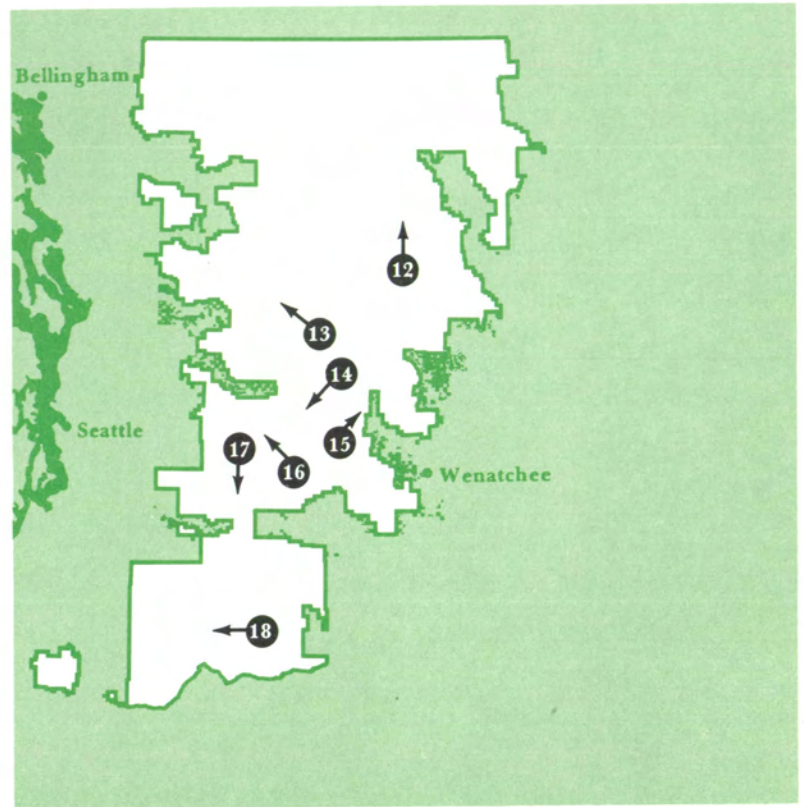
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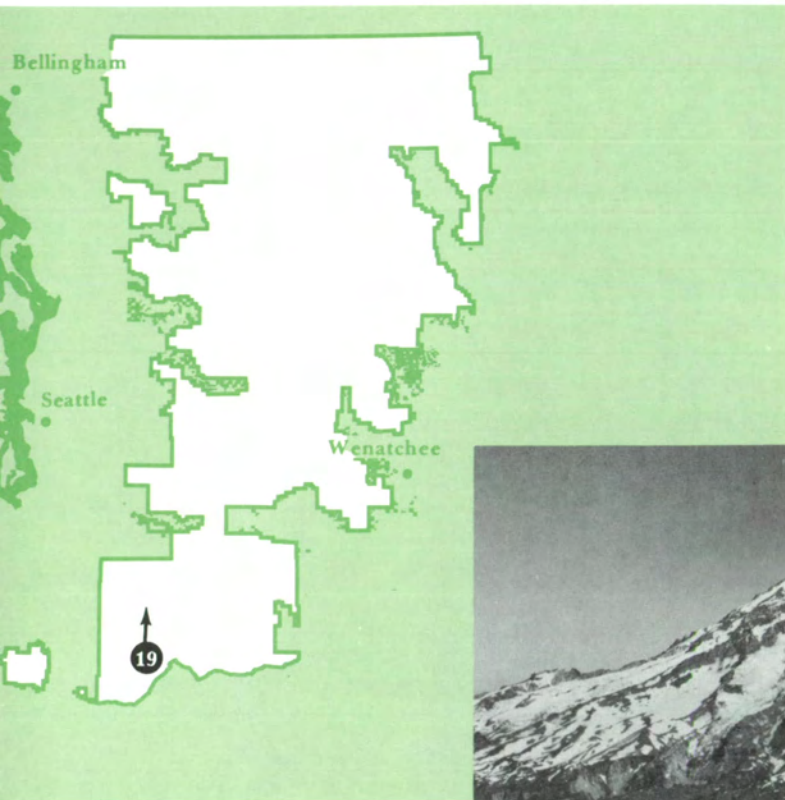


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Looking north up Butter Creek to Mount Rainier. Dixon Mountain on the left foreground and the Tatoosh Range in the right center. Timber harvesting in irregular patches. (photo 64-466)

INTRODUCTION

This is the report of the North Cascade Study Team appointed March 5, 1963, by Secretary of the Interior Stewart L. Udall and Secretary of Agriculture Orville L. Freeman. It is a report with recommendations to guide the management and administration of the Federal lands in the North Cascade Mountains of the State of Washington. All the resource potentials of these lands have been considered.

It is by no means the first, and perhaps not the last, such report. It rests on a consideration in depth of the rich resource potentials of this vast area and the controversies that swirl about them.

The North Cascade Mountains are immensely valuable in natural resources. Much of the area is characterized by spectacular mountain scenery unsurpassed in the United States. Thousands of acres are relatively inaccessible. The area in its entirety is known to only a relatively few people.

Except for Mount Rainier National Park, nearly all Federal lands are under the administration of the Forest Service and have been for many years.

The hard core of the issues before the study team was whether there should be a new National Park established in a portion of the North Cascades. Almost equally difficult questions involve the conflicts between timber utilization and recreation, and between mass recreation and dedication to wilderness.

The proper and best balanced use of water, fish and game, minerals and forage also are deeply involved.

Such issues are not new but have been brought sharply into focus in recent years by a combination of circumstances. These include greatly increased population in the Puget Sound area, more leisure time, improved accessibility, growing demands for National Forest timber, the militancy of conservation groups, and new top-level Federal administrators who desire to chart a course in the long range public interest re-

gardless of traditional bureaucratic tradition, competition or ambition.

The North Cascades Study Team has worked together closely and harmoniously, respecting each other's differing views, in carrying out its charter from the two Secretaries. This report does not reflect unanimous views, because unanimity was not reached. The most fundamental difference in viewpoint among the team members is about the recommendation for a North Cascades National Park. There was also significant difference of opinion as to the interdependence of the recommendations. In reviewing the next to the last draft of the report, it became apparent that the team members also differed considerably as to some details and emphasis.

The report does reflect the views of the chairman. With respect to other team members, their differing views and recommendations are reflected in individual statements at the conclusion of the report to the extent that they wished to do this. In some instances, where there was clearly a lack of consensus, this is pointed out in the text of the report.

Many experts and agencies have contributed to the team's understanding and analysis, but it should be understood that this report is only the work of the team and does not necessarily reflect the views of any other individuals or agencies.

ORIGIN AND PURPOSE

Historically, the present study stems from the natural beauty and environmental quality of the North Cascades, the growing impact of people, and the existence in different Departments of two Federal conservation agencies—the Forest Service and National Park Service—with related but differing missions.

Numerous western National Parks or Monuments were either created from or are surrounded by National Forests. Over the years the National Park Service and the Forest Service have settled amicably many questions of boundary relationships. On the other hand, from time to time major questions of jurisdiction have erupted.

When Secretaries Udall and Freeman took office early in 1961, they learned that there were many interagency transfer proposals in various stages of negotiation. By mutual discussion and negotiation, agreement was reached to transfer or not transfer numerous areas. In the course of these discussions the two Secretaries determined to establish a climate of cooperation and reasonableness that had not always characterized proposed interagency transfers in the past.

At the request of the two Secretaries, a representative of each Department joined in recommending to them settlement of certain pending issues, including the desirability of examination of the North Cascades in depth.

Portions of this area had been proposed from time to time by the National Park Service and others for National Park status. Accordingly, on January 28, 1963, the two Secretaries jointly wrote the President an historic letter commonly referred to as the "Peace Treaty," which stated among other things:

"We have reached agreement on a broad range of issues which should enable our Departments to enter into a 'new era of cooperation' in the management of Federal lands for outdoor recreation. This agreement settles issues which have long been involved in public controversy, we have closed the book on these disputes and are now ready to harmoniously implement the agreed-upon solutions.

"The decisions reached will do much to further development of Federal recreation resources, eliminate costly competition, promote cooperation, and recognize the major role that the Departments of Agriculture and the Interior both have in administering Federal lands under their jurisdiction for recreation purposes."

The flyleaf statement by the Secretaries recommending an interdepartmental study of the North Cascades is excerpted from their letter of January 28 to the President.

On January 31, President John F. Kennedy stated in response that the "joint exploration of the North Cascades Mountains in Washington is most significant—it is clearly in the public interest."

Accordingly, on March 5, 1963, the two Secretaries by letter to the individuals selected to comprise the study team established the team and its charter.

These letters of January 28, January 31, and March 5, 1963, appear in full in Appendix A.

The most significant aspects of the study team's charter include the following:

1. The potential of all the natural resources of the area were to be explored.
2. The team consisted of two representatives of each Department and was chaired by a fifth individual jointly selected by the two Secretaries.
3. Recommendations of the team were to be submitted to the two Secretaries and they in turn would make recommendations to the President.
4. Recommendations were to be included as to management, administration, and jurisdictional responsibility.

5. The team was to invite from the Governor of Washington a statement setting forth recommendations of the State.
6. Recommendations were to be in the interest of the people in the area, the State of Washington, the region, and the United States.

The two Departments by administrative action undertook a much broader examination than had been proposed in both the 86th and 87th Congresses. In the 86th Congress, Congressmen Pelly and Magnuson, and Senator Magnuson introduced bills (H.R. 9360, H.R. 9342, and S. 2980) to direct the Interior Department in cooperation with Agriculture to study the North Cascades only as to its suitability for a National Park. The bills were not reported on by the Administration, but the Forest Service in an exchange of correspondence with Congressman Pelly in 1959 declined to join, or concur, in a study of the area by the National Park Service. Congressman Pelly asked for an investigation of 19 questions. The Forest Service declination was based on several grounds, including the fact that hearings had already been publicly announced on a proposed Glacier Peak Wilderness Area. Congressman Pelly reintroduced his bill (H.R. 2056) in the 87th Congress but no action was taken on it.

The members of the North Cascades Study Team jointly selected by the two Secretaries were:

AGRICULTURE

Dr. George A. Selke, Consultant to the Secretary
Arthur W. Greeley, Deputy Chief, Forest Service

INTERIOR

Henry Caulfield, Assistant Director, Resources Program Staff

On September 27, 1963, Mr. Caulfield was replaced by Dr. Owen S. Stratton, Consultant to the Secretary and Chairman, Department of Political Science, Wellesley College .

George B. Hartzog, Jr., Associate Director, National Park Service

On January 8, 1964, Mr. Hartzog became Director of the National Park Service, but retained his membership on the Team.

CHAIRMAN

Edward C. Crafts, Director, Bureau of Outdoor Recreation

Each of these individuals served personally and

actively throughout the study, drawing extensively on the members of their respective organizations as needed for both advice and technical expertise.

There was established also an informal group of principal staff assistants, the membership of which changed from time to time. It operated under the general direction of John F. Shanklin, Assistant Director, Bureau of Outdoor Recreation.

PROCEDURES AND COLLABORATION

PROCEDURES

The study team utilized six methods of becoming informed and arriving at recommendations. These included:

1. Review of existing information
2. Field examinations
3. Public hearings
4. Special resource studies
5. Agency statements and much special material prepared by the National Park Service, Forest Service, and special consultants
6. Team consultations with each other and with key officials, groups and individuals.

It is believed that these steps provided a thorough examination and exploration of the subject.

The review of existing information included documenting highlights in the history of the North Cascades (Appendix D) including key events, Acts of Congress, legislative proposals, and administrative decisions.

A bibliography of selected references was prepared from among the documents examined (Appendix E).

Field examinations were carried out by team members, both individually and collectively. On occasion, these field examinations were known to the public. On other occasions, team members visited the area for specific purposes and such visits were not generally publicized.

Each member of the team has a good personal knowledge of the physical environment of the North Cascades, the surrounding area, and the management and utilization of resources. This knowledge includes both the areas that are generally accessible as well as portions of the North Cascades that are normally inaccessible. Travel was by car, boat, foot, horseback and airplane.

The team conducted open public hearings in Wenatchee, Mount Vernon, and Seattle in October 1963, over a five-day period. All who wished to

testify or submit statements were allowed to do so. Over 300 witnesses or statements were heard or received at these hearings. The record was kept open for about a month and about 2,200 additional letters were received by the team prior to closing of the record on November 15, 1963. The transcript of some 3,200 pages continues to be available for public inspection at offices of the Bureau of Outdoor Recreation, National Park Service, and the Forest Service.

The study team decided early in its work that a series of resource studies should be undertaken to provide the factual basis for recommendations. Each of these studies was chaired by a member of the study team, using professional personnel from the Federal agencies listed in the acknowledgment.

The State of Washington made available professional personnel to participate in each of these studies.

The resources studies did not include action recommendations. They did provide essential technical background information on the value, extent, and needs of the various resources. These studies, although not made an integral part of this report, are available for public inspection in the offices of the Bureau of Outdoor Recreation, the National Park Service, and the Forest Service.

The special resource studies and the team members responsible for each follow:

1. "Outdoor Recreation in the Northern Cascades Today and Tomorrow." George B. Hartzog, Jr.
2. "Timber Resource Study of the North Cascades." Arthur W. Greeley.
3. "Range Resource Study of the North Cascades." Arthur W. Greeley.
4. "Fish and Wildlife Study of the North Cascade Mountains." Arthur W. Greeley.
5. "Water and Power Resources Report for North Cascade Mountains Study." Owen S. Stratton. This report was prepared by the Columbia Basin Inter-Agency Committee, directed by its Coordinated Planning Subcommittee and developed by an ad hoc group chaired by Don H. Huff.
6. "Mineral Resources and Geology of the North Cascade Mountains Study Area." George A. Selke.

Six additional reports especially prepared for the Study Team are worthy of mention:

1. "Resource Reports of the North Cascades Study: Assessment of Their Economic Features." James Rettie. June, 1964.
2. "An Economic Analysis of Proposed Changes in

the Use and Management of the National Forest Lands in the North Cascades." Burnell Held. November, 1964.

3. "An Economic Appraisal of the North Cascades Area—Preliminary Draft." Bonneville Power Administration. March 1964.
4. "A Summary Report on How the National Forest Lands in the North Cascades Study Area Will Be Managed by the U.S. Forest Service." This appears as Appendix B.
5. "National Park Service Management Proposals for the North Cascade Mountains Study Area." This appears as Appendix C.
6. "A Report on the Recreation Resources of the National Forests in the North Cascades." Forest Service, Pacific Northwest Region. December 1963.

The Rettie Report, as the title indicates, evaluates the special resource reports in economic terms. The Held Report evaluates in economic terms the differing management proposals and recommendations of the National Park Service and the Forest Service as presented in the individual agency statements.

The Forest Service and National Park Service statements (Items 4 and 5 above) appearing as Appendices B and C, are documents prepared by the two land administering agencies directly involved, and incorporate their separate recommendations for the area. These are included in this team report as alternative possibilities and in order to make generally available the individual agency views.

The recreation report of the Forest Service (Item 6 above) was volunteered by the Pacific Northwest Region of the Forest Service in anticipation of the needs of the study team. It was made available to both the recreation resource study group and the full study team. Because it includes much valuable information, it is mentioned here.

It is the belief of the study team that the special resource reports, the other special reports prepared for the team, the individual agency statements, maps, statistical material, and supplementary memoranda represent the most comprehensive assembly of information ever put together on the North Cascades. This material, all of which is available for inspection, can be correctly referred to as a monograph on the Study Area.

The study team held eleven executive session discussions over the period of the study. Two of these were on the West Coast, two in West Virginia, and the remainder in Washington. The purposes of the

discussions were to chart the course of the study, review progress, evaluate information, debate issues, and prepare recommendations.

COLLABORATION

The study team enjoyed the collaboration of the State of Washington, Federal and local public agencies, and numerous private individuals, organizations, groups, and firms of various types.

The collaboration of private individuals, organizations and local groups was largely in the form of testimony, statements, resolutions, or petitions submitted in connection with the hearings during October 1963. Material was received from chambers of commerce, sportsmen's organizations, PTA and other school associations, civic groups, business and industrial groups, professional societies, conservation groups, farm, utility, irrigation and soil conservation groups, and county and municipal officials. A digest of the hearing record appears later in the report.

The Federal agencies that contributed the most were, as could be expected, the National Park Service and the Forest Service.

The collaboration of other Federal agencies, the State, and individuals deserving special mention is covered in the acknowledgment.

The Secretarial instructions of March 5, 1963, to the team state ". . . We ask that you arrange to receive from the Governor of the State of Washington a written statement setting forth the recommendations of the State." Accordingly, in May 1963, three members of the team met with Governor Rosellini and Commissioner Cole. Subsequently, the Governor assured the team of the cooperation of his office in connection with its work. In accord with Secretarial instructions the Governor was formally invited by the Chairman at three different times (letters of April 9, July 17, and November 18, 1964), to express the views of the State. Such views were not received.

With the change of State administration in January 1965, the Chairman on March 6 invited Governor Daniel J. Evans to make available recommendations of the State. On March 25 Governor Evans advised that in view of the shortness of his period in office and his preoccupation with legislative matters, it was his plan to wait until the Federal Government's report was issued, at which time he would comment on it.

During the course of the North Cascades Study, Governor Rosellini appointed a Washington State Forest Area Use Council to advise the Governor on matters in the North Cascades Study Area. In May

1964, the Council approved two reports prepared by the Council's Technical Committee—a "North Cascades Report," which was a commentary on the six resource studies prepared for the study team, and a report on "The Cougar Lake Limited Area." Both of these reports were made available to the study team by Governor Rosellini.

PREVIOUS STUDIES

The North Cascades have been the subject of repeated studies, books, reports, and travelogues almost since the first Federal Forest Reserves were established in the 1890's.

Most of the available literature deals with one of three subjects:

1. Whether a North Cascades National Park should be established,
2. Problems of resource balance, and conflicts in use of the area for timber versus wilderness recreation, or
3. Accounts of the spectacular beauty and magnificent scenery of the North Cascades.

The available literature appears not to give a balanced picture of the multiple resources of the area, their use and management. The bulk of the literature over the years has been by advocates of change, particularly those who have favored a North Cascades Park. Their views have been repeatedly, militantly, and emotionally expressed.

In contrast, Federal administrators of the area and commercial users of the resources for the most part have been going about their business of management, administration and use, rather than defending their actions or explaining their plans.

Criticism has been freely and frequently directed at the Forest Service. Officials of that agency, as is usually the case with public servants, are necessarily restrained by their position from exercising equal freedom in their response to criticism.

Following are a few selected references which appear to be among the best:

1937 O. A. Tomlinson and others, National Park Service. "Report of Committee, Northern Cascades Area Investigation." 40 pp. (Typed.)

This is a well-known National Park Service report, frequently quoted. There are several accompanying memoranda and supplementary maps and reports. The cited document along with the letter of transmittal constitutes the

principal early report which recommended a North Cascades National Park.

1940 National Park Service Cascades Committee, O. A. Tomlinson, Chairman. "National Park Potentialities in the Cascade Mountains of Washington." 27 pp. (Typed.)

1940 Forest Service, Pacific Northwest Region. "Preliminary Report on North Cascade National Park Study Area." (Typed.)

This is a Forest Service report and commentary on the 1937 National Park Service report. It opposes a National Park.

1940 Washington State Planning Council. "Cascade Mountains Study." 56 pp., illustrated. This is a well-known Washington State Report prepared subsequent to the Tomlinson study. It recommends that "no additional lands of the Cascade Mountains be converted into use as a national park."

1949 Roderick Peattie (Editor). "Cascades: Mountains of the Pacific Northwest." 417 pp., illustrated.

1958 David R. Simons. "The Need for Scenic Resource Conservation in the Northern Cascades of Washington." Sierra Club. 36 pp. (Processed.)

This document recommends a National Park. It is not available for quotation or publication without express permission of the Sierra Club.

1961 Columbia Basin Inter-Agency Committee, Recreation Subcommittee. "Recreation Survey of the Pacific Northwest Region. Part One: Existing Recreation Areas." 58 pp. (Processed.)

1962 Forest Service. "Management Objectives and Policies for the High Mountain Areas of National Forests of the Pacific Northwest." 8 pp. (Processed.)

1962 Forest Service, Pacific Northwest Region. "Analysis of National Forest Lands Included in a Proposal for a Northern Cascades National Park." 67 pp., illustrated. (Processed.)

This is the Forest Service analysis of recommendations for a North Cascades National Park advanced by the North Cascades Conservation Council.

1962 Bernard C. Collins. "Land Use Conflict in the North Cascades Wilderness of Washington State." Thesis for Master of Forestry. 149 pp., illustrated. (Typed.)

1963 Washington State Inter-Agency Committee on Outdoor Recreation. "Governor's Report on

- Outdoor Recreation in Washington." 36 pp., illustrated.
- 1963 North Cascades Conservation Council. "Prospectus for a North Cascades National Park." 103 pp., illustrated. (Processed.)
This report is divided into five parts: (1) The National Park Quality of the North Cascades, (2) The Unsatisfactory Nature of Present Management, (3) The Superiority of National Park Service Management, (4) Legislation Proposed to Create a National Park, and (5) The Economic Impact of a North Cascades National Park.
- 1963 Forest Service, Pacific Northwest Region. "A Report on the Recreation Resources of the National Forests in the North Cascades." 51 pp., illustrated.
- 1964 Washington Forest Area Use Council, Technical Committee. "North Cascades Report." 36 pp., illustrated. (Processed.)
This is a commentary on the resource studies prepared for the North Cascades Study Team.
- 1964 Columbia Basin Inter-Agency Committee, Recreation Subcommittee. "Recreation Survey of the Pacific Northwest Region. Part Two: Recreation Report." 82 pp., illustrated.
- 1964 Tom Miller. "The North Cascades." 95 pp., illustrated.
Primarily a photographic portfolio, this book offers considerable text discussing the history and physiography of the North Cascades.
- 1965 Harvey Manning. "The Wild Cascades: Forgotten Parkland." 128 pp., illustrated.
The latest in the Exhibit-Format Series of the Sierra Club. Foreword by Justice William O. Douglas points out that the special message of the book is to demonstrate the need for a North Cascades National Park.

SUMMARY OF RECOMMENDATIONS

The body of this North Cascades report presents the resource situation, the facts that led to the recommendations, the recommendations, and the reasons behind them.

Although a brief digest and summary are presented at this point in the introduction, *the full discussion of the recommendations should be read in order to understand them adequately.*

The recommendations are grouped into the following seven categories: (1) Wilderness Areas, (2)

North Cascades National Park, (3) Mount Rainier National Park, (4) other recreation areas, (5) scenic roads and trails, (6) timber management, and (7) other.

There are 21 recommendations. Five deal with Wilderness areas, one with a North Cascades National Park; two with Mount Rainier National Park; four with other recreation areas; two with scenic roads and trails; one with timber management; and six with other aspects of the area, including fish and wildlife and water and power developments.

Of the 21 recommendations, 10 will require action by the Congress and 11 may be implemented by administrative decision. Those recommendations requiring Congressional action are specified.

Figure 33 shows recommended new and revised management areas in relation to existing designations. This key map summarizes visually a number of major recommendations, including those relating to Alpine Lakes, Enchantment, Mount Aix, Glacier Peak and Okanogan Wilderness areas, the North Cascades and Mount Rainier National Parks, Mount Baker Recreation Area, and the Skagit Wild River.

Figure 34 shows a proposed system of scenic roads. It also shows the Cascade Crest Trail, existing and proposed.

To evaluate the recommendations, they should be considered as a group. They are, for the most part, interrelated and interdependent.

The proposals for Wilderness and other recreation areas, National Parks, and scenic roads and trails constitute a significant package that will improve the availability and utilization of the recreational potential of the North Cascades and at the same time increase the amount of commercially available sawtimber without significant impairment of water and power and other resource values. It is most important that the individual recommendations not be evaluated separately, but on their merits as a group.

It is also significant that the recommendations, as a group, are not those of either of the two land administering agencies—the Forest Service or the National Park Service—or of any other public body or private group. They are a new set of recommendations that has not heretofore been proposed. Some of the recommendations are wholly new; others are not.

WILDERNESS AREAS

There should be established four new Wilderness areas—Alpine Lakes, Enchantment, Mount Aix, and

Okanogan. In addition, the boundary of the Glacier Peak Wilderness should be extended in three places: (1) on the northeast perimeter from Riddle Creek on Lake Chelan up the lake and along the Stehekin River to Cascade Pass; (2) in the Suiattle River corridor; and (3) in the White Chuck River corridor.

The Alpine Lakes Wilderness Area would be similar to, but smaller than, the present Alpine Lakes Limited Area. The Enchantment and Mount Aix Wilderness areas would be new. The Okanogan Wilderness Area would be roughly equivalent to that part of the present North Cascade Primitive Area lying east of Ross Lake. The Cougar Lake and Monte Cristo Peak Limited Areas would be declassified.

The reduced size of the Alpine Lakes Limited Area and the declassification of the Cougar Lake Limited Area would make available 123,000 acres and 2.9 billion board feet of commercial land and timber, hitherto reserved.

NORTH CASCADES NATIONAL PARK

There should be established a North Cascades National Park extending from Riddle Creek, a few miles below the head of Lake Chelan; northwestward generally along the Stehekin River to Cascade Pass and Cascade River drainage, including the Eldorado Peaks area, Thunder Creek and Granite Creek, including Ross and Diablo Lakes; crossing the Skagit River and including that part of the North Cascade Primitive Area west of Ross Lake, and Mount Shuksan.

This would include about 698,000 acres, of which only 19,000 acres is presently available commercial forest land—less than 1 percent of the timberland or volume commercially available in the Study Area.

Of the total acreage included in the proposed park, about 314,000 acres are now in the North Cascade Primitive Area and most of the remainder is in the area designated by the Forest Service as the Eldorado Peaks High Country.

The recommendation to establish a new North Cascades National Park is conditioned upon development of adequate facilities and means of entry into presently remote areas. This can be done by use of helicopter and aerial trams providing convenient access for large numbers of people to the spectacular and majestic mountain scenery, snow fields, glaciers, and other attractions of the North Cascades. The recommendation is also conditioned upon non-interference with the needs of Seattle City Light on Ross and Diablo Lakes.

Enabling legislation should include provisions to maintain the status-quo of the present proportionate distribution of National Forest receipts among affected counties.

The National Park can be established without removing lands from tax rolls, and without appreciable expenditures for land acquisition. This is because practically all of the land within the proposed boundary (99 percent) is already in Federal ownership.

There would be no significant adverse effects on timber harvesting, grazing, or fishing. There is no mining of consequence. Hunting would be precluded in the park.

One of the basic reasons for recommending a National Park is to give national recognition, National Park stature and special legislative protection to the unique and unparalleled mountain masses which occur so close to major metropolitan areas and in such grandeur and magnificence no place else in the United States.

The qualifications of this area as a National Park are not at issue. They are so outstanding that this National Park will take its place with Yosemite, Yellowstone, Grand Canyon and Mount Rainier as one of the truly superlative units of the National Park System.

A major reason for recommending a National Park is that by means of access and development, the area can be made available to large numbers of people rather than retaining half the area in Wilderness area status, as would be done by the Forest Service.

A third reason that should be of significance locally is to bring to the area the tourism and other economic benefits that inevitably accrue in connection with a major National Park attracting visitors nationally and internationally.

MOUNT RAINIER NATIONAL PARK

The southern boundary of the Mount Rainier National Park should be extended to include about eleven sections of National Forest land in the vicinity of the Tatoosh Range.

There should be more effective coordination and management to accommodate present and prospective heavy recreational use in Mount Rainier National Park and on surrounding National Forest lands.

Master planning needs to be carried forward aggressively for the National Park.

The National Park Service and Forest Service should coordinate their expertise in the management

of Wilderness areas in order to protect the fragility of wilderness and at the same time accommodate increased use.

OTHER RECREATION AREAS

Mount Baker and most of the surrounding Recreation Area should continue to be administered by the Forest Service in accord with that agency's plans for development; pending establishment of the North Cascades National Park, the Eldorado Peaks High Country should be managed primarily for recreation as it proposes; both the Forest Service and the National Park Service should energetically pursue the development of opportunities and facilities for camping, picnicking, winter sports, and other mass recreation pursuits to accommodate the anticipated increased demand; and certain portions of the Skagit River and its tributaries, including the Cascade, the Suiattle, and the Sauk Rivers, should be managed as a Wild River and given Wild River status.

SCENIC ROADS AND TRAILS

High priority should be given to the construction of an adequate system of scenic roads. This would include construction of new roads, such as completion of the North Cross-State Highway, the construction of a road from the head of Ross Lake in British Columbia along the lake to a junction with the North Cross-State Highway, the construction of a road from Heather Meadows tunneling under Austin Pass to Baker Lake, the construction of connecting roads through Curry Gap, Cady Pass, Harts Pass, and the construction of a connecting link between Alpine Lakes and Enchantment Wilderness areas. An adequate system of scenic roads will include an estimated 921 miles, of which amount, 649 miles are existing but need minor improvements, 154 miles involve new construction, and 118 miles need reconstruction or major improvements such as surfacing and turnouts. Many of the roads in the latter group were designed primarily for timber harvesting purposes.

A north-south Cascade scenic road was explored but was not considered feasible.

The construction of an adequate network of scenic roads will greatly facilitate the enjoyment of the area's recreational opportunities by large numbers of people.

There should be developed and maintained a more adequate system of hiking and riding trails. This includes particularly the improvement of the Cascade Crest Trail and connecting trails. There

are about 5,800 miles of trails in the area but a substantial proportion were constructed initially for fire protection purposes and 40 percent needs to be improved and better maintained for recreational use.

TIMBER MANAGEMENT

The Forest Service is commended for, and should continue to systematically apply, the policy directives and guidelines described in its statement "Management Objectives and Policies for the High Mountain Areas of National Forests of the Pacific Northwest Region."

In general, clear-cutting of blocks on the west side should be kept as small as practicable. In or near areas proposed for special attention for recreation, clear-cutting should be used only where other forms of silviculture are not feasible.

If adequate natural regeneration does not occur promptly, the areas should be planted. Further, road banks and other areas where there are similar soil disturbances should be artificially revegetated to minimize land scarring and stabilize soil.

In the design and construction of forest development roads, appropriate consideration should be given to the needs of all resources without undue emphasis on timber. Adequate scenic strips and roadside improvements should be provided consistent with landscape management principles.

In areas recommended for Wilderness area classification or National Park status, timber harvesting should not be permitted for a period of 5 years to allow time for congressional consideration and action.

Research should continue to be carried on on Douglas-fir and ponderosa pine types. This should include silviculture and economics of Douglas-fir and practical methods of harvesting and regeneration of that species by other means than clear-cutting.

OTHER

The Federal and State agencies concerned should develop and improve habitat and carry on management measures in fish, wildlife and range management to the full extent of their responsibilities and capabilities in anticipation of increased public use.

The Secretary of Agriculture should support the Secretary of the Interior in his intervention with the Federal Power Commission concerning the proposed development of Wenatchee River by Public Utility District No. 1 of Chelan County.

The Secretary of the Interior should seek the views

of the Secretary of Agriculture and should carefully assess the recreation impacts, both favorable and unfavorable, before acting on the proposed replacement dam on Bumping River below the existing Bumping Lake reservoir.

The enactment of legislation to create a North Cascades National Park should include provisions that would protect the present installations and plans of the Seattle City Light on the main stem of the Skagit River.

The Forest Service should continue to work with cities having closed municipal watersheds in order to develop satisfactory plans and procedures by which these watershed areas can be made available to help meet the expanding future recreational needs of the Study Area.

CONCLUSIONS

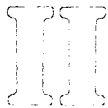
The net effect of the recommendations is to:

1. Establish four new Wilderness areas—Alpine Lakes; Okanogan, Enchantment, and Mount Aix—totaling 720,000 acres;
2. Enlarge the Glacier Peak Wilderness Area by 39,000 acres;
3. Establish a North Cascades National Park totaling 698,000 acres;
4. Enlarge Mount Rainier National Park by 7,000 acres and provide for coordinated management between the park and surrounding National Forest lands;
5. Declassify three limited areas—Alpine Lakes, Cougar Lake, and Monte Cristo Peak;
6. Provide for an increase of 228,000 acres of National Forest lands to be placed under normal multiple-use administration by the Forest Service;
7. Increase the available commercial forest land by 56,000 acres and increase the available commercial saw-timber by 1.5 billion board feet, thus providing a net benefit to the timber industry despite the creation of new Wilderness areas and a new National Park;
8. Provide for a 900-mile system of scenic roads and several thousand miles of trails.
9. Establish a Wild River in the Skagit Basin;
10. Provide for adequate camping, picnicking, winter sports, boating and other recreation facilities, including fishing and hunting opportunities, in anticipation of much greater population pressure and use;
11. Provide for timber management and needed research that will minimize erosion, land scarring,

adverse effects on the natural beauty of the landscape, and accomplish prompt regeneration;

12. Involve no removal of lands from the tax rolls, no acquisition costs, no change in distribution of National Forest receipts, no impairment of operations of Seattle City Light on the Skagit River, and no significant adverse effects on the livestock industry, on commercial or sport fishing. There would be some adverse effects on hunting, and there could be on mining if significant future discoveries occur in the area proposed for a National Park.
13. Provide substantial net economic advantages from creation of a North Cascades National Park through increases in tourism and the expenditures, wages, and employment generated thereby, and by capital outlays to develop the National Park, with resulting employment and wages; and
14. Provide substantial economic benefits through the construction development costs, maintenance, and employment required to establish the recommended scenic road system, and from the expenditures and employment generated by increased driving for pleasure.

The overall conclusion is that there will be an economic benefit to the timber and tourism industries, little or no significant adverse effect on other resource-based activities, substantial economic advantages from the creation of the scenic road system and the establishment of a new National Park, and great intangible benefits to the population of the State, region, and Nation through new opportunities for mass recreation, through creation of a National Park, and through creation of new Wilderness areas.



THE NORTH CASCADES— RESOURCE HIGHLIGHTS

DESCRIPTION

The specific portion of the North Cascades to be considered by the study team was not described in the letter of instructions from the Secretary of the Interior and the Secretary of Agriculture. Accordingly, the first action of the team was to define the area.

After due consideration, it was agreed that the Study Area would include all Federal lands in the North Cascade Mountains of the State of Washington north of State Route No. 14 (which is the principal highway between Chehalis and Yakima, Wash., via White Pass formerly designated as State Route 5) to the Canadian border.

This includes all of the Mount Baker and Wenatchee National Forests, those parts of the Okanogan National Forest lying west of the Okanogan River, those parts of the Gifford Pinchot and Snoqualmie National Forests lying north of State Route No. 14, and Mount Rainier National Park. The Study did not include the State, county, municipal, or private lands that are intermingled with and/or lying inside the boundary of the specified National Forests and the National Park.

The Study Area is shown in figure 1 in relation to major cities, roads, and other features in Washington, Oregon, Northern California, and British Columbia.

Figure 2 is a larger scale blow-up of the Study Area showing topographic relief, existing roads, drainage, and county lines.

The State of Washington is our twentieth State in size and covers about 43 million acres. Slightly over half of it is forested (fig. 3).

The Study Area of 7 million acres is about 16 percent of the entire State, and includes over half of all Federally owned land in the State (fig. 4).

As for the Study Area itself, about 90 percent, or 6.3 million acres, is Federal land. About 1 percent is other public land and 9 percent is privately owned (figs. 5 and 6). There are 33,000 acres of water surface in bodies of water 25 acres or larger.

The Federal land in the Study Area consists of 6,068,000 acres of National Forest land and 241,000 acres of National Park land. This is roughly 10,000 square miles, or about the size of the State of Vermont or Maryland. Most of the area classified as State owned is the water surface of major lakes, such as Lake Chelan and Ross Lake.



NORTH CASCADES STUDY
VICINITY MAP

NATIONAL PARKS
 STUDY AREA
 NATIONAL FORESTS



FIGURE 1

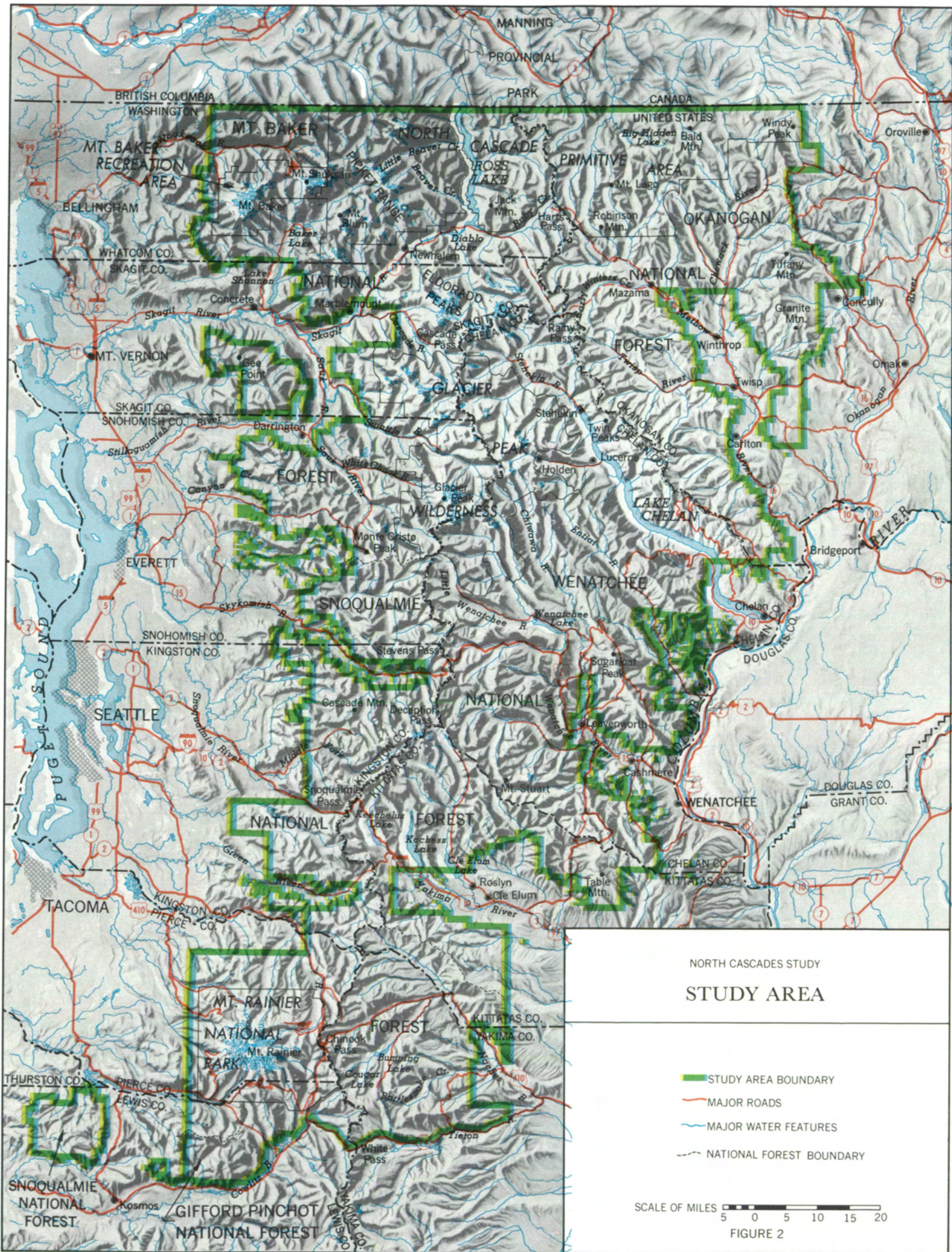


Figure 3 Land area of the State of Washington, by major land classes, as of January 1, 1963

	Thousand acres	Percent
Forest land:		
Commercial	19,510	46
Non-commercial (1)	3,540	8
All forest land	23,050	54
Cropland	7,910	19
Pasture and range	9,079	21
Other land	2,655	6
Total land area	42,694	100

(1) Of this amount, 1,312,000 acres, or 37 percent is productive but reserved and the remainder is unproductive.

Source: Publications of the Forest Service, U.S. Department of Agriculture.



Mount Shuksan and its breathtaking neighbors in the Mount Baker National Forest are sometimes called the American Alps. See figure 2 map, page 20. (photo NPS 5307-135)

The National Forest ownership within the boundaries of the Study Area is quite solid except for a portion lying between Township 19 north and Township 28 north, or roughly from about Government Meadow and Naches Pass north to Wenatchee Lake.

The 6.3 million acres of Federal land is roughly 4 percent National Park, 20 percent Wilderness and Primitive areas, 64 percent principal and upper forest associations, and 12 percent alpine (fig. 7).

The portion of the North Cascades in the Study Area defies description. Here occurs the most breathtakingly beautiful and spectacular mountain scenery in the 48 contiguous States. From Glacier Peak northward, particularly the Eldorado Peaks complex, the Picket Range and Mount Shuksan, are what have been termed the American Alps. Here is scenic grandeur that unquestionably belongs in our national gallery of natural beauty.

Figure 4 Relation of the land and water area of the North Cascades Study Area to State of Washington, by Federal and non-Federal ownership.

Area	State of Washington	North Cascades Study Area	Study Area as portion of Washington State
	Thousand acres	Thousand acres	Percent
Water area	949	33	3
Land area:			
Federal ownership	12,529	6,309	50
Other public and private ownership	30,165	729	2
All land area	42,694	7,038	16
Total water and land area	43,643	7,071	16

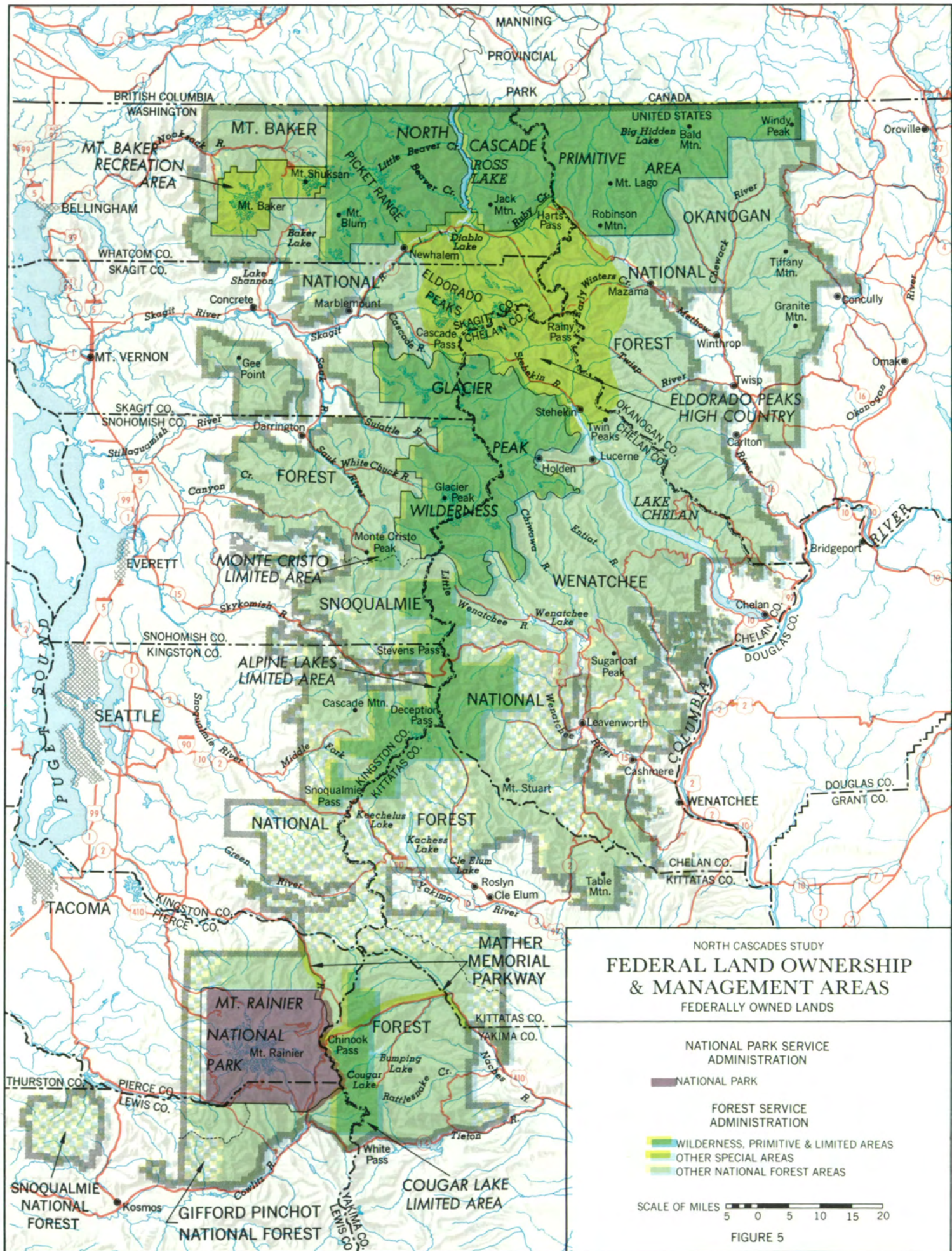
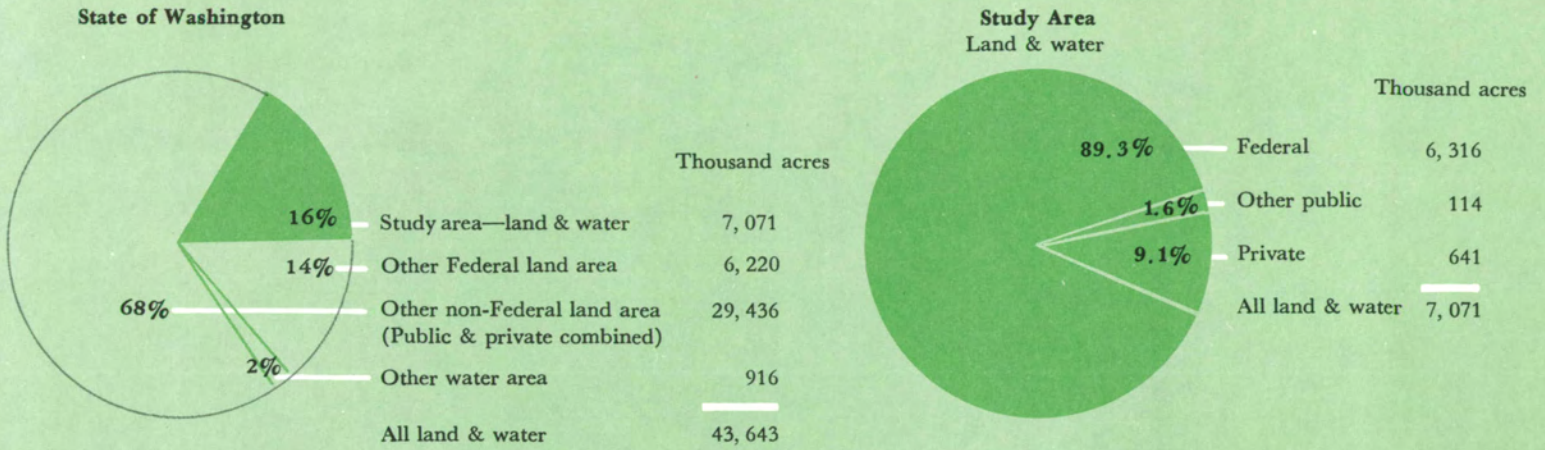


Figure 6 Gross area within the exterior boundary of the North Cascades Study Area, by land and water areas, by ownership classes.



	Land area (1)		Water area (2)		Total area	
	Thousand acres	Percent	Thousand acres	Percent	Thousand acres	Percent
Federal:						
National Forest	6,067.8	86.2	6.9	21.1	6,074.7	85.9
National Park	241.6	3.4	.2	.6	241.8	3.4
Other Federal	0	0	0	0	0	0
Total	6,309.4	89.6	7.1	21.7	6,316.5	89.3
Other public:						
State	37.3	.5	24.7	75.3	62.0	.9
County	.2	(3)	0	0	.2	(3)
Municipal	51.6	.7	0	0	51.6	.7
Total	89.1	1.3	24.7	75.3	113.8	1.6
All public	6,398.5	90.9	31.8	97.0	6,430.3	90.9
Private	639.7	9.1	1.0	3.0	640.7	9.1
All ownerships	7,038.2	100.0	32.8	100.0	7,071.0	100.0

(1) Including bodies of water under 25 acres in size.
 (2) Bodies of water 25 acres or larger.
 (3) Less than 0.05 percent.



The North Cascades are so inaccessible that few people are aware of their character. A combination of foot or horseback travel and air travel in a helicopter or small low-flying plane is needed to appreciate and understand remote areas such as Teebone Ridge west of the Eldorado Peaks. See figure 2 map, page 20. (photo NPS 4214-504)

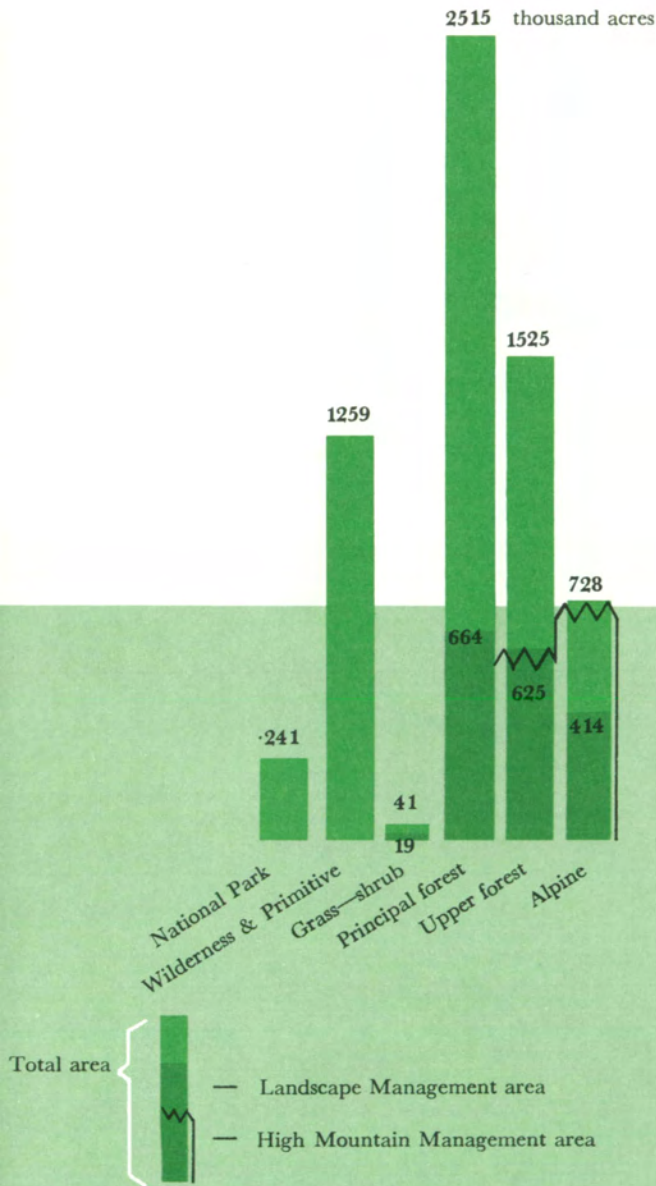


Figure 7 Federal lands in the North Cascades Study Area, by area in National Parks, by resource associations.

	Park, wilderness, and primitive areas, and management resource associations		Percent
	Thousand acres	Percent	
Mount Rainier National Park	241	4	
National Forest lands:			
Glacier Peak Wilderness Area	458	7	
North Cascade Primitive Area	801	13	
Other National Forest lands:			
Grass-shrub	41	(3)	1
Principal forest	2,515	40	52
Upper forest	1,525	24	32
Alpine	728	12	15
All resource associations	4,809	76	100
All Federal land areas	6,309	100	

(1) Portion of the resource association which is classified as Landscape Management Area.
 (2) Portion of the resource association which is classified as High Mountain Management Area.
 (3) Less than one percent.



Storms moving in from the Pacific precipitate heavy moisture on western slopes of the North Cascades Mountains, resulting in lush Douglas-fir stands such as this one on Sulphur Creek. Eastern slopes of the North Cascades are dry, covered with ponderosa pine, mixed conifers, and grass. (photo NPS 4214-661)



A total of 519 glaciers, including Boston Glacier in the Mount Baker National Forest, lie between Snoqualmie Pass and the Canadian border in the North Cascades. See figure 2 map, page 20. (photo NPS 5307-22)

Wilderness and Primitive areas, and other National Forest lands

Landscape Management Area		High Mountain Management Area	
Thousand acres	Percent (1)	Thousand acres	Percent (2)
19	46		
664	26		
625	41	625	41
414	57	728	100
<hr/>	<hr/>	<hr/>	<hr/>
1,722	36	1,353	28

Yet, relatively few people are aware of the character of these mountains because of their inaccessibility. Few roads transverse the area. Those that do, cut through the passes. The nature of the North Cascades can only be appreciated and understood by a combination of foot or horseback travel and air travel in a helicopter or a small low-flying plane.

The area is divided into two distinct climatic zones—a wet temperate western zone and dry continental eastern slopes. On the west side, and specifically in the valley bottoms, occur extremely heavy stands of high quality, old-growth Douglas-fir. On the eastern slopes, there are ponderosa pine, mixed conifers, and grasslands. On the mountain tops are spruce-fir timberline types, Alpine meadows, snow and ice fields, and barren rocks.

The mountain masses rise from sea level; 288 peaks have elevations between 7,000 and 9,000 feet. Sixteen rise above 9,000 feet.

There are 519 glaciers covering 97 square miles between Snoqualmie Pass and the Canadian border. This is about three times the glacier area in all of the rest of the United States excluding Alaska.

Generally, the annual precipitation on the west side of the Cascade summit is from 40 to over 100

inches per year. This comes largely in the form of rain at lower elevations, but much of it falls as snow at higher altitudes. Precipitation east of the summit varies from 12–15 inches per year to 40–50 inches near the summit. The average mean temperature is about the same for the east and west sides, but variation between high and low is pronounced. The east side is hotter during the summer months, colder during the winter.

Mount Rainier at 14,410 feet, Mount Baker at 10,778 and Glacier Peak at 10,541 are the three highest mountains in the Study Area, but only Glacier Peak lies in the main range of the Cascades. The Alpine Lakes area, north of Mount Rainier but south of Glacier Peak, is an unmatched concentration of glacial lakes. Lake Chelan is an impressive example of a lake-filled glacial canyon extending into the heart of the area from the east some 55 miles. The Eldorado Peaks, Boston Peak, Cascade Pass, Stehekin, Thunder and Granite Creeks areas are separated from the Mount Baker-Shuksan-Picket range area by the Skagit River Valley which runs southwestward from the impounded Diablo and Ross Lakes.

The numerous articles and picturesque descriptions of the area are available in both word and picture, such as Miller's photographic portfolio on the North Cascades, the National Geographic's report of March 1961, "Washington Wilderness—the North Cascades," and a motion picture by the Sierra Club, "The Wilderness Alps of the Stehekin," and a new

book by Harvey Manning, "The Wild Cascades: Forgotten Parkland."

HISTORICAL HIGHLIGHTS

The first white men who traveled into the North Cascades wilderness more than 1½ centuries ago were undoubtedly trappers and hunters. They found, in addition to a great variety of furbearers and game animals, a land of alpine scenery, snow-capped peaks, cascading streams, and western foothills covered with dense softwood forests.

Gold and other metallic ores were discovered sometime prior to 1850. Prospectors and fortune-seekers were immediately attracted to the region. Scattered small-scale mining operations sprang into being.

Through the years, with the advent of large commercial mining operations, the extraction of gold, silver, copper, lead, mercury, iron, chromium, and other minerals played a significant role in the economy of several communities. But today mining activities are relatively unimportant in the area.

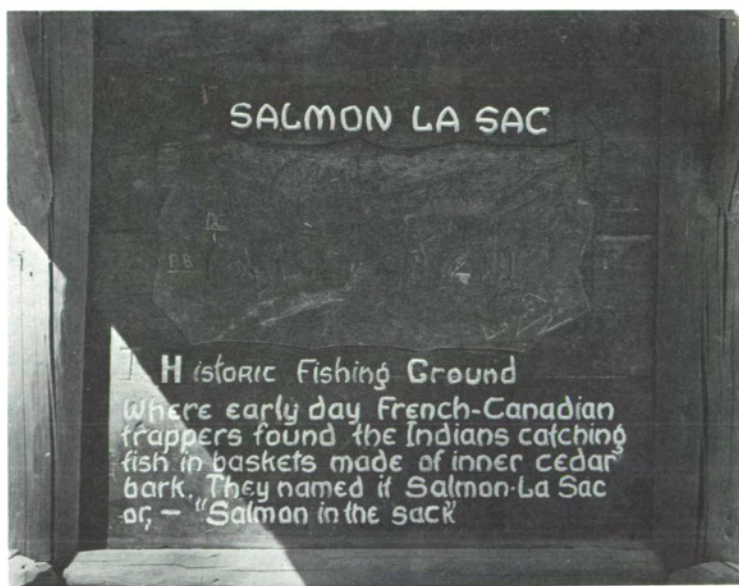
The harvest of timber from the dense forests of the Cascades region also began around the mid-1800's. However, it was not until decades later that large-scale commercial logging became important.

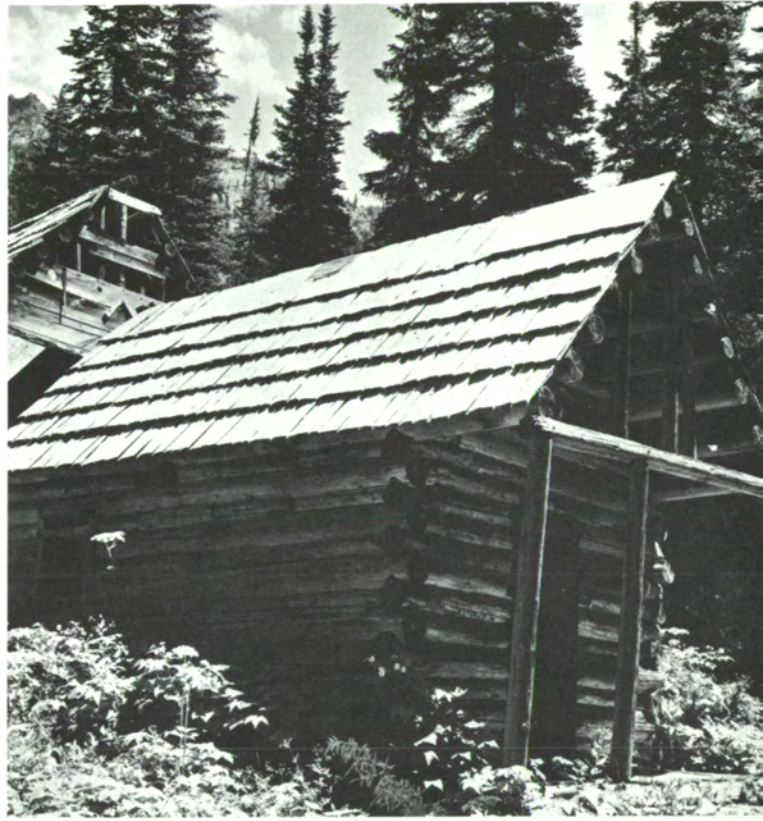
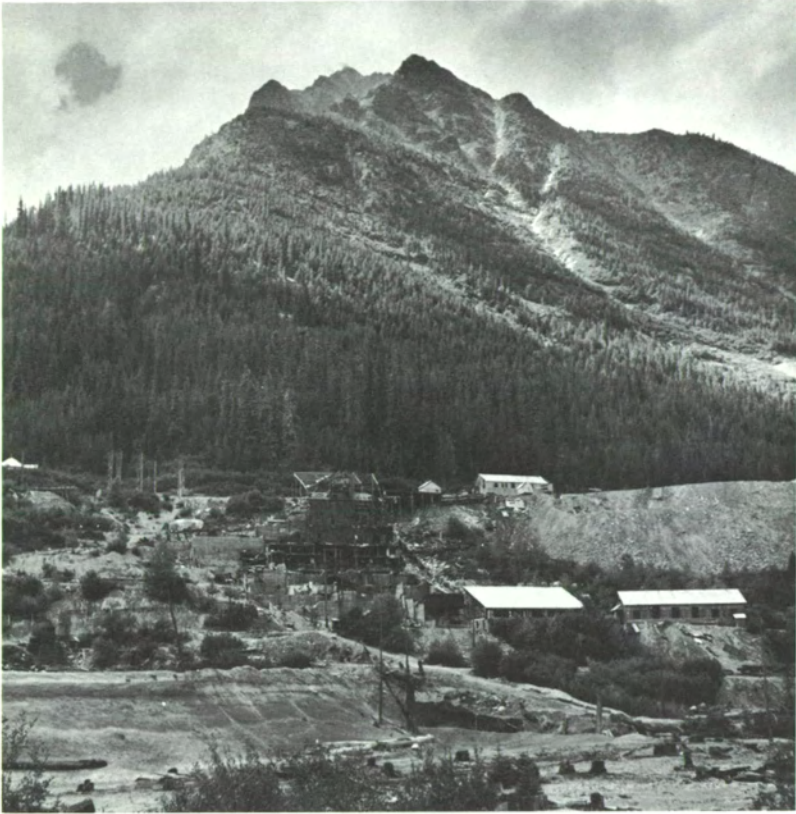
An abundance of high quality water, stemming in part from melting snowfields and glaciers, is another valuable resource of the North Cascades region. The use of the water for hydroelectric power generation in the Study Area began with the establishment of the Gorge Power Plant on the Skagit River in 1924. Since then, some 20 water resource development projects have been built, including those associated with Lake Chelan, Ross, Diablo, and Bumping Lakes.

The Federal lands in the Study Area originally became part of the public domain in 1846 when the United States established title to the Oregon Territory. They remained in that status until the Pacific Forest Reserve was carved out of the lower portion of the North Cascade Mountains in 1893 and the Washington Forest Reserve was created in 1897 in the northern portion of the North Cascades.

The act of March 3, 1891, under which the President established these Forest Reserves, did not provide for their management. The Forest Reserves were mainly closed areas until the middle of 1897 when Congress, by act of June 4, provided for the improvement and protection of the forest within the

Early day fishing history in the North Cascades. (photo NPS 4214-361)

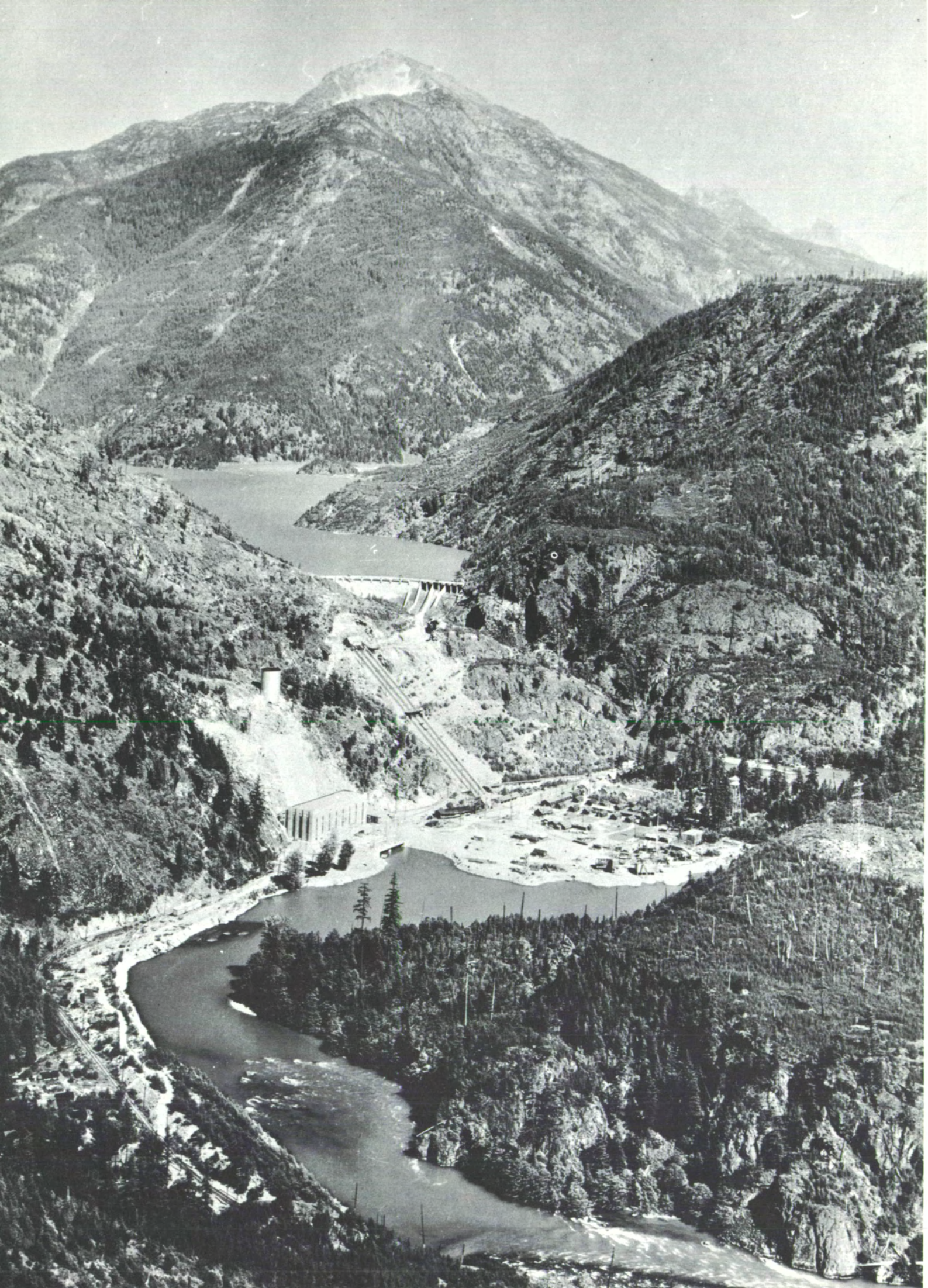




1. Mining once flourished in several North Cascades areas. Buildings at the Holden Mine in the Railroad Creek drainage now are used for a Lutheran Church retreat. (photo NPS 4214-207)

2. Abandoned cabin on mining claim at road head along Cle Elum River. (photo NPS 4214-375)

3. Loggers in the Snoqualmie National Forest using a wood-burning donkey engine in 1911. (photo FS 95426)



reservation and their establishment to secure "favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States." The Forest Reserves were under the jurisdiction of the General Land Office of the Department of the Interior until 1905, when their administration was transferred to the Department of Agriculture.

In 1897, the Pacific Forest Reserve was enlarged and renamed the Mount Rainier Forest Reserve. It was from a part of this Reserve that Mount Rainier National Park was created in 1899. The remainder of the Mount Rainier Forest Reserve and the Washington Forest Reserve to the north eventually became, after numerous boundary and name changes, the five National Forests or parts thereof which comprise the North Cascades Study Area. The five National Forests are the Mount Baker, Snoqualmie, Wenatchee, Okanogan, and Gifford Pinchot.

The 65 years following the establishment of the Mount Rainier National Park was a period during which there were many proposals by public and private groups for additional National Parks and other management suggestions for the North Cascades area.

The first area to be suggested for National Park status was the Lake Chelan region, proposed by the Mazamas club in 1906. The Mount Baker area was suggested for similar status in 1908.

Such suggestions, however, did not find congressional sponsorship until early in 1916, when three separate bills were introduced to create a Mount Baker National Park. Nothing happened to them until the following year, when only the House bill was reported by the House Committee on Public Lands, after which it died. Six similar bills were introduced during the next three years, but none received congressional action.

The creation of a Yakima National Park was the subject of three separate bills introduced during the years 1919 through 1921. These also received no congressional action.

Despite the lack of action by Congress, interest among certain public and private agencies to create additional National Parks in the North Cascades area continued to run high. Trail clubs, civic, and other outdoor conservation groups continued to press their cause. As a result, during the past three decades a number of studies of the recreation potential of the area have been made by public and conservation groups. A 1937 study by the National Park Service recommending a National Park is often quoted.

All the while, increasing attention was being directed to recreation in the administration of the National Forests. These comprise 96 percent of the Federal land and water acreage of the Study Area. The management goal with respect to recreation was



2

1. Diablo Dam on the Skagit River. Water for hydroelectric power generation is a major North Cascades resource. See figure 27 map, page 72. (photo FS 470716)
2. Recreation began assuming increased importance in National Forests of the North Cascades in the 1920's and 1930's. In 1935 visitors often drove to the upper end of the Mount Baker Highway, shown here. See figure 17, page 49. (photo FS 364048)

to provide facilities and services adequate to meet rising demands of hunters, fishermen, campers, mountain climbers, winter sports enthusiasts, wilderness lovers, and other recreationists visiting the area.

In the Mount Baker area, recreation development began in 1923 with the construction of a road from the town of Shuksan to the Austin Pass—Heather Meadows area. A management plan was prepared calling for recreation development of the area along broad lines. These events, combined with completion of the construction of the Mount Baker Lodge, encouraged the designation in 1926 of 75,000 acres in the Mount Baker Park Division in the Mount Baker National Forest. This division is commonly referred to as the Mount Baker Recreation Area. Although recreation was a key management objective, other uses of the area were permitted to continue.

Recreation plans for all National Forests in the North Cascades area were completed between 1925 and 1933. In 1931, a 234,000 acre area around Glacier Peak was established as the Glacier Peak-Cascade Recreation Unit.

In the meantime, Department of Agriculture regulations were issued in 1929 providing for a system of Primitive areas without roads and little other development. The first Primitive area within the Study Area was the Whatcom Primitive Area established in 1931. It comprised 173,000 acres adjacent to the Mount Baker Recreation Area.

In 1935, all of this area and the area to the east, including the summit of the Cascade Range and the more rolling mountain country of the Okanogan National Forest, comprising about 800,000 acres, were established as the North Cascade Primitive Area.

Considerable progress in establishing recreation areas and facilities was made under the Civilian Conservation Corps program which was activated in 1933 and discontinued in 1940. That year, also, the Glacier Peak Limited Area of about 350,000 acres was set aside for study regarding its future management.

World War II materially slowed recreation development work in the area. Afterwards, at a time when road building was again beginning to move ahead rapidly under emergency work programs, three "limited areas"—Alpine Lakes, Cougar Lake, and Monte Cristo Peaks—were administratively defined in 1946.

Areas which had recognizable wilderness values were identified by regional foresters as limited areas, on a "stop, look, and listen" basis, until they could be studied in more detail to determine the form of management to be applied under the multiple use concept. The "limited" designation precluded road building and

other modifying resource management practices in the areas until need could be substantiated by thorough study. Limited areas were not established on the basis of careful study; but on the basis of recognition of the need for study. Since they were not authorized by specific regulations, they did not have the same status as formally classified areas, such as Wilderness and Primitive areas.

During the 1950's there was a revival of a variety of proposals for National Parks or Monuments in the Study Area by various civic groups, outdoor clubs, and conservation agencies. One such proposal called for establishing the Mount Baker Recreation Area as a National Monument; another was to establish a Wapatus Lake National Park; still another, a Lake Chelan-Glacier Peak National Park.

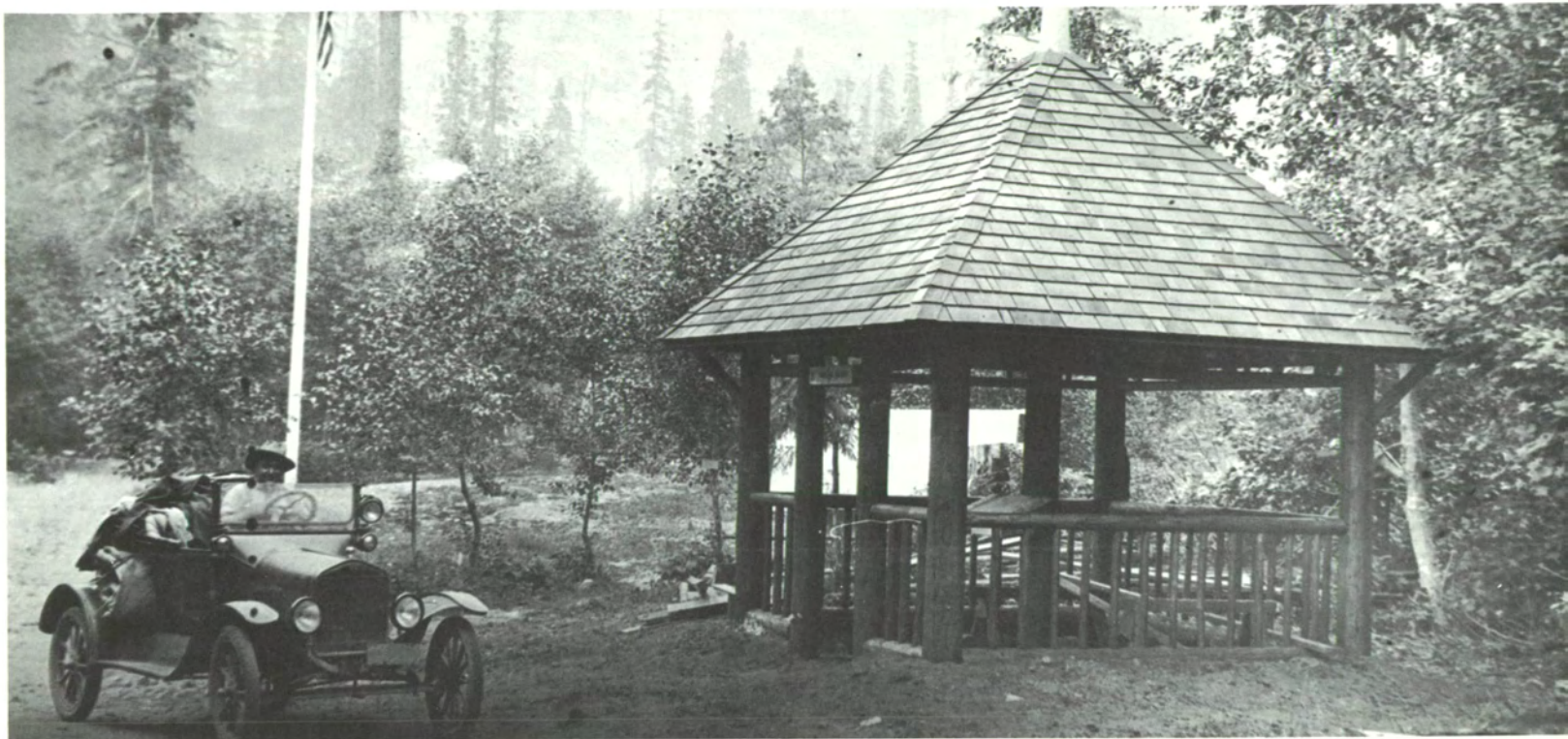
During that decade, also, both the National Park Service and the Forest Service launched long-range programs to develop, expand, and improve the recreation resources of the lands under their respective jurisdictions. These were known as "Mission 66" and "Operation Outdoors."

Additional emphasis on recreation resources in the Study Area came early in the sixties with establishment of the Glacier Peak Wilderness Area and the designation by the Secretary of Agriculture of the Cascade Pass-Ruby Creek area to be managed "primarily for preservation of scenic values and to open up and develop it for the use and enjoyment of the large numbers of people who desire other kinds of outdoor recreation and those who are unable to engage in wilderness travel." This action by the Secretary of Agriculture was the basis for the Forest Service decision during the course of the Study Team's deliberations to propose and publicize the "Eldorado Peaks High Country."

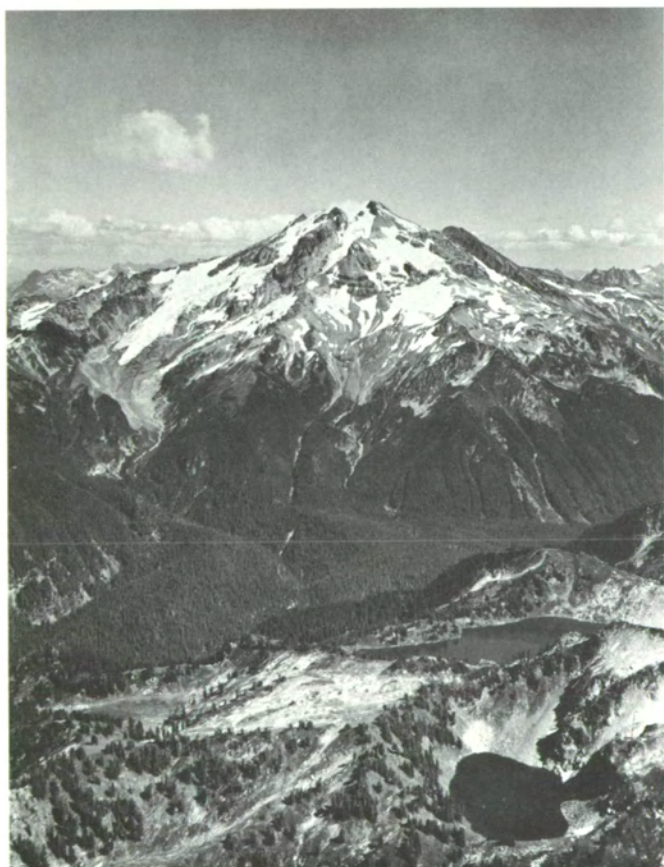
The Multiple Use-Sustained Yield Act of 1960 specifically provided that outdoor recreation be among purposes for which the National Forests shall be administered and singled out Wilderness Areas as being consistent with such purposes.

Large-scale timber cutting on Federal lands in the Study Area first occurred in the 1920's. Transporting of logs was changed from railroads to truck roads during the 1930's. As the rate of timber harvesting increased, there was a companion development of timber access roads. These roads provided better access by car to many parts of the Study Area which hitherto had been inaccessible. But timber access roads for the most part have limited recreational value.

The harvesting of old-growth Douglas-fir particularly in the valley bottoms and corridors on the



1



2



3

1. Registry booth at the Denny Creek Campground, Snoqualmie National Forest, 1918. (photo FS 40134A)
2. In 1931, some 234,000 acres were designated as the Glacier Peak-Cascade Recreation Unit. Later, in 1960, the Glacier Peak Wilderness Area was established. In this picture, Camp Lake, Lake Byrne and White Chuck River are in the foreground, Glacier Peak beyond. See figure 5, page 22. (photo NPS 5307-86)
3. The first Primitive area in the North Cascades, the Whatcom, was designated in 1931. Later its 173,000 acres became part of the North Cascade Primitive Area. The view here is from over Ross Lake westward across the Whatcom area. See figure 5, page 22. (photo FS 64-420)



Unique among major wilderness, forest, and park areas, the North Cascades lie in close proximity to major urban and industrial centers. Citizens of Tacoma, Seattle, and other cities can see North Cascades peaks on clear days, can reach favored vacation spots after short drives. See figure 8 map, page 33 (photos: Tacoma Chamber of Commerce, City of Seattle).



west side where the large values and volumes per acre occur, gave rise to a number of complaints. The silvicultural system used was mainly clear cutting in blocks, usually at least 20 acres in size, but more often much larger. Such cutting inevitably leaves unsightly scars for a number of years.

As the old-growth timber on private lands adjoining the western boundary of the National Forests became increasingly cut over, the dependence of the timber industry on National Forests greatly increased. Thus, in the span of 30 years, the sustained yield potential of National Forest timber from the western slopes of the North Cascades became a major factor in the forest products industry in the State.

In the 14-year period from 1950-63, some 332,000 acres of National Forest timberland in the Study Area were cut. About 90,000 acres were clear cut. The Forest Service estimates that at recent rates of cutting, about 43,000 acres are in a nonstocked condition because of the time required to abate slash, remove excess logs, and obtain regeneration. This figure is slightly in excess of the average cut-over in a year.

Notwithstanding the recent impetus given to recreation in the management of the National Forests generally and the Study Area in particular, bills were introduced in 1960 and 1961, 86th and 87th Congresses, to provide for a study of the advisability of establishing a National Park or other unit of the National Park System in the North Cascades area. Congress took no action on these bills.

The sum total of recent events prompted the Secretary of the Interior and the Secretary of Agriculture early in 1963 to establish the North Cascades Study Team in the manner and for the purposes previously described.

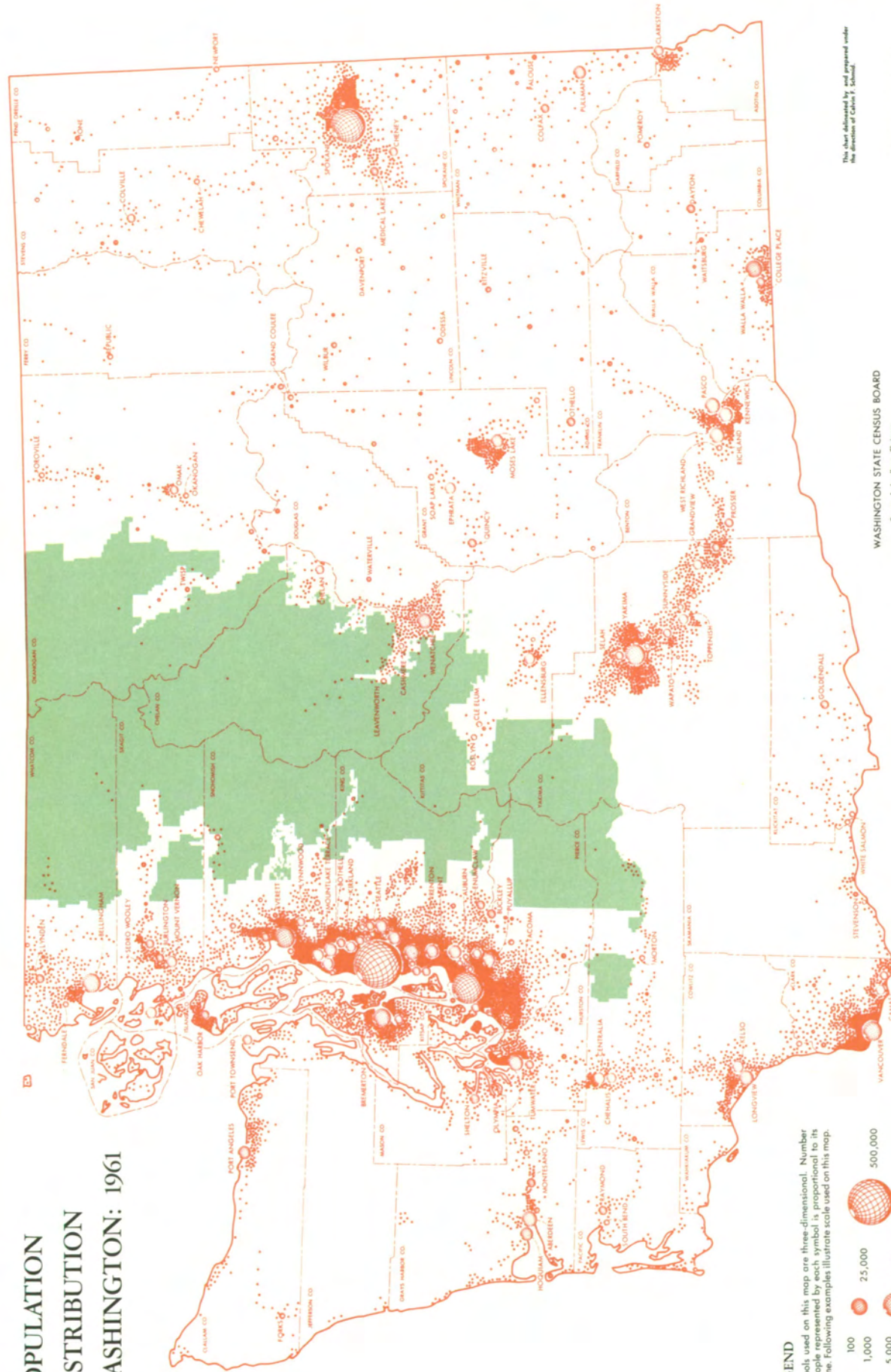
POPULATION AND EMPLOYMENT

The Study Area includes significant portions of ten counties and is in close proximity to the major metropolitan areas of Washington State (fig. 8).

The counties in which the Study Area lies are Okanogan, Chelan, Kittitas, Yakima, Whatcom, Skagit, Snohomish, King, Pierce, Lewis, and a tiny portion of Thurston. The 11 counties include two-thirds of the State's population. However, very few people live permanently within the Study Area itself because of its mountainous wild character and because less than 10 percent of the lands are privately owned.

The occurrence of such a large area of unique, wilderness, forested, and park lands in close juxtaposi-

POPULATION DISTRIBUTION WASHINGTON: 1961



LEGEND

Symbols used on this map are three-dimensional. Number of people represented by each symbol is proportional to its volume. Following examples illustrate scale used on this map.

- 100
- 1,000
- 5,000
- 10,000
- 25,000
- 500,000
- 100,000

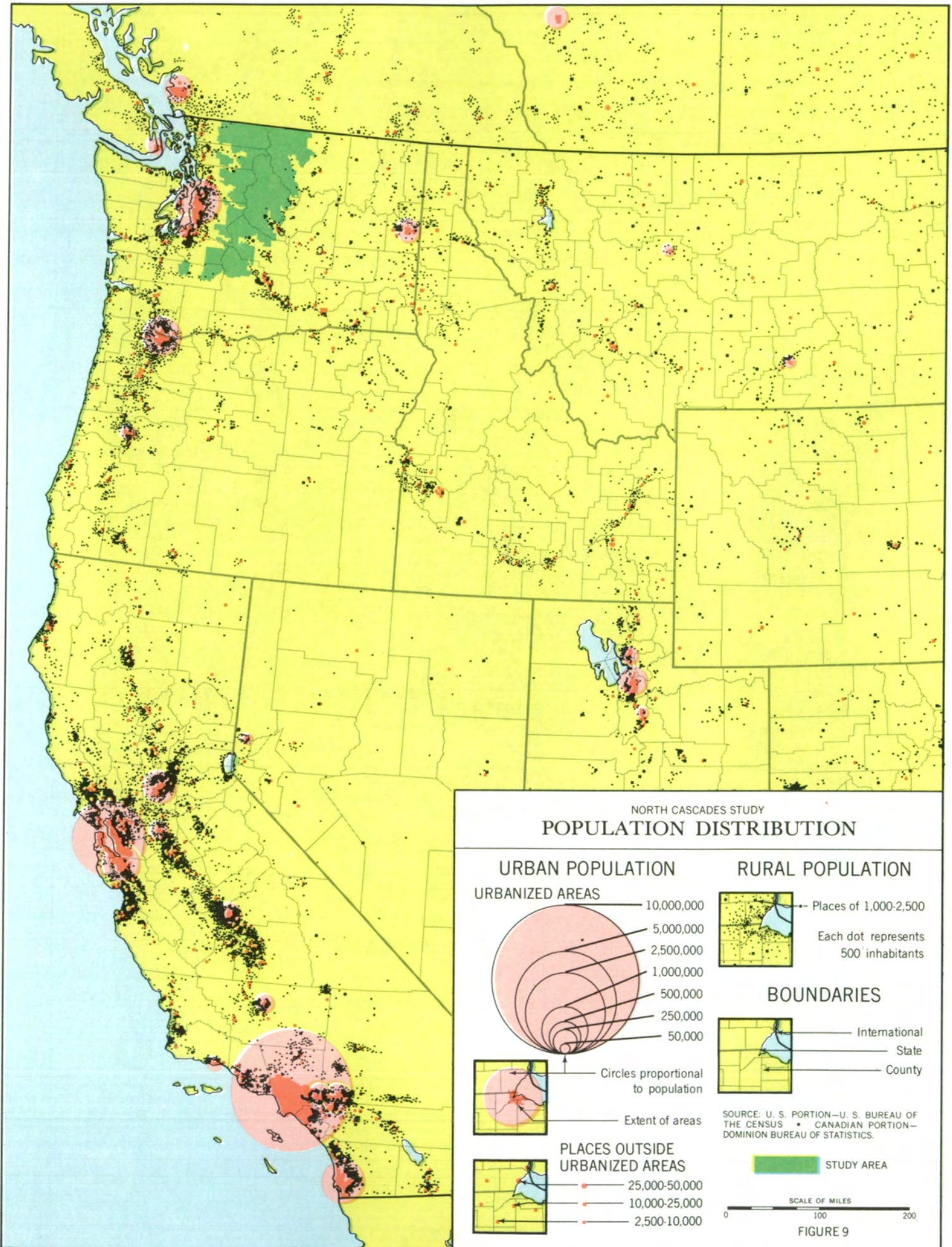
STUDY AREA

This chart delineated by and prepared under the direction of Calvin F. Schmidt.

WASHINGTON STATE CENSUS BOARD
George A. Lundberg, Chairman
Richard Taylor
Calvin F. Schmidt, Executive Secretary

Published by Washington State Census Board, 1000 Fourth Street, University of Washington, Seattle 5, July 15, 1961.

FIGURE 8



tion with major urban and industrial centers occurs nowhere else in the United States. The waters of Puget Sound and the Olympic Peninsula offer additional recreation attractions.

The bordering megalopolis within the 11-county area stretching from Olympia, the State capital, north along Puget Sound to Canada and including such cities and surrounding metropolitan areas as Tacoma, Seattle, Everett, and Bellingham, is a center of manufacturing, trade, government, service industries, education, and all the associated activities of a very large urban area. Just over the line in British Columbia are Vancouver and Victoria. East of the Study Area lie Yakima, Wenatchee, and other smaller population centers largely dependent on agriculture and trade.

The proximity of the Study Area to large numbers of people indicates the Study Area's present and potential values for recreation use.

POPULATION

Not only is the Study Area in close proximity to population concentrations in Puget Sound and British Columbia, it is also within reasonable driving distance of the

population centers of Oregon and California (fig. 9). In the three West Coast States, plus British Columbia, there were about 21.6 million residents in 1960. Although this represents a great increase during the past two decades, it is estimated that by 2000 the population for the same area may be about 50 million persons or an increase of roughly 150 percent (fig. 10).

Within the 11-county area and the metropolitan centers of British Columbia, all of which are within a half day's drive or less from some portion of the Study Area, there are now about 3½ million people; by 2000, this figure may rise to 8.6 million.

The conclusion to be drawn from the presence of the large numbers of people living in the immediate vicinity of the Study Area and the very much larger population in the Pacific Coast States is that there is now, and will be in the future, a great need for utilization of the resources the Study Area offers, especially its recreation possibilities and advantages.

EMPLOYMENT

In the 11 counties of the Study Area, 695,000 persons were employed in 1961. Twenty-two percent of the

Figure 10 Population of the United States, three-State area, Washington, British Columbia, and eleven-county North Cascades Area, and gross national product for the United States, 1940 and 1960, and projection for 2000.

	Actual		Projection for 2000	Percent increase between 1960/2000
	1940	1960		
Population in millions:				
United States	132.0	179.0	350.0	96
3-State area (1)	10.0	20.0	51.0	155
Washington	1.7	2.9	6.2	114
British Columbia	0.8	1.6	4.0	150
11-county area (2)	1.1	1.9	4.6	142
Gross national product in billion \$: (3)				
United States	234	503	3,000	496

(1) California, Oregon, and Washington.

(2) Chelan, King, Kittitas, Lewis, Okanogan, Pierce, Skagit, Snohomish, Thurston, Whatcom, and Yakima.

(3) In terms of 1960 dollars.

total employment was in manufacturing and one-half of this was in aircraft and other transportation equipment. The other major employment items were trade, government, self-employed, and service industries (fig. 11).

Timber-based industries accounted for four percent of the employment in the 11-county area. This included the manufacture of lumber, paper, furniture, wood, and allied products. Employment dependent on agriculture was 6.7 percent. Mining represented 0.1 percent. Thus, it is apparent in terms of directly dependent employment that neither the timber-based industry nor the mining industry accounted for a very significant portion of the area's total. This is true despite the fact that timber-based manufacturing in the 11-county area represented one-half of the State's total of this activity.

In the 12-year period from 1950-62, employment dependency on the timber industries in the area declined 17 percent. Dependency on mining declined 47 percent; in agriculture, the trend was downward 20 percent. Within the timber industries themselves, there was a 57 percent increase in the paper and allied products sector, but a 25 percent decrease in the lum-

ber and wood products sector. Employment in manufacture of transportation equipment rose about 250 percent in this period and is currently more than double any other manufacturing activity.

The conclusion with respect to employment dependency and trends is that in terms of total population of the 11-county area, the raw materials of timber and minerals that come from the Study Area itself do not in turn support a very large segment of the total population of the 11-county area.

NATURAL RESOURCES

The following summary of the major natural resources in the area describes the more salient characteristics and assesses their significance. This is needed to develop a background for recommendations, relate resources to each other, and bring various issues into focus.

The order in which the resources are discussed is not indicative of their relative importance.

Attention is called at the beginning of this discussion to the statements by the Forest Service and the National Park Service that appear as Appendices

Figure 11 Employment in the North Cascades Area, annual average, 1961.

	North Cascades Area (1)		North Cascades as portion of total employment in State of Washington
	Thousand	Percent	
Manufacturing:			
Transportation equipment	74.8	10.8	99
Timber based industries	29.4	4.2	50
Food and kindred products	18.2	2.6	74
Other manufacturing	33.1	4.8	61
All manufacturing	155.5	22.4	72
Trade, wholesale, and retail	126.1	18.1	71
Government, Federal, State, and local	103.2	14.9	61
Self-employed and domestics	88.2	12.7	68
Service	72.0	10.4	71
Agriculture	46.5	6.7	61
Transportation, communications, and utilities	42.1	6.1	69
Mining	0.9	0.1	50
All other	60.4	8.6	68
Total employment	694.9	100.0	68

(1) Includes Chelan, King, Kittitas, Lewis, Okanogan, Pierce, Skagit, Snohomish, Thurston, Whatcom, and Yakima counties.



B and C. The views of each of these agencies are recorded in these statements without alteration by the study team. Attention also is called to the "high mountain policy statement" of the Forest Service, and also to its Multiple Use-Sustained Yield Act. Both of these key items are discussed under the section on timber resources, but they could equally well have been handled under recreation or water. This underscores the interrelationship and interdependence of all resources of the Study Area.

TIMBER RESOURCES

Forest Description

Of the 6.3 million acres of Federal lands in the Study Area, 2.9 million acres are classed by the Forest Service as timberland that is suitable and available for commercial timber management. The land classification is:

Commercial forest land (both available and reserved)-----	3.2 million acres
Noncommercial forest land and non-forest land-----	3.1 million acres
Total land area-----	6.3 million acres

Of the commercial timberland, 3.2 million acres, it is significant that 250,000 acres containing 7.8 billion board feet are in Wilderness, Primitive, or other reserved National Forest categories. An additional 106,000 acres containing 3.4 billion board feet is within Mount Rainier National Park.

These administrative reservations reduce the available commercial timberland to 2.9 million acres and 65.5 billion board feet of sawtimber. In other words, of the total potential, 11 percent of the acres and 15 percent of the feasible sawtimber volume is reserved from commercial timber utilization for scenic and recreation purposes (fig. 12).

Of the available commercial timberland, two-thirds of the area and three-fourths of the volume is in an "associated species" type. Eleven percent of the area and 17 percent of the volume is the Douglas-fir type. The balance is in ponderosa and lodgepole pine types (fig. 13).

The Cascade Divide separates the Study Area into two basic timber zones—a Douglas-fir region on the west and ponderosa pine on the east. The lower and mid-elevations on the western side are among the world's most productive timber areas, both in quantity and quality.

The valley bottoms in the Douglas-fir region on the west side support coniferous stands of great volume and value. These average 55,000 to 65,000 board feet per acre, which is five to six times the average for all National Forests in the country. Some stands run much higher. The average of old-growth Douglas-fir volume in the entire Study Area is about 37,000 board feet per acre.

Quality is superior, but it is a disappearing characteristic of natural stands. It will not be replaced in new stands because future managed crops will be harvested at younger ages.

Almost half the National Forest allowable annual cut of sawtimber in Washington, or 6 percent of the National Forest total for the country, is within the Study Area. Figure 14 illustrates the relationship of timber area, volume and timber products production in the Study Area to the State of Washington, and to the United States.

The location of National Forest land—commercial and noncommercial—in relation to whether it is available or reserved from utilization is shown on figure 15.

Most of the land in the commercially available category is in the southern half and along the eastern side of the Study Area. The areas on the west side and north side of Stevens Pass are smaller and



Lumber mill yard in Darrington, Washington. About 4 percent of the 695,000 people employed in the 11-county North Cascades Study Area work in timber-based industries. (photo NPS 4214-660)

Figure 12 Forest land area and other land area in Federal ownership in the North Cascades Study Area, by commercial forest land area and sawtimber volume, and other land area, by area open or closed to commercial timber cutting.

	Commercial forest area				Noncommercial forest and non-forest areas		All areas	
	Area Thousand acres	Percent	Sawtimber volume Million bd. ft.	Percent	Thousand acres	Percent	Thousand acres	Percent
Area open to commercial timber cutting: (1)								
National Forests	2,858 (2)	89	65,462	85	1,585	51	4,443	70
Area closed to commercial timber cutting: (3)								
National Forests	250	8	7,797	10	1,375	45	1,625	26
Mount Rainier National Park	106	3	3,400	5	135	4	241	4
Total	356	11	11,197	15	1,510	49	1,866	30
All Federal land areas	3,214	100	76,659	100	3,095	100	6,309	100

(1) Referred to in the text as available commercial forest area.

(2) Of this area, approximately 272,000 acres or about 10 percent has been cutover during the 10-year period 1954 through 1963.

(3) Referred to in the text as reserved commercial forest area.

more scattered, but these bear prime old-growth commercial timber with good quality and are drawn on by a heavy concentration of sawmills.

Commercial Timber Values and Output

The Forest Service estimates the allowable annual cut from 65 billion board feet of available commercial

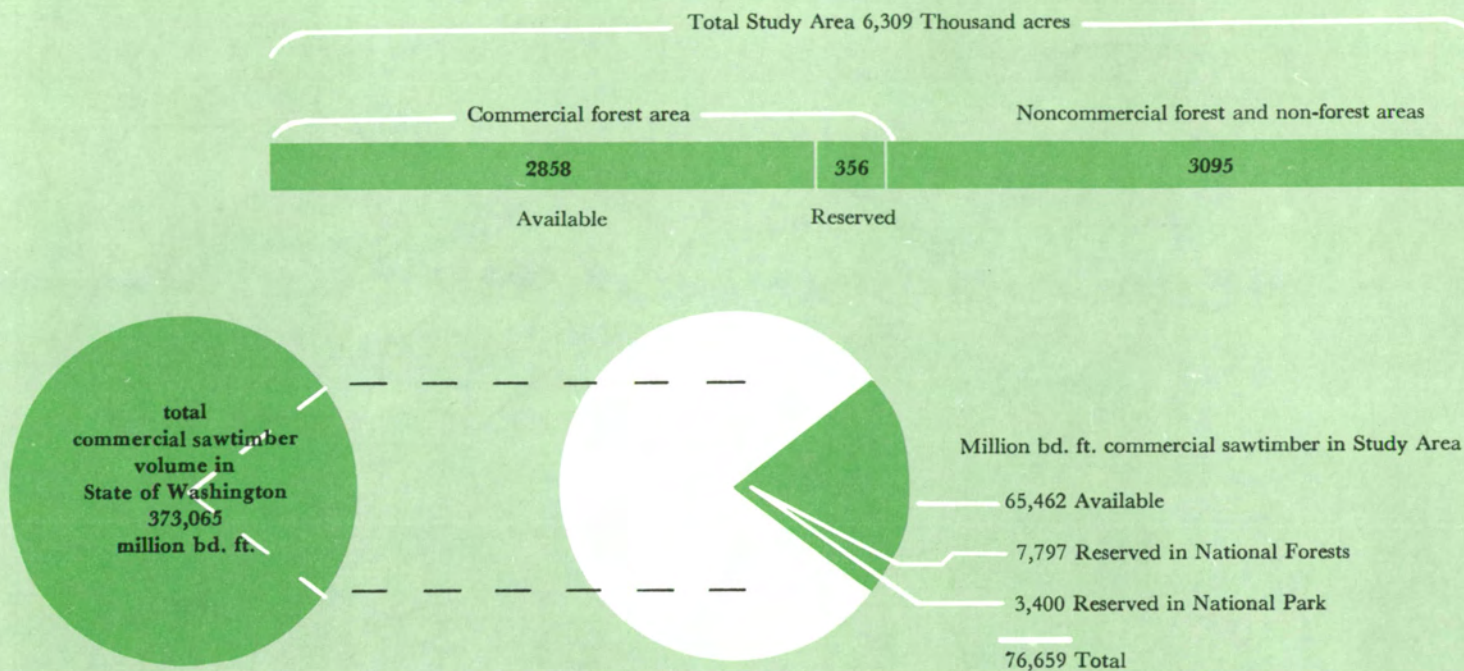
timber at about 605 million board feet, of which roughly 10 percent comes from areas such as roadside or waterfront zones where methods or rates of cutting are modified for esthetic reasons. The actual estimated cut has varied in the past 5 years from about 400 million to 600 million board feet annually.

In 1962, the stumpage value of the timber cut was about \$10 million. In addition, roads constructed

Figure 13 Acreage, sawtimber volume, and sawtimber stand per acre in the stocked portion of the commercial forest area of the North Cascades Study Area open to commercial timber cutting, by broad species groups.

Species group	Area		Sawtimber volume		Sawtimber stand per acre
	Thousand acres	Percent	Million bd. ft.	Percent	Thousand bd. ft.
Douglas-fir	297	11	10,826	17	37
Ponderosa pine	512	18	5,544	8	11
Associated species	1,848	65	48,809	75	26
Lodgepole pine	158	6	283	(1)	2
All species groups	2,815	100	65,462	100	23

(1) Less than 0.5 percent.



in harvesting timber were valued at \$6-7 million in that year. In other words, the equivalent of about two-thirds of the stumpage value of National Forest timber was allowed in the appraisals to cover the cost of building roads for the harvesting of timber.

In the same year the counties received about \$1.75 million as their share of National Forest receipts derived mainly from timber cut in the area.

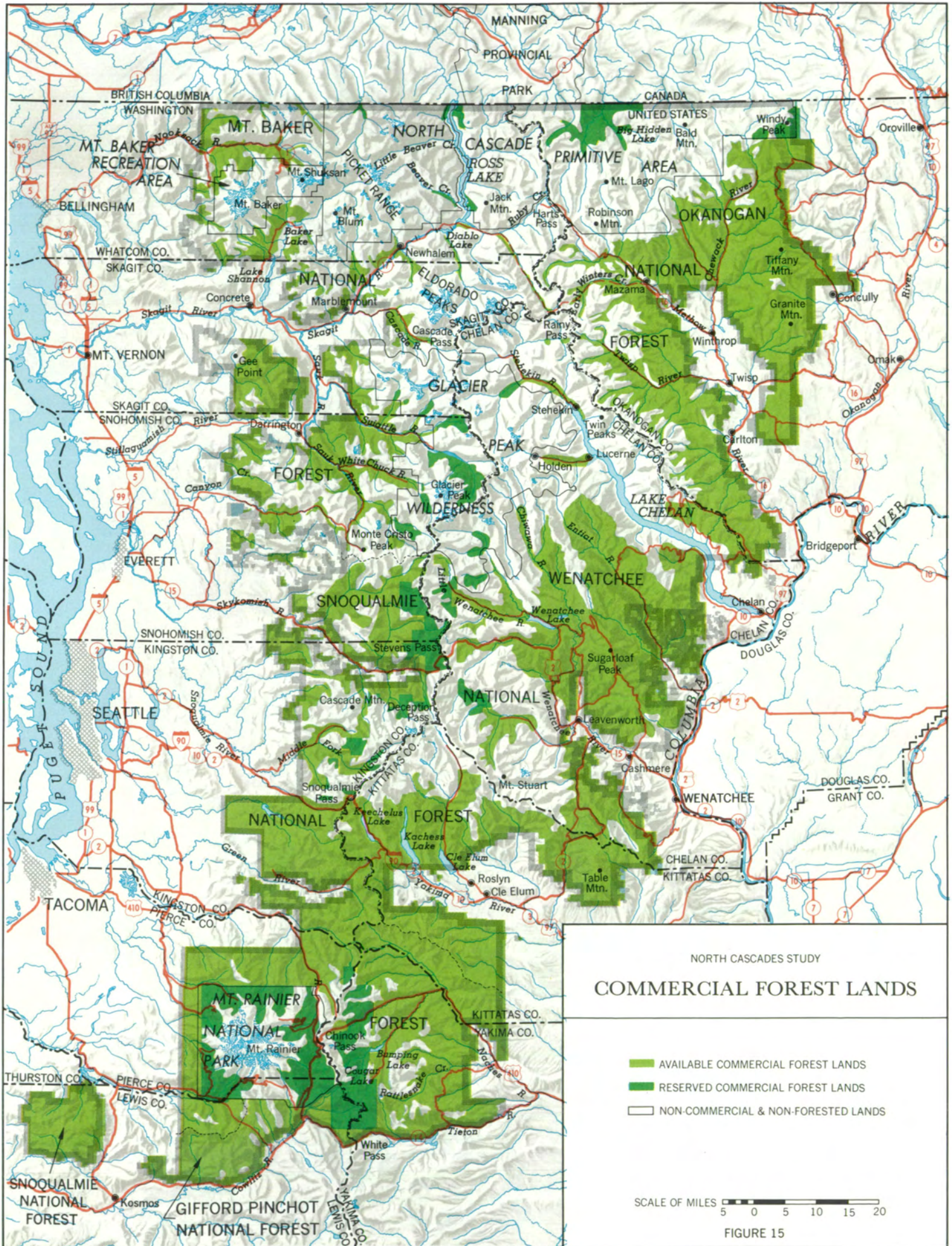
An estimated 5,400 people were employed in harvesting and processing National Forest timber in the Study Area in 1962. This figure climbed to 7,700 in 1964. The value of products ultimately manufactured from this timber is estimated at \$160 million or more per year.

The annual National Forest timber cut from the Study Area is about 11 percent of the State's total.

Figure 14 Relation of the timber resource in the North Cascades Study Area to the timber resource of the State of Washington and to the Nation in terms of available commercial forest area and sawtimber volume, allowable annual cut, and lumber, plywood, and pulp production or plant capacity.

	Study Area	Study Area as a percent of	
		State of Washington	United States
Available commercial forest area	2,858 Thousand acres	15	0.6
Available commercial sawtimber volume	65,462 Million bd. ft.	23	3.4
Allowable annual cut	605 Million bd. ft.	45(1)	6.0(1)
Lumber	Production or plant capacity (2)	52	6.0
Plywood		64	12.0
Pulp		32	3.0

(1) Relates to National Forest lands only. (2) In the whole of the 11-county area within which the Study Area is situated.



Corresponding employment is about 9 percent. Forest products industry ranks second to transportation and ahead of food and kindred products in the State.

The current rate of timber harvesting means that about 40,000 acres are cut annually. In 1964, there were 1,100 timber sales in operation on National Forest lands. These were divided as follows:

Size of sale	Number of sales
\$1-\$300 -----	385
\$301-\$2,000 -----	56
\$2,001 and over -----	659
Total	1,100

The first group represents small salvage, clean-up and sanitation sales, as well as a few poles for farmers. Much of the timber sold is dead or dying material. The second group is similar to the first, but a little larger in size. It is the third group, 659 sales, that represents the commercial sales to timber operators.

The Forest Service periodically is requested to suspend harvesting or declare a "moratorium" on timber sales in areas that various organizations or groups believe should be reserved from timber cutting for recreation or other reasons pending either Congressional or Secretarial resolution of an issue.

Questions as to management of the Study Area have been moot almost since the National Forests were originally created near the turn of the century. Broad scale suspension of timber management or other normal Forest Service activities pending so-called "final" resolution of policy issues by the Congress or the executive

branch would place the Forest Service in an impossible position. The study team therefore believes that normal activities should, for the most part, proceed while the policy problems are evaluated. Where delay or adjustment can be accomplished without major disrupting impact, consideration should be given to such action.

The Forest Service for the past several years has been requested by several parties to impose a logging moratorium on about 20 timber sale areas in the North Cascades, mostly in the vicinity of the Glacier Peak Wilderness Area and northward. These are nearly all small sales covering a total area of about 367 square miles (234,880 acres).

In response to these inquiries and in recognition of the study team's work, the Forest Service is on record as agreeing to no further new sales or building of new roads until fiscal year 1967 in 10 of the areas. These areas are Upper Little Wenatchee River and Phelps, Sulphur, Jordan, Thunder, Panther, Granite, Tomyhoi, Silesia, and Goodell Creeks. The latter is in the North Cascade Primitive Area and no timber harvesting is permitted. The first nine of these timber sale areas cover 112 square miles.

In the areas recommended in this report for Wilderness area classification, management of timber and all other resources should be carried on in the same way as though these areas were Primitive areas awaiting classification as Wilderness. This should be the practice until such areas either are classified as Wilderness, or until their classification as Wilderness has been proposed under the procedures of the Wilderness Act and Congress has not acted after a reasonable time.

In the area recommended for a North Cascades National Park, including the upper end of Lake Chelan, the Stehekin River drainage, and those parts of the present North Cascade Primitive Area and the Eldorado Peaks High Country which are included in the team proposal, timber harvest should be discontinued for a period of 5 years to provide time for congressional consideration and action on the recommendations. This prohibition would not apply to tree cutting necessary for road construction, placing of recreation improvements and facilities, maintenance of existing facilities or needed work in connection with the approved operations of Seattle City Light and Power.

Some Timber Policy Questions

The timber resources report prepared for the study team by the Forest Service concerned itself primarily with the factual situation and does not discuss some of



Timber harvest on parts of the Phelps Creek drainage on the east side of the Glacier Peak Wilderness Area is deferred by the Forest Service in response to requests and in recognition of the work of the North Cascades Study Team. (photo FS 64-374)



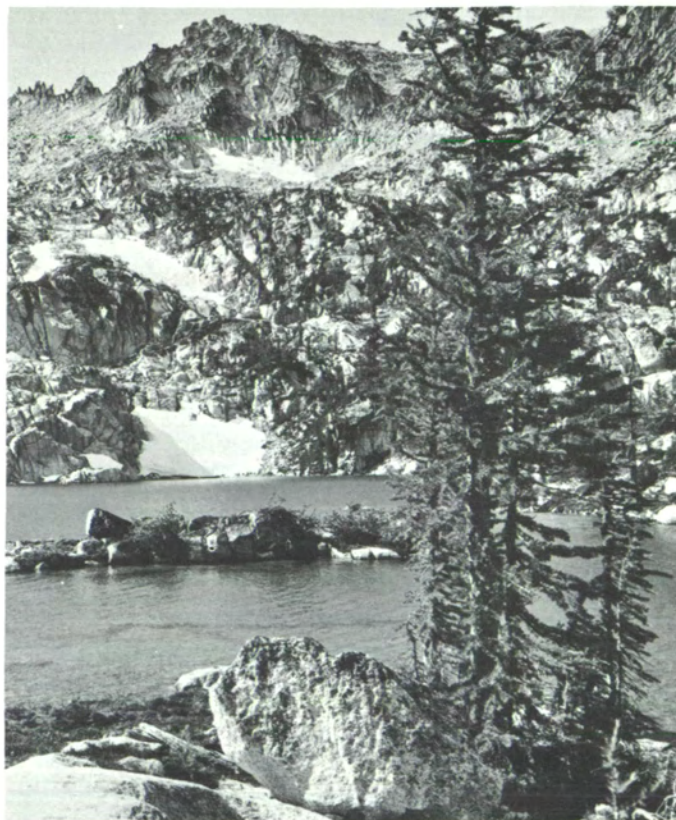
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Forest Service Multiple Use and High Mountain Management Policy:

- 1. land classed in grass-shrub. (photo FS 2200-3)
- 2. principal forest. (photo FS 2400-1-11)

3. upper forest. (photo FS 64-333)

4. Alpine. (photo FS 509104) resource management associations.

See figure 16, page 44.

the more basic policy questions involved in timber management. Some of the more basic policy questions involved in timber management include: future stand composition, clear-cut versus selective cutting, the size of clear-cut blocks, problems of reforestation including whether such areas should be planted and how long to wait for natural reforestation, the policy with respect to roadside or other protective scenic strips, timber quotas, the building of roads by operators by reducing the price of stumpage, substitution of allowable cuts for sustained yield as an objective of management, location of timber sales, and the rate at which old-growth timber should be cut.

Of the commercial forest land in the Study Area, the Forest Service estimates that 43,000 acres are non-stocked. For the remaining 95 percent of the area, information as to the degree of stocking is not available. About 63,000 acres have been planted or seeded, but there is no estimate as to the proportion of successful plantations. About 7,500 acres are planted or seeded annually.

The charge has been made that the Forest Service is overly oriented to timber sales, that its young pro-

professionals are primarily trained in timber sale work, that its program mainly is dependent on how much timber is harvested, and that Forest Service appropriations are geared too closely to the agency achieving its quota of timber cuts. The Forest Service is cognizant of these criticisms, and particularly since enactment of the Multiple Use-Sustained Yield Act, is achieving a better balance in resource management.

There are other individuals who feel that the Forest Service gives insufficient attention to watershed management, managing range conditions for wildlife and livestock, to the need for mineral development, and that it favors certain recreation uses over others more than it should.

The Forest Service response to this question of balance in resource management has been to consider the various points of view, and to exercise its best judgment within the limitations of law, appropriations, and public pressure.

High Mountain Policy

In April 1962, the Forest Service issued a statement "Management Objectives and Policies for the High Mountain Areas of the National Forests for the Pacific Northwest Region." This statement of objectives and policies was the result of a reexamination by the Forest Service of its future resource management goals, particularly for areas which were at that time undeveloped. The policy did not cover Wild, Wilderness, and Primitive areas because such areas were already administered under specific Secretarial regulations.

In general, this policy has been received favorably, but questions have been raised as to the aggressiveness and the completeness with which the Forest Service is applying it. Also, the policy probably is not fully understood by the general public.

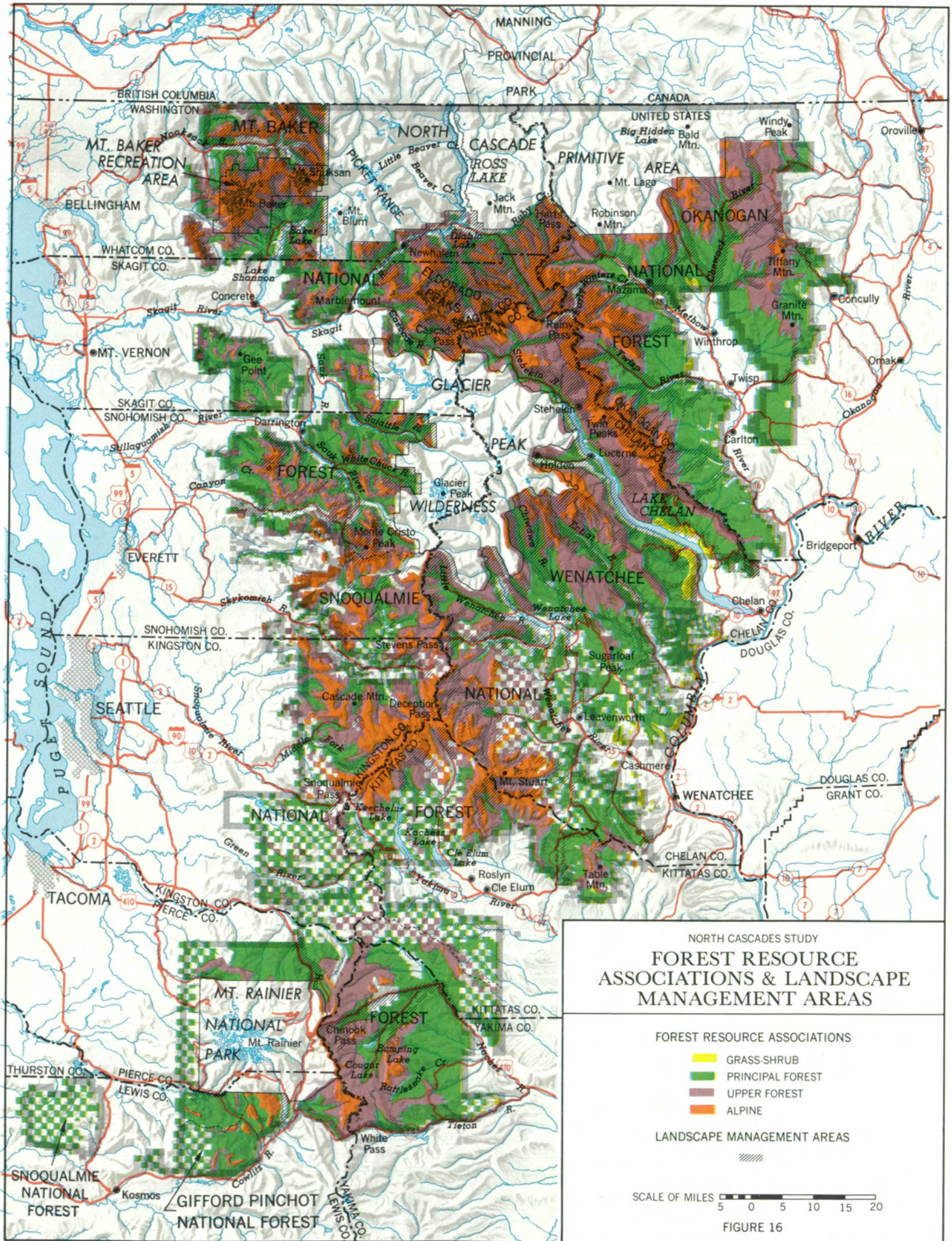
The policy statement adopts three kinds of classifications, with objectives for each. These classifications overlap to some degree. In the first classification, the National Forest lands are divided into four broad resource management associations: grass-shrub, principal forest, upper forest, and Alpine. Management objectives are spelled out for each.

The second classification is the designation of landscape management areas. These areas occur in each of the first group of associations. In the landscape management areas, all resources and activities are managed to maintain or enhance recreation values.

The "high mountain" area is the third type of classification. It includes all the Alpine resource as-



Landscape management area in the Forest Service's principal forest resource association. In these areas timber and other resources are managed to maintain or enhance recreation and scenic values. See figure 16, page 44. (photo FS 500731)



sociation and all the landscape management areas in the upper forest association. The management objectives of the high mountain areas are to keep soil in place, give primary consideration to watershed values, and enhance opportunities for recreation.

In summation, that National Forest land classed in the high mountain category, plus the land in the landscape management areas of the other two associations, plus the land in Wilderness and Primitive areas constitute that portion of the National Forests wherein timber management and other resource use is subordinated to recreation.

Figures 16 and 7 show the location and size of the resource associations, landscape management, and high mountain areas. Of the total National Forest land area of 6,068,000 acres, 54 percent is being given special recreation attention, and timber harvesting subordinated to recreational or watershed objectives.

	Thousand Acres	Percent
National Forest land area-----	6,068	100
Wilderness and Primitive areas-----	1,259	21
High mountain areas-----	1,353	22
Landscape management areas in principal forest and grass-shrub association -----	683	11
Total now receiving recreation attention-----	3,295	54

RECREATION RESOURCES

In a study of the recreation resources, it becomes apparent that substantial portions of the Study Area are dedicated to recreation, there are extensive recreation facilities and use of such facilities, the prospects for the future indicate, as with most other resources, needs substantially above present levels of use, and classification of lands as to their suitability for recreation differs in some substantial respects between the Forest Service and the National Park Service.

Most analyses or reports on recreation resources are shaded, depending upon the philosophy or objectives of the authors. The proper balance between utilization of the North Cascades for recreation or for timber or between different types of recreation, are fundamental questions. The ideas of individuals vary all the way from those who view the cutting of any tree as a desecration to those who feel it is equally unfortunate for an old-growth over-mature forest not to be harvested and converted into a young forest

producing net growth. There are all gradations of opinion in between.

There is much information about the recreational resources of the North Cascades. The best materials available to the North Cascades Study Team included the recreation resource report specially prepared for the team, a recent Forest Service report on recreation resources in the North Cascades, the position statements by both the Forest Service and the National Park Service that appear as Appendices B and C, and agency applications of the recreation classification system of the Outdoor Recreation Resources Review Commission.

The basic legislative and administrative documents that control the management and use of recreation resources of the Study Area include:

1. The Multiple Use-Sustained Yield Act of 1960 applicable to the National Forests (P.L. 86-517). This act (which applies to other National Forest resources as well as recreation) makes it clear that the National Forests are established and shall be administered for outdoor recreation as well as for other National Forest resources. The legislative history makes it clear that the resources named in the act are of equal priority and that all of the resources are entitled to equal consideration. The act applies the principle of sustained yield to recreation resources as well as to other resources and it states that the establishment and maintenance



Forest Service administration in this Baker Lake vicinity provides many uses—water skiing, water for hydroelectric power generation, timber harvest, and water conservation, fishing, and wildlife among others. See figure 5, map, page 22. (photo NPS 4214-451)



A portion of the Glacier Peak Wilderness Area. This area was included in the Wilderness Preservation System under the Wilderness Act of 1964. The Forest Service administers the area. See figure 5 map, page 22. (photo NPS 5307-80)

- of wilderness areas are consistent with the purposes of the act.
2. The Wilderness Act of 1964 (P.L. 88-577). This act applies to both the Forest Service and National Park Service, and establishes a National Wilderness Preservation System.
 3. The act to establish the National Park Service of 1916. (39 Stat. 535.) This act establishes the National Park Service and directs that Service to promote and regulate the use of National Parks, Monuments, and Reservations for the purpose of conserving the scenery and natural and historic objects and wildlife, and to provide for their enjoyment in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.
 4. Secretary of the Interior Lane's policy letter of 1918 which specifies, "This policy is based on three broad principles: First, that the national parks must be maintained in absolutely unimpaired form for the use of future generations as well as those of our own time; second, that they are set apart for the use, observation, health, and pleasure of the people; and third, that the national interest must dictate all decisions affecting public or private enterprise in the parks."

5. The Act of March 2, 1899, (30 Stat. 993.) established the Mount Rainier National Park from part of the Mount Rainier Forest Reserve.
6. The decision of the Assistant Secretary of Agriculture of September 1960 establishing the Glacier Peak Wilderness Area.
7. The land classification order of Secretary of Agriculture Jardine of September 1926 establishing the Mount Baker Park Division of the Mount Baker National Forest.
8. The decision of the Secretary of Agriculture of July 1935 establishing the North Cascade Primitive Area.

Historically, recreational use of the North Cascades dates from early mountaineering expeditions of a century ago. There are unsubstantiated reports that Mount Rainier was climbed in 1852 to 1854. The first documented successful climbs were about 1870. Mount Shuksan was climbed in 1906.

Development of Mount Rainier National Park progressed steadily following its establishment in 1899, marked by construction of Paradise Inn in 1916. Recreation use is now varied and visitation has increased to about 2 million persons per year.

Prior to 1920, there was little recreational use of the National Forests with campground visits aver-



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aging less than 5,000 per year. One of the first major National Forest recreation developments was the construction of a road to Heather Meadows near Mount Baker and building Mount Baker Lodge in 1926.

From 1923 to 1933, recreation plans for all National Forests in the North Cascades were prepared. A small number of camp and picnic grounds and ski facilities were developed in those years.

The major breakthrough on construction of recreation facilities for both the National Park Service and the Forest Service came with the Civilian Conservation Corps activated in 1933. Most roads in the area have been constructed by timber purchasers under timber sale contracts. These roads unquestionably have made the country more accessible to hunters, fishermen, and other recreationists. They do not have, nor would they be expected to have, the recreational values that scenic roads, parkways or recreation ways would provide.

The total number of annual recreation visits to the Study Area increased from 3.5 million in 1952 to 6.6 million in 1962.



2

1. Mount Baker Park Division of Mount Baker National Forest, designated by the Secretary of Agriculture in 1926. The view is across Iceberg Lake. (photo NPS 4214-337)
2. Looking southeast toward the headwaters of Lease Creek in the North Cascade Primitive Area. The Secretary of Agriculture designated the area in 1935. See figure 5 map, page 22. (photo FS 483874)



Access routes to Sunrise Campground in Mount Rainier National Park bring out trailer campers. On an average Sunday in summer, more than 11,000 people occupy campsites in the North Cascades Study Area. See figure 17, page 49. (photo NPS Y-7)

Lands Dedicated to Recreation

Of the 6.3 million acres of Federal lands in the Study Area, a substantial portion—2.3 million acres, or 36 percent—is presently dedicated to recreation, closely related uses, or earmarked for special study. These include Mount Rainier National Park, Glacier Peak Wilderness Area, the North Cascade Primitive Area, Mount Baker Recreation Area, and Alpine Lakes, Cougar Lake, and Monte Cristo Peak Limited Areas (figs. 5 and 17).

In addition, there are some 237,000 acres of roadside, trailside and waterfront zones. Also there are 1.7 million acres of landscape management areas in

the National Forests which do not include any lands in Wilderness or Primitive areas but do substantially overlap the acreages indicated for some of the other designated areas.

The Forest Service further estimates that there are about 5.1 million acres suitable and available for hunting, 50,000 acres of fishing areas, and about 5,000 acres of boating access areas (fig. 17).

In the National Park, Wilderness, Primitive, and Limited areas occur 356,000 acres of commercial timberland bearing over 11 billion board feet of saw-timber. This timber has an estimated stumpage value of over \$200 million and, if operated, would provide an annual sustained yield of about 134 million board

Figure 17 Acreage and year of establishment of existing Federal areas in the North Cascades Study Area managed wholly or primarily for recreation purposes or where recreation is a key management purpose, by type of area.

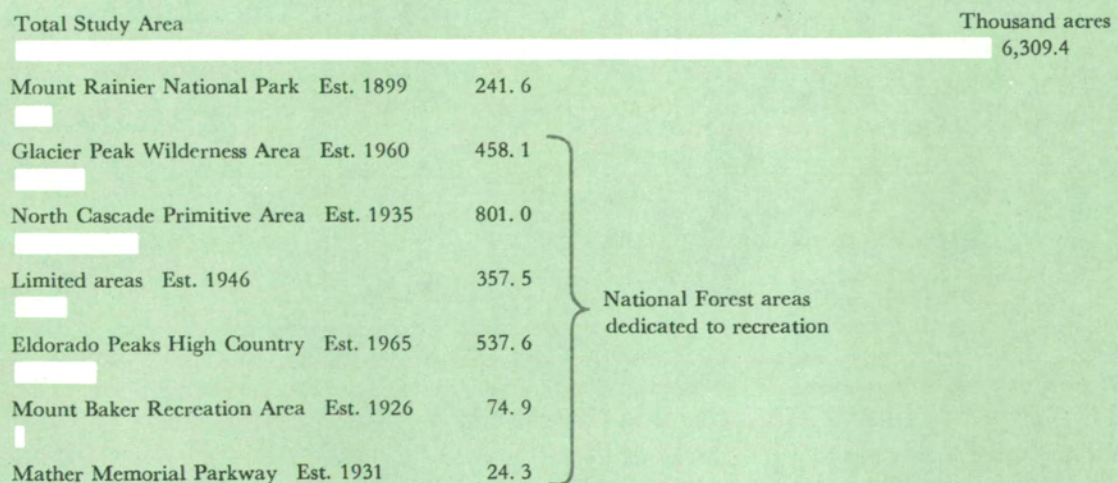
	Date established	Thousand acres	Percent
Total North Cascades Study Area		6,309.4	100.0
Mount Rainier National Park	1899	241.6	3.8
National Forest areas dedicated wholly or primarily to recreation purposes:			
Wilderness type areas:			
North Cascade Primitive	1935	801.0	12.7
Glacier Peak Wilderness	1960	458.1	7.3
Total		1,259.1	20.0
Limited areas: (1)			
Alpine Lakes	1946	256.0	4.1
Cougar Lake	1946	90.0	1.4
Monte Cristo Peak	1946	11.5	.2
Total		357.5	5.7
Other dedicated National Forest areas:			
Mount Baker Recreation Area	1926	74.9	1.2
Mather Memorial Parkway	1931	24.3	.4
Eldorado Peaks High Country (2)	1965	537.6	8.5
Total		636.8	10.1
All dedicated National Forest areas		2,253.4	35.8
Special National Forest zones managed for recreation purposes:			
Roadside zones		84.8	1.4
Trailside zones		53.8	.9
Waterfront zones		97.2	1.5
Buffer zones		1.1	(4)
Total (3)		236.9	3.8
National Forest areas where recreation is a key management purpose:			
Hunting areas		5,172.0	82.0
Fishing areas		50.2	.8
Boating areas		4.9	.1
Mountain-climbing areas		272.2	4.3
Hiking and riding areas		107.5	1.7
Total (3)		5,606.8	88.9

(1) Limited areas are not formally dedicated to a special purpose but are identified for study of their wilderness, scenic, and all other resource values.

(2) This area is planned for management by the Forest Service "primarily for preservation of scenic values and to open up and develop it for the use and enjoyment of the large numbers of people who desire other kinds of outdoor recreation and those who are unable to engage in wilderness travel."

(3) These areas are the total area for the particular purpose indicated whether inside or outside National Forest areas dedicated wholly or primarily for recreation purposes.

(4) Less than 0.05 percent.



feet and support 1,200 employees.

All of Mount Rainier National Park is properly classed for recreational use. Insofar as National Forests are concerned, the multiple use directive under the 1960 statute makes clear that in addition to the specially dedicated recreation areas, there may be a degree of recreational use and development on substantial additional acreages of National Forests land.

Mention should be made of the "Eldorado Peaks High Country" lying between the Glacier Peak Wilderness Area and the North Cascade Primitive Area. This is an area of some 537,000 acres where the Forest Service will carry out the policy directive of the Secretary of Agriculture issued as part of the 1960 Secretarial designation establishing the Glacier Peak Wilderness Area. The pertinent excerpt from the Secretarial Directive reads as follows:

"Therefore, the policy will be to manage the Cascade Pass-Ruby Creek area primarily for preservation of scenic values and to open up and develop it for the use and enjoyment of the large numbers of people who desire other kinds of outdoor recreation and those who are unable to engage in wilderness travel. Rec-

reation uses, such as camping, picnicking, skiing, hunting, fishing, and enjoyment of scenery, will be given primary consideration. Roads, vistas, resorts, ski lifts and other developments needed by the public will be planned. Timber harvesting and other resource utilization will be permitted to the extent that they can be properly integrated and harmonized with the recreation and the protection of the outstanding scenic attractions."

Nearly all of this area is classed either as Alpine resource association or landscape management area. As such, recreation and soil and water management are given priority attention. During the past year the Forest Service has been giving local publicity to its plans for this area and has been criticized in some quarters for so doing, on the grounds that (1) the Forest Service is attempting to jump the gun on recommendations of the study team and (2) such publicity would make it difficult for the team to recommend other than what the Forest Service had announced.

The Forest Service has defended its action on the grounds that it needs to plan for management of resources under its administration, it has the responsi-



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1. In 1962, more than 1,360,000 overnight stays were recorded in National Forests and the National Park in the North Cascades. In the photograph, campers use a self-service entrance ticket vending machine at Salmon la Sac Campground, Wenatchee National Forest. See figure 18, page 52. (photo NPS 4214-386)
2. Winter sports attracted more than 700,000 visitors to North Cascades areas in the 1961-62 season. This ski lift is at Stevens Pass. See figure 18, page 52. (photo FS 495869)

bility to inform the public as to such plans, and it can only assume that lands currently under its administration will remain so in the future.

The study team is fully knowledgeable about Forest Service plans for the Eldorado Peaks and has not been influenced one way or the other by Forest Service publicity.

Recreation Use and Facilities

During 1962, more than 6.6 million public recreation visits were made to the North Cascades. About 30 percent of the visits were to Mount Rainier National Park, and 70 percent to the National Forests.

Of the visitors to Mount Rainier National Park, about 30 percent came from outside the State of Washington, while 70 percent originated from within the State. Assuming that the National Forest areas attracted a larger portion of persons from within the State, it is estimated that perhaps 20 percent of the recreation visitors to the Study Area came from outside of the State.

The major highways across the Cascades through

White, Chinook, Snoqualamie, and Stevens passes carried about 6 million vehicles and 15 million persons in 1962. An unknown number of these were driving for pleasure and are not counted in the above estimate of 6.6 million recreation visitors.

In the same year, there were recorded 1,360,000 overnight stays in National Forest and National Park campgrounds. More than 200,000 guest nights were posted in hotels, motels, lodges, and resorts within the area. There were nearly 400,000 picnickers.

Nor do the mountains "close down" in the winter. Winter sports enthusiasts made over 700,000 visits to snow and ski areas during the 1961-62 season.

There were 13,000 wilderness travelers, 187,000 hunters and 345,000 fishermen.

On an average Sunday during the summer season, about 81,000 persons enter recreation areas of the Study Area, and 11,000 persons would have been found using campsites. Scattered throughout the mountain and forest areas are 12,000 picnickers, 55,000 sightseers, 3,500 people hiking and riding, 500 people pursuing scientific studies or hobbies, 3,700 people camping in organized groups, and 450 hardy



3

3. Tourists through Paradise parking lot at Mount Rainier National Park. The park was established in 1899 from lands formerly a part of the Forest Reserves. See figure 5 map, page 22. (photo NPS Y-2)



One of many enterprises offering food and other recreation services to North Cascades visitors. This establishment on the upper end of Lake Chelan is accessible only by boat, float plane, and afoot. (photo NPS 4214-572-16).

ones engaged in wilderness travel. Average Sunday use of winter sports areas totaled 18,000 persons in 1962.

Past, present, and future recreation activities in the Study Area are summarized in figure 18. The most significant projection is that total recreational activity will about triple by the year 2000. Most activity increases will vary from two to four times.

Economic assessment of outdoor recreation in the Study Area is at best problematical. In 1962, visitors to the area spent an estimated \$33 million for activities other than hunting and fishing, and an additional \$27 million for those two activities for a total recreation expenditure in the area and immediately surrounding counties of \$60 million. Roughly half of these expenditures were made by residents of the State, and half from the 15-30 percent of the visitors who came from outside the State.

It is further estimated that about half of the \$60 million expended actually benefited the Study Area and immediate vicinity. The other half eventually found its way outside the area through taxes, wholesale purchases, and other avenues.

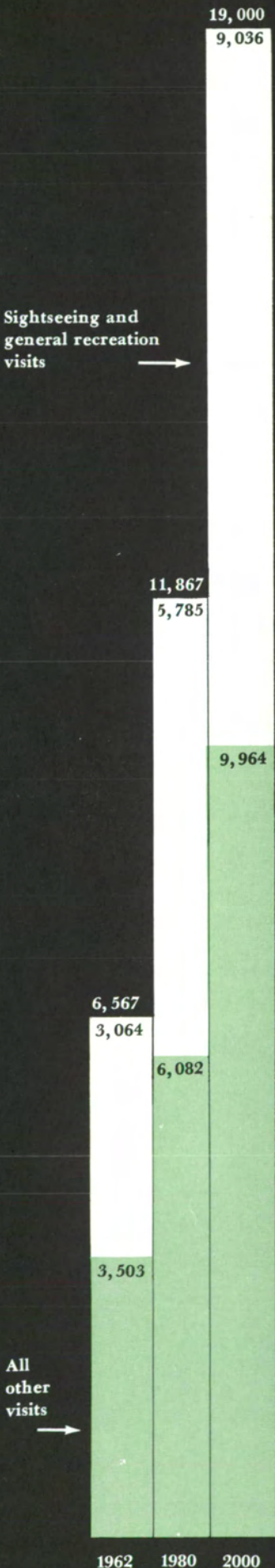
Looking into the future, it is reasonable to assume that by the year 2000, recreation expenditures will double or triple.

Figure 18 Past, current, and projected public recreation use of the North Cascades Study Area, selected years, by primary purpose of visit.

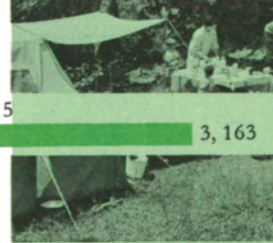
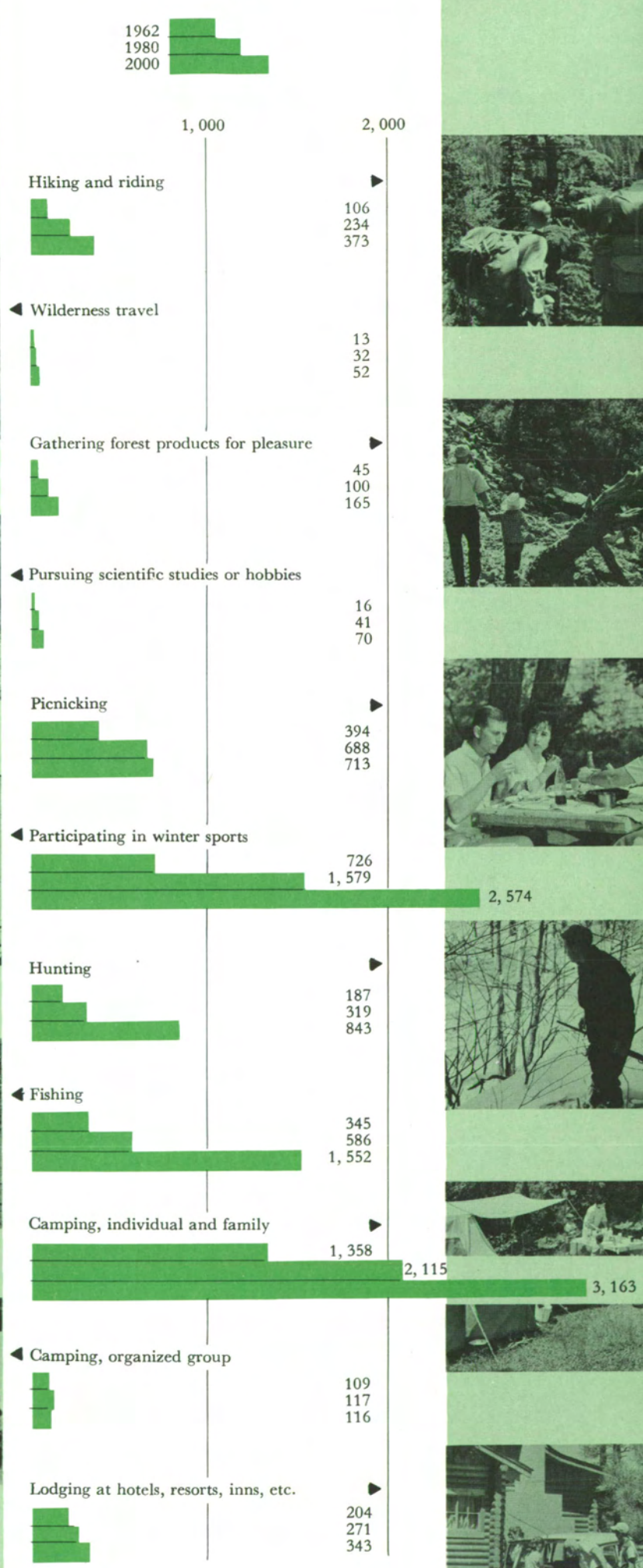
Primary purpose of visit	1952	1957	1962	1980	2000	Percent increase in use between 1962 & 2000
	t h o u s a n d v i s i t s					
Total visits, all purposes—includes (1)	3,544	3,864	6,567	11,867	19,000	189
Sightseeing and general recreation	1,440	1,648	3,064	5,785	9,036	195
Hiking and riding	42	54	106	234	373	252
Wilderness travel	4	7	13	32	52	300
Gathering forest products for pleasure	12	20	45	100	165	267
Pursuing scientific studies or hobbies	3	5	16	41	70	338
Picnicking	382	302	394	688	713	81
Participating in winter sports	228	350	726	1,579	2,574	255
Hunting	80	69	187	319	843	350
Fishing	273	326	345	586	1,552	350
Camping, individual and family (1)	763	779	1,358	2,115	3,163	133
Camping, organized group (1)	149	112	109	117	116	6
Lodging at hotels, resorts, inns, etc. (1)	168	192	204	271	343	68

(1) Overnight stays on the basis of one overnight stay equals one visit.

ALL RECREATIONAL VISITS
thousand visits



SELECTED ACTIVITIES
thousand visits



With respect to developed recreation facilities in the Study Area, there are 255 campgrounds, 3,400 campsites, 53 organization camps with a capacity of 3,900 persons, 23 hotels and lodges with a capacity of 1,500 people, 1,000 picnic sites, and 12 winter sports areas (fig. 19).

In anticipation of a threefold use increase in the next 35 years, it is reasonable to expect that the developed facilities enumerated in figure 19 likewise will need to triple in number.

It will be necessary for the National Park Service and the Forest Service to integrate and coordinate their management more effectively than has been the case in the past. During the course of the study the superintendent of Mount Rainier National Park and the supervisor of the Snoqualmie National Forest collaborated in preparing an explanatory joint planning report which includes all of Mount Rainier National Park and surrounding National Forest areas.

Field officers of both agencies estimate that the recreation use in Mount Rainier National Park and surrounding National Forest lands may increase nine-fold by the year 2000, with a peak visitation day in the National Park of perhaps 265,000 people. It is physically impossible to accommodate that number of people within the Park and this means that contiguous National Forest lands must be developed with due consideration to National Park needs. This is the heart of the joint planning that is currently under preparation. This effort is commended by the study team.

Land Classification

Because of the significance of recreation in the North Cascades, and because many of the controversial

management issues turn on recreation, the study team felt it desirable to classify Federal lands in accord with the six management classes recommended by the Outdoor Recreation Resources Review Commission. These classes are:

Class I—High-Density Recreation Areas. Areas intensively developed and managed for mass use.

Class II—General Outdoor Recreation Areas. Areas subject to substantial development for a wide variety of specific recreation uses.

Class III—Natural Environment Areas. Various types of areas that are suitable for recreation in a natural environment and usually in combination with other uses.

Class IV—Unique Natural Areas. Areas of outstanding scenic splendor, natural wonder, or scientific importance.

Class V—Primitive Areas. Undisturbed roadless areas characterized by natural wild conditions, including Wilderness areas.

Class VI—Historic and Cultural Sites. Sites of major historic or cultural significance, either local, regional, or national.

Two applications of these classifications were made—one by the National Park Service, and the other by the Forest Service. This was the first major attempt to apply these recreation classifications to a substantial area. The results were different in some major respects. The Forest Service classified over twice as much area as natural environment as did the Park Service.

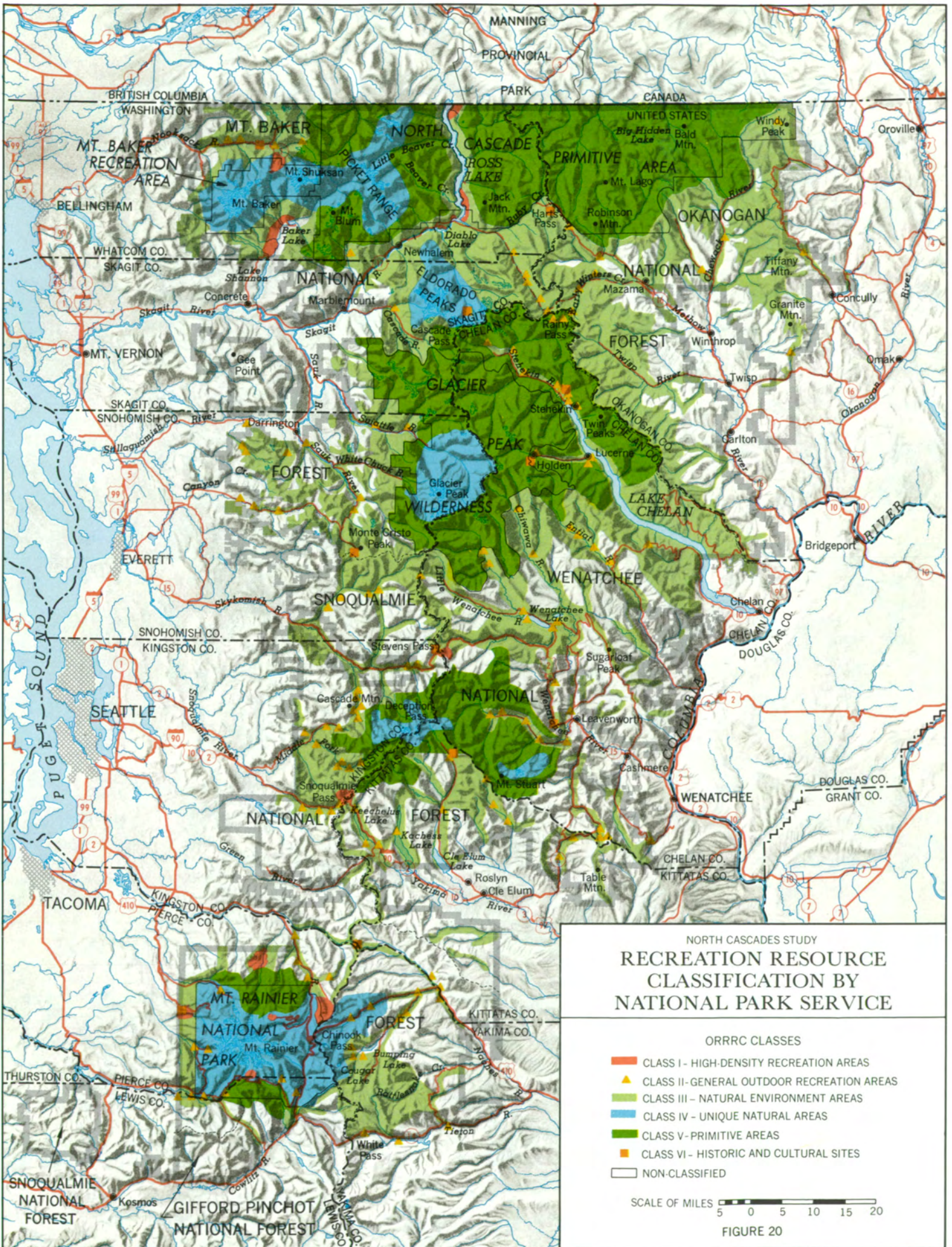
Figures 20, 21, and 22 show the classifications made by the National Park Service and the Forest Service in both map and tabular form.

Youngsters at camp on Lake Whatcom, one of several such camps in the North Cascades, enjoy a horseback ride (photo Bellingham Chamber of Commerce).

Figure 19 Recreation facilities existing in 1962-1963 in the North Cascades Study Area.

Facility	In National Forests	In Mount Rainier National Park	Total Study Area
Public campgrounds	247	8	255
Campsites	2,493	884	3,377
Organization campgrounds	52	1	53
Organization camps, capacity in persons	3,824	72	3,896
Hotels and lodges	21	2	23
Hotels and lodges, capacity in persons	1,246	282	1,528
Picnic sites	880	209	1,089
Winter sports areas	11	1	12
Private recreation residences	832	0	832





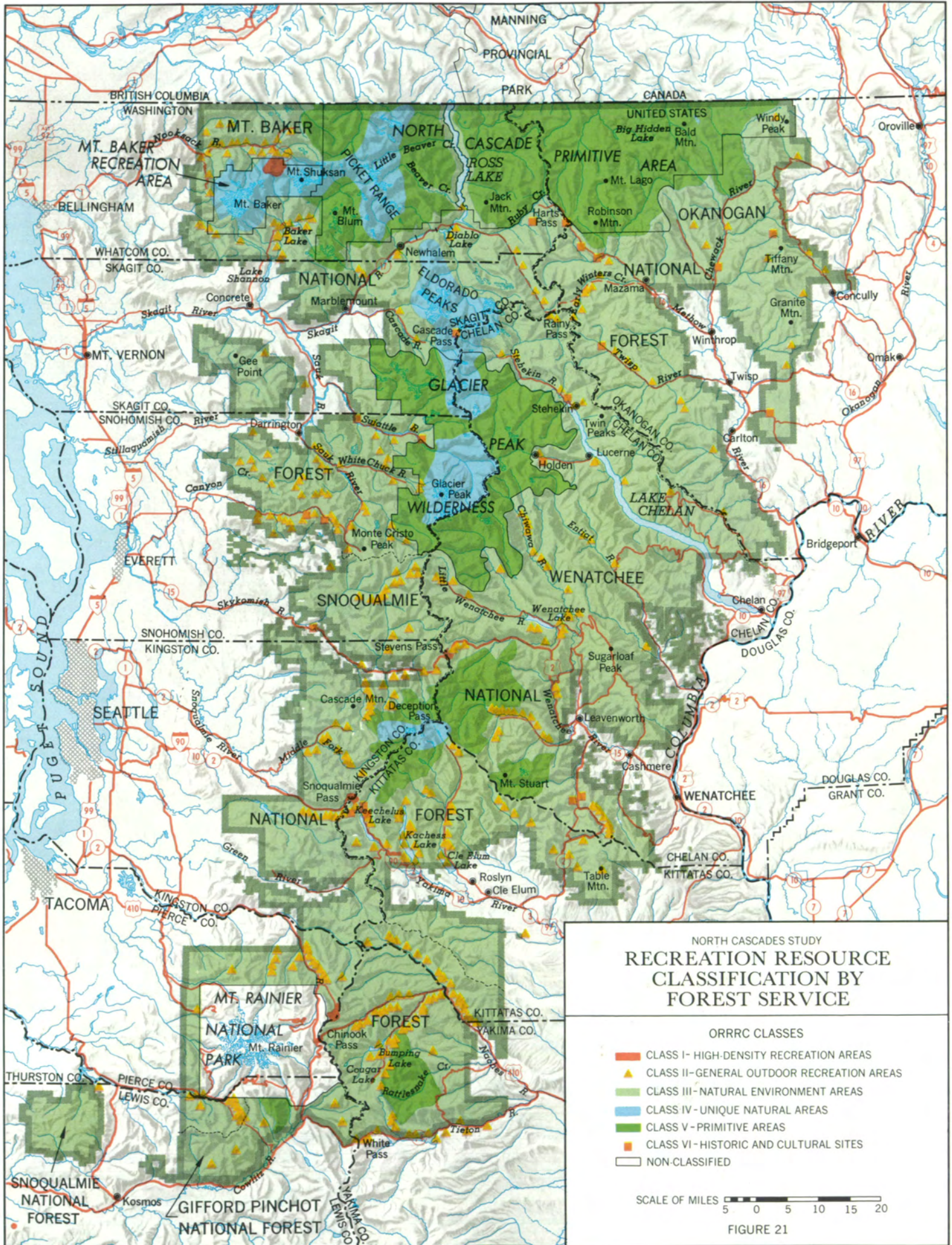
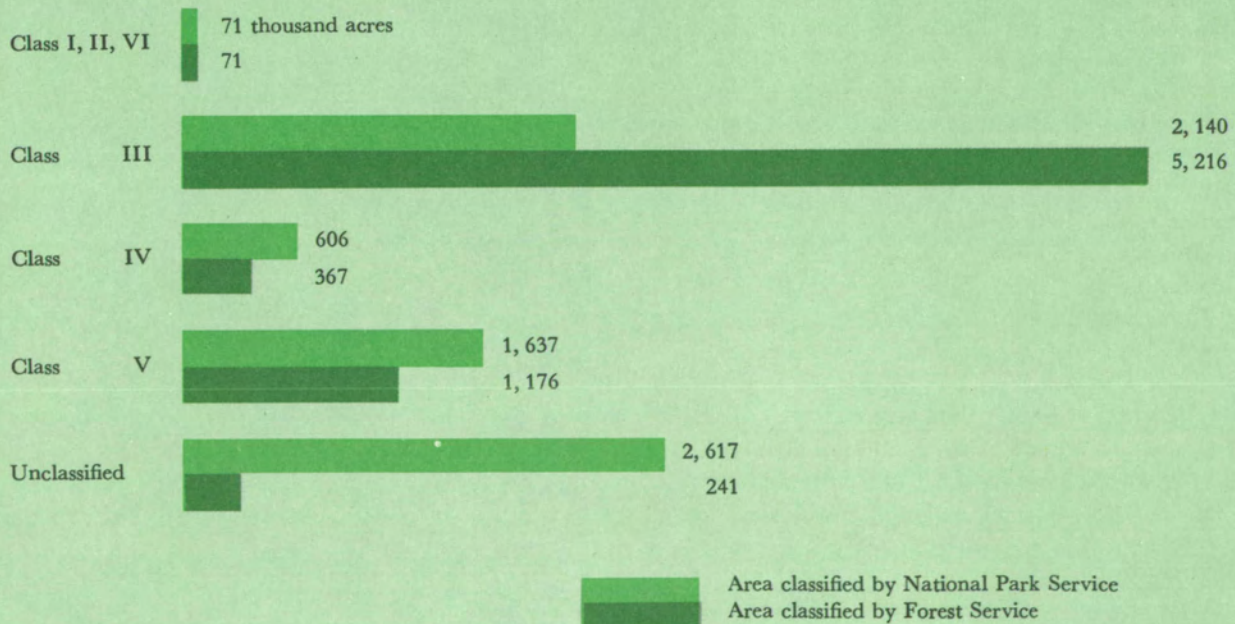


Figure 22 Outdoor recreation resources of the North Cascades Study Area as separately classified by the National Park Service and the Forest Service according to management classes recommended by the Outdoor Recreation Resources Review Commission.

ORRRC management classes	Area classified by National Park Service		Area classified by Forest Service	
	Thousand acres	Percent	Thousand acres	Percent
Class I High-density recreation areas	(1)	(1)	(1)	(1)
Class II General outdoor recreation areas	(1)	(1)	(1)	(1)
Class III Natural environment areas	2,140	30.3	5,216	73.8
Class IV Unique natural areas	606	8.6	367	5.2
Class V Primitive areas	1,637	23.1	1,176	16.6
Class VI Historic and cultural sites	(1)	(1)	(1)	(1)
Unclassified	2,617	37.0	241(2)	3.4
Total gross area of the Study Area	7,071	100.0	7,071	100.0

(1) Presumably, Classes I, II, and VI combined would amount to 71,000 acres, or one percent of the gross acreage of the Study Area.

(2) Mount Rainier National Park not classified.



The two agencies conferred following their work and came closer to agreement than the maps and table indicate, but certain fundamental differences remained.

The Forest Service interpretation was "based on administrative decisions in their present and future planned multiple-use program." This means that the Forest Service considered other resource uses as well as recreation.

The National Park Service interpretation was "based on optimum management for the recreation resource only, and certain lands were not classified because their recreation values and potentials were not considered important enough to receive major emphasis."

The two Services continue to disagree in principle on the concept of natural environment areas. The National Park Service, while it recognizes that almost all lands have some value for recreation and can be so used, believes that recreational land classification as conceived by the Outdoor Recreation Resources Review Commission demands some positive action beyond permitting incidental recreation, even if furthered by some management action. That Service believes the Commission's recreational classification implies recognition and major emphasis in a master plan for recreational management in which lands are classified formally on a map as areas to be managed in a specified way for recreation, not in general, but in particular.

The National Park Service thus regards the Forest Service's landscape management area designation as an act of classifying lands. It consulted the multiple use plan of the Forest Service in this respect in seeking to identify Class III and other type recreational lands in the Study Area. But, according to the National Park Service, calling all lands Class III that are not otherwise classified negates the usefulness of the Class III designation as a definitive act to protect recreational environment and provide positively for recreation opportunities.

The Forest Service position is that all lands managed under the multiple use program as now defined by the Multiple Use-Sustained Yield Law, unless recreation is specifically eliminated, have recreation values, planned recreational facilities and use in varying degrees, types and intensities, and therefore should be given some ORRRC recreational land classification. Where no other ORRRC classification is specified, areas would fall in Class III.

There are many types and intensities of recreation planned in the multiple use management program on National Forest lands. In the landscape management areas and the Alpine resource association, recre-

ation receives major emphasis both in the scenic and developed types of uses. In other multiple use management associations, recreation use is planned less intensively. Recreation facilities in these management zones provide for activities such as hunting, fishing, hiking, riding, gathering forest products, sight-seeing, picture taking, back country and miscellaneous outdoor mountainous experiences. These are planned, coordinated, and developed through modification of the uses, such as timber harvesting. The Forest Service thinks that even though recreation may not receive major emphasis in these areas, it is a planned use along with the other uses and, therefore, the areas should be recognized as Class III.

It is apparent that the ORRRC classifications have little utility without clear-cut instructions as to their interpretation and applicability.

Regardless of agency differences, it is significant that both agencies classified such large percentages of the area in the unique and primitive classes. The National Park Service classified 606,000 acres and 9 percent as unique areas, and 1,637,000 acres and 23 percent as primitive. Despite the fact that the Forest



Service did not classify Mount Rainier National Park, the corresponding classifications by that agency were 367,000 acres or 5 percent as unique, and 1,176,000 acres or 17 percent as primitive. Since much of the 241,000 acres in Mount Rainier National Park is unique, the totals for that category presumably would have been about equal if the Forest Service had classified the lands within the National Park.

These classifications become particularly significant when related to the areas already primarily dedicated to recreation (fig. 5) and to recommendations for subsequent administrative or legislative designations.

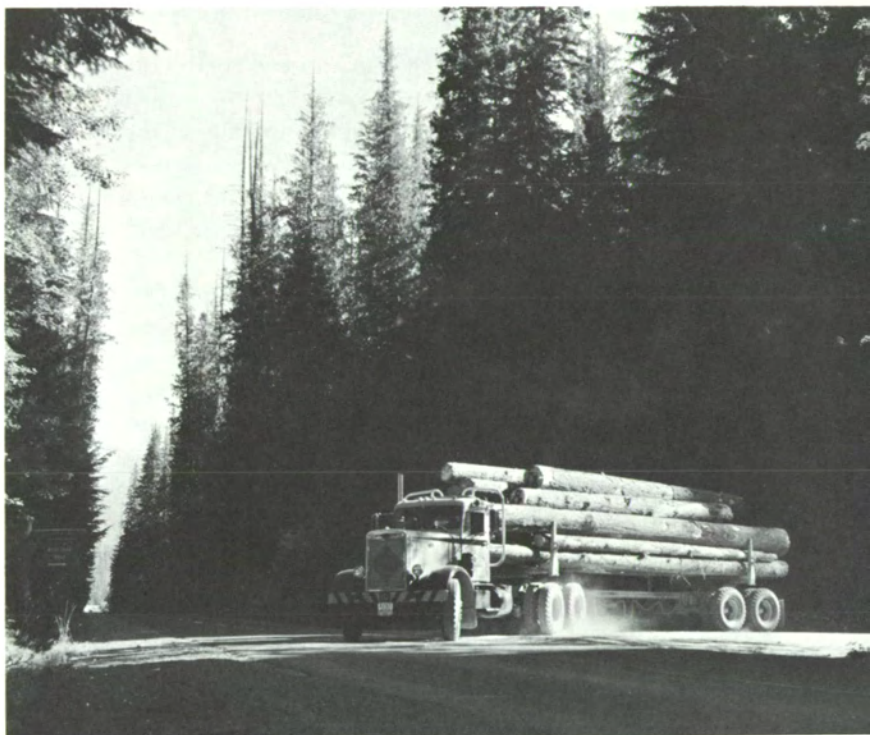
Transportation and Access

Roads, trails, and waterways are the principal means of access to the North Cascades. The Study Area is paralleled north and south by several main highways. It is traversed east and west by four main roads; Stevens Pass, (U.S. 2); Snoqualmie Pass, (U.S. 10 and Interstate 90); Chinook Pass, (U.S. 410); and White Pass, (State 14). In addition, the new North Cross-State Highway is under construction to connect the Skagit River and Methow Valley. This will take about 5 more years to complete.



Other secondary roads providing good access to the area are State 1 to Mount Baker, State 16 up the Skagit River, the Methow Valley road, and several good county roads. There is good access to Mount Rainier National Park.

Beyond the secondary State and county roads are forest development roads which penetrate into many



Logging roads serve many North Cascades areas. Here a load of logs pulls onto Chinook Pass Highway from a logging road in Snoqualmie National Forest. See figure 23, page 60. (photo FS 2400-1-10).

Secondary road along Teanaway River, with Mount Stuart in the background. See figure 23, page 60 (photo NPS 4224-700).

remote areas of the North Cascades. Many of these were designed primarily for timber access with other multiple purposes a secondary factor in their location, design, and construction. Many hundreds of miles of these roads, with some reconstruction particularly for turnouts, could greatly benefit the pleasure-driving public.

The National Forest transportation system includes 380 miles of forest highways, most of which are surfaced; 4,500 miles of forest development roads, most of which are timber access roads; and 5,500 miles

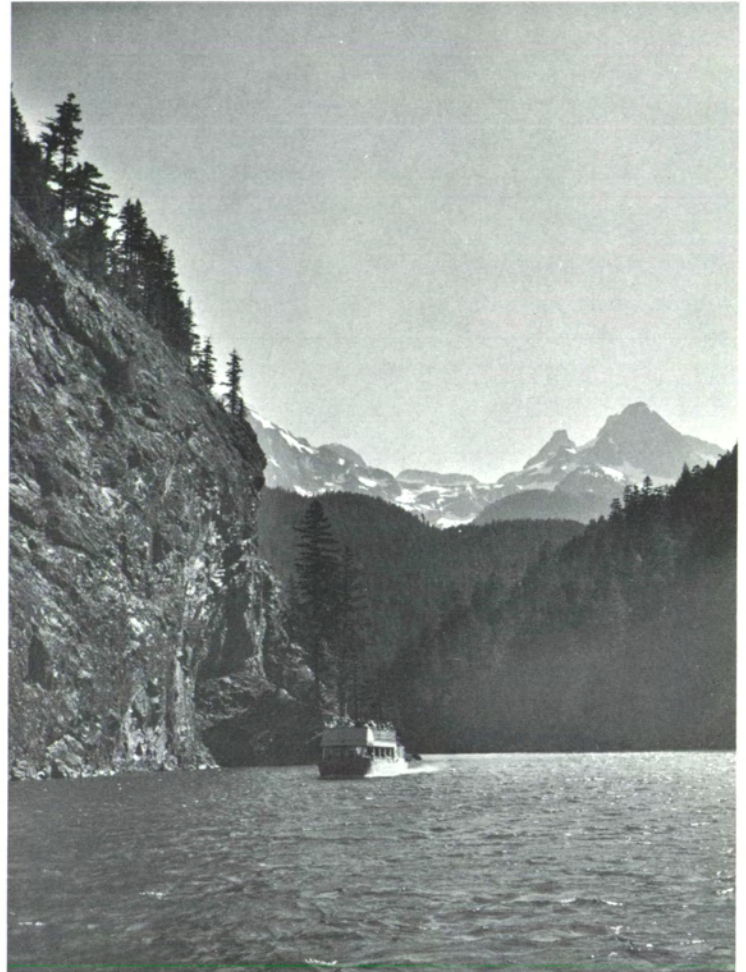
of trails, including 341 miles of the Washington Cascade Crest Trail (fig. 23). About 10 percent of the forest development roads have recreation for their primary purpose.

Forest Service road plans call for an additional 9,500 miles of timber and general purpose roads. About 350 miles of roads are planned that would be primarily valuable for recreation. Both existing and planned general purpose roads have recognized recreation values.

There is opportunity here to improve greatly the accessibility of the North Cascades for recreation through adjustment in design and construction of the 9,500 miles of planned timber and general purpose roads. There is a great need from a recreation standpoint to provide an adequate scenic road and highway system.

Large areas within the Study Area are roadless and will probably remain so. Accessibility to some portions is by water through Lake Chelan by boat or float plane, and through Ross and Diablo Lakes. Float planes are landing with increasing frequency on some of the high mountain lakes and helicopters land in numerous places. At present hikers and horsemen use the same trails and motorized trail equipment is frequently permitted outside Wilderness and Primitive areas.

Three railroads cross the area but do not contribute significantly to recreation use. These are the Great Northern through Stevens Pass, and the Northern Pacific through Stampede Pass and the Chicago-Milwaukee, St. Paul and Pacific through Snoqualmie Pass.



Boat cruise on Diablo Lake to Ross Dam on the Skagit River provides one of the few present access routes into the heart of the North Cascades (photo Seattle City Light and Power Co.).

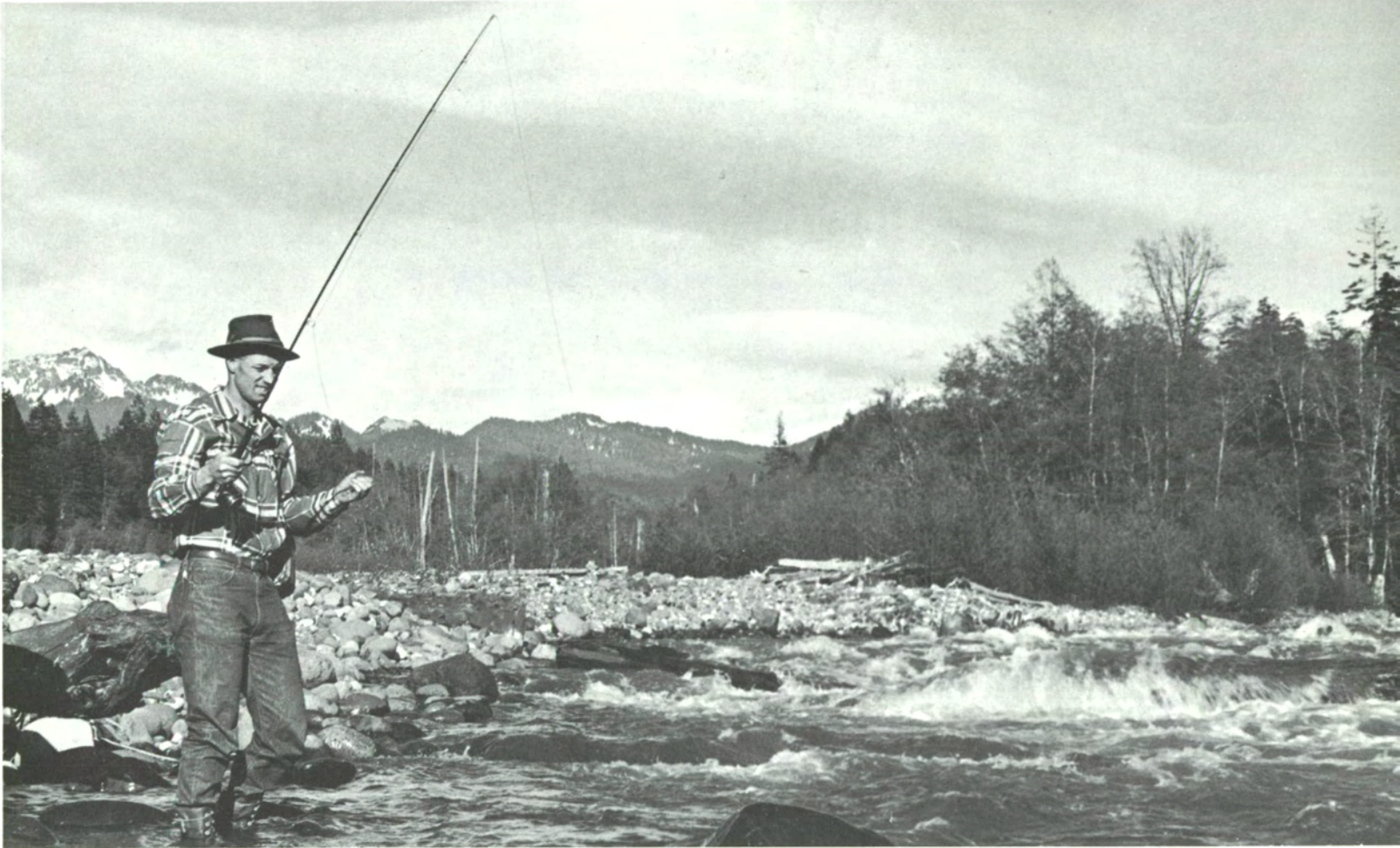
Figure 23 Miles of existing and planned forest highways and forest development roads and trails in the National Forests of the North Cascades Study Area.

	Miles existing	Miles planned
Forest highways	380	90
Forest development roads:		
Primary purpose, recreation	490	350
Primary purpose, timber and other (1)	3,950	9,500
All forest development roads	4,440	9,850
Trails (2)	5,500 (3)	430

(1) All development roads contribute to dispersed recreation area uses such as hunting, fishing, riding, and hiking.

(2) Includes 341 miles of the Washington Cascade Crest Trail, a wilderness trail, which is part of the Pacific Crest Trail system which follows the backbone of the Cascade Range for some 850 miles.

(3) Of these trails, 2,275 miles are considered inadequate.



The North Cascades provide about a half million days of fishing to visitors each year. This location is on the Nisqually River in Mount Rainier National Park. See figure 18, page 52. (photo NPS Y-1)

FISH AND WILDLIFE RESOURCES

Utilization of fish and wildlife resources for sports purposes obviously is an integral part of the recreation enjoyment of the North Cascades.

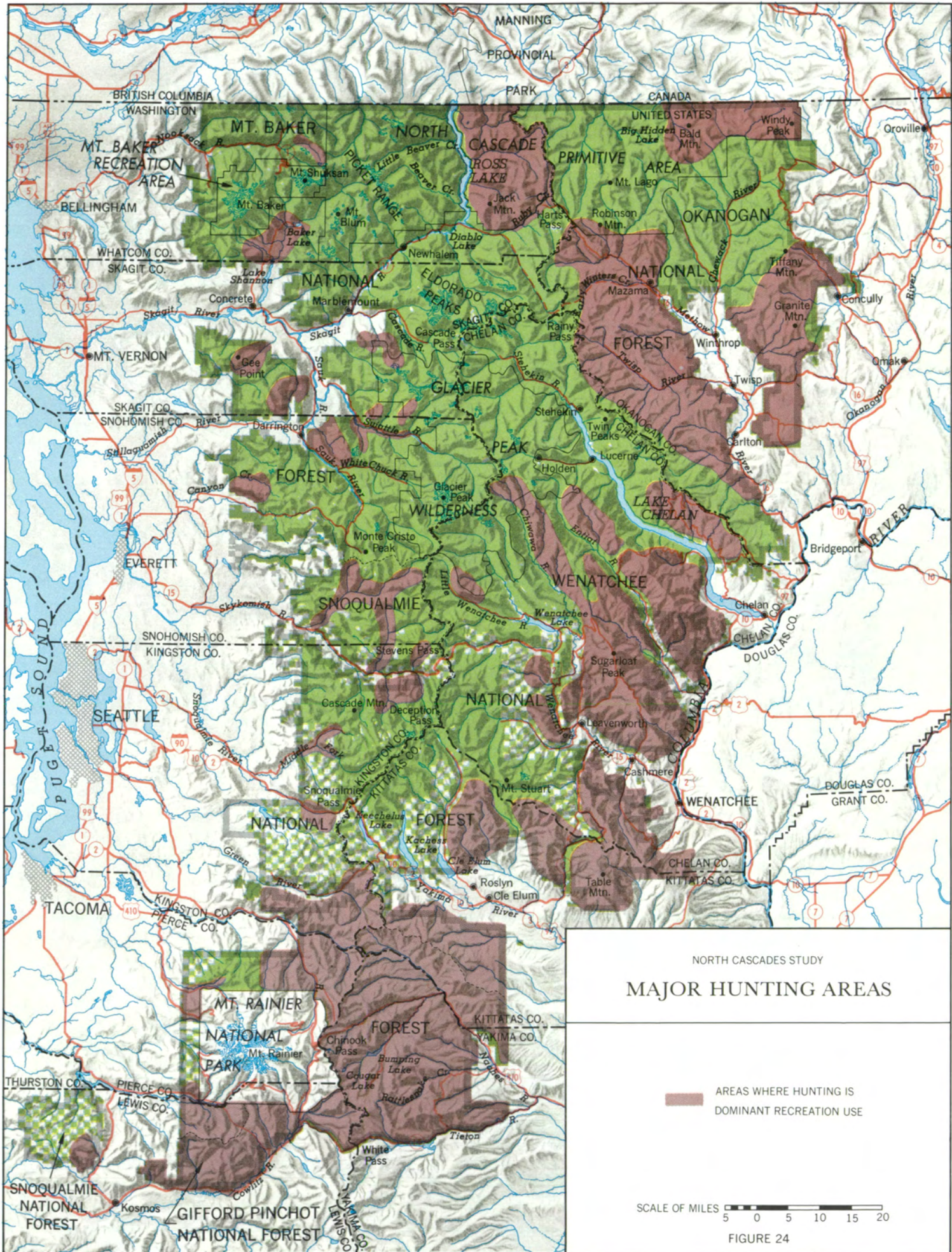
In the period from 1958-62, the visitor days of hunting increased from 180,000 to 420,000 and fishing from 430,000 to 530,000. These estimates are considerably more than the number of visits (fig. 18) because the average hunter and fisherman both stayed more than one day. Presently there are probably about 1 million days of combined hunting and fishing use. Figure 24 shows the areas where hunting is the dominant recreation use.

The estimated annual expenditures by hunters and fishermen in the area are \$27 million. To that, it is reasonable to add the value of the commercial

fish catch originating in the area. This is estimated at \$12.5 million.

Perhaps the most significant conclusions from an appraisal of fish and wildlife resources are:

1. These resources are substantial in nature both economically and in terms of enjoyment afforded.
2. All of the Federal lands in the area are currently available for hunting and fishing except that hunting is precluded in Mount Rainier National Park.
3. There is an overpopulation and underharvest of big-game animals along with a deficiency in necessary winter range where there is competition with domestic livestock. For every 20 square miles of summer range, there is only 1 square mile of winter range.
4. One-fourth of the big game harvested in the State



MT. BAKER RECREATION AREA

MT. BAKER

NORTH CASCADES

PRIMITIVE AREA

OKANOGAN

MT. VERNON

NATIONAL FOREST

WENATCHEE

LAKE CHELAN

EVERETT

GLACIER PEAK

WENATCHEE

WENATCHEE

SEATTLE

NATIONAL FOREST

WENATCHEE

WENATCHEE

TACOMA

NATIONAL FOREST

WENATCHEE

WENATCHEE

MT. RAINIER NATIONAL PARK

MT. RAINIER

WENATCHEE

WENATCHEE

MT. RAINIER NATIONAL PARK

MT. RAINIER

WENATCHEE

WENATCHEE

MT. RAINIER NATIONAL PARK

MT. RAINIER

WENATCHEE

WENATCHEE



The North Cascades support about 8,000 mountain goats; hunters kill about 300 each year. See figure 18, page 52 (photo: State of Washington, Department of Game 445-A).

comes from the Study Area, as does 18 percent of the U.S. production of salmon.

5. There are about 600 miles of streams in the area where fish production can be improved by various measures such as channel and stream flow stabilization, abatement of stream pollution, construction of fish ladders, log jam removal, or other habitat measures.
6. Opening of the tree canopy through logging temporarily improves wildlife habitat and big game populations for from 10 to 12 years. A regular program of timber harvesting is effective in maintaining higher game population than would otherwise be the case.
7. Steelhead is the most important fresh water sport fish in the State. Major streams are: Nooksack, Skagit, Stillaguamish, Skykomish, Snoqualmie, Green, Puyallup, Nisqually, Chehalis, Cowlitz, Methow, Entiat, Wenatchee, and Yakima.
8. Major big game and estimated populations are: deer, 140,000; elk, 14,600; bear, 12,000; mountain goats, 8,000. Annual harvest is about 15,800 deer, 2,400 elk, 1,300 bear, and 300 mountain goats.

9. Looking into the future, both fishing and hunting pressures will increase about in proportion to population increases. This will tend to overcome the present overpopulation of big game and unbalance between summer and winter ranges. Increased fishing pressures can be met only if stream and habitat improvement measures are carried out. It is unquestionable that sports hunting and fishing will continue to be one of the major recreational uses of the Study Area.

Deer in the North Cascades number about 140,000. Hunters kill about 15,800 each year. See figure 24 map, page 62 (photo: State of Washington, Department of Game 2305).



MINERAL RESOURCES

Geology

The part of the North Cascades which is the concern of this study consists of two geologically contrasting areas roughly divided by Snoqualmie Pass and U.S. Highway 10 (Interstate Highway 90).

South of this highway tertiary volcanic rocks of rather simple structure predominate, whereas to the North most of the exposed rocks are structurally complex pre-tertiary igneous and metamorphic rocks. To some extent the geologic differences are reflected in the topography, the area underlain by pre-tertiary rocks tending to greater ruggedness and topographic variety.

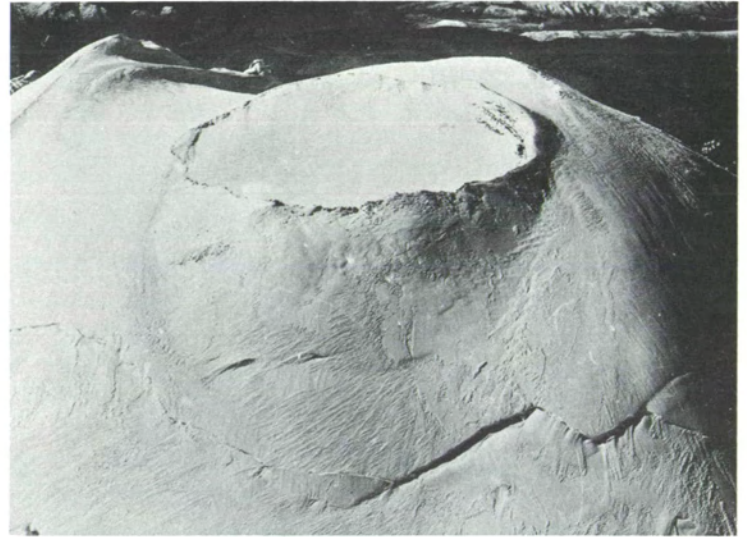
The extremely rugged part of the North Cascades terminates at the International Boundary, and northward in Canada the mountains are lower and more rounded. This change in topography near the border also reflects a change in the underlying bed-rock, inasmuch as sedimentary, or but slightly metamorphosed sedimentary, rather than highly metamorphosed rocks, predominate north of the border.

Most of the mineral deposits to be found easily have already been located. This is true even of an area that is as remote and inaccessible as parts of the Study Area. Rocks in the Study Area are mostly well exposed, and, because little time has elapsed since the retreat of the glaciers, they are also fresh.

The value, however, of a deposit generally cannot be accurately gauged from its surface exposures. The largest copper deposit mined to date in Washington, that of the Holden Mine on Railroad Creek, has been known for 90 years, although no ore was extracted until 1937. Other deposits in the North Cascades that are now being actively explored and which give promise of being of considerable value have also been known from surface outcrops for a long time, but their true worth can be determined only by underground exploration.

However, for deposits that do not crop out at the surface and hence can be found only by careful and intensive use of modern geological, geophysical, and geochemical techniques, the difficulties of mineral exploration are much greater. In these respects determining the mineral-resource potential of an area differs greatly from determining the resource potential of those other commodities which are on the surface and accordingly, more readily appraised.

Not all rocks or geologic settings are equally favorable for deposits of fuel or minerals. Just as there are many types of rocks and geologic structures in the



1. Volcanic crater at Mount Rainier. The rim is still hot and forms steam caves as the heat melts snow and ice. In this and other areas of the North Cascades lying south of Snoqualmie Pass tertiary volcanic rocks of rather simple structure predominate. In contrast, north of Snoqualmie structurally complex pre-tertiary igneous and metamorphic rocks predominate on the surface. (photo NPS Y-3)

North Cascades, so there are many kinds of metalliferous and nonmetallic mineral deposits, many of which are closely associated with some particular geologic environment.

Mining Exploration and Activity

Gold production in the North Cascades was noted during the search for a railroad route in 1853. The account apparently constitutes the earliest reference to mining in the region. Subsequently, in 1859 during the survey of the International Boundary, gold production again was noted. During the next 20 years a number of the larger gold districts of the Northwest were found and worked. The increase in population in the Northwest resulted in the development of the nonmetal materials, particularly those used in the building trades.

Thirteen nonmetallic minerals or materials have been produced in abundant quantities or have demonstrated a potential for developing into appreciable producers.

Six of these 13 are building materials used in their natural state and altered only physically. These materials are basalt and allied volcanic rocks, building stone, granitic rocks, pumice and pumicite, sand and gravel, and sandstone. Two others of the 13, clay and shale, and limestone, are also used in the building and construction industries after considerable processing. Four of the 13, olivine, massive quartz, silica sand, and talc soapstone, are presently important for industrial use. Coal is the other nonmetallic in the group of 13. The nonmetallic minerals and materials not noted above all have a potential of becoming significant in the economy of the area but for the present cannot compete with other more accessible sources of supply.

Coal was first mined near Bellingham Bay, 1855. A total of 128 million tons valued at over \$407 million has been produced from Washington. Reserves are estimated at 6,185 million tons.

Olivine, which is used principally as a foundry sand in the Northwest, has experienced a phenomenal increase in demand for this use. The largest of two sources of the olivine in the United States is located in the Study Area somewhat southwest of Mount Baker. Undoubtedly, olivine will continue to be produced in considerable quantities from this recently opened deposit.

Figure 25 summarizes the nonmetallic mineral products in the North Cascades area.

This is heavily dominated by coal, cement, and

Figure 25 Nonmetal mineral production in the North Cascades Area (1)

	Thousand short tons	Value in million \$	Years of recorded production
Asbestos		(2)	1919, 1930-34
Cement (million barrels)	117	286.4	1909-62
Clay (common)	2,509	2.1	1933-62
Clay (refractory)	496	1.2	1933-62
Diatomite	54	1.0	1922-48, 1953-57
Gypsum		(2)	1925, 1950-61
Olivine		(3)	1946-62
Peat	215	1.1	1957-62
Pumice	233	1.7	1943-62
Silica		(2)	1953, 1943-48
Talc	88	0.6	1933-62
Strontium		(2)	1940-45, 1953, 1956-59
Coal	128,000	407.3	1900-62
Stone and Aggregates:			
Basalt	27,048	31.1	1937-62
Granite (crushed)	3,866	5.4	1937-62
Granite (dimension)		(2)	1939-62
Marble		(2)	1959, 1960
Marl		(2)	1958, 1959
Oystershell		(2)	1958-60
Limestone	8,661	17.8	1929, 1933, 1937-62
Sandstone (crushed)	304	0.7	1937-62
Sandstone (dimension)	87	4.6	1937-62
Miscellaneous stone	5,407	4.0	1951-62
Sand and gravel	169,000	128.4	1935-62
Undistributed (4)		2.0	
Coal production in Canadian portion of North Cascade area	7,500	37.0	
Total value (5)		933.4	
Limestone in cement	30,000	67.5	

(1) As much as 60 percent of the production of coal and 75 percent of the other nonmetallics tabulated came from areas outside the North Cascades Study Area.

(2) Total value of each commodity was less than \$500,000.

(3) Figure withheld to avoid disclosing individual company confidential data.

(4) Includes confidential items and total values indicated by footnote (2)

(5) Figures in columns may not add to total because of rounding.

sand and gravel, but 60 percent of the production of coal and 75 percent of nonmetallic minerals came from west of the National Forest boundary.

Insofar as metallic minerals are concerned, activity prior to 1904 was limited to production of lode and placer gold. Some production of silver occurred

2. Cement company operation on recently patented mining claim in Wenatchee National Forest. See figure 25, page 65. (photo FS X-1)

3. Gold-dredging operation near Liberty in Wenatchee National Forest. Gold has been produced in the North Cascades for over 100 years. See figure 26, page 66. (photo FS X-2)

prior to 1909 and the demand for metal during World War I resulted in the production of small amounts of copper, lead, tungsten, mercury, and iron. Silver, lead, gold, copper, and mercury all reached new peaks in the period 1920–40.

The Holden Mine near Lake Chelan, which operated from 1937–57, was the largest producer in the State of copper, gold, and silver. The Gold King Mine near Wenatchee opened in 1949 and took over when the Holden Mine closed as the largest gold producer.

The total value of metallic minerals produced from the Study Area is estimated to be some \$87 million (fig. 26). Copper and gold account for most of this production and about half of the gold was produced as a byproduct of the Holden Mining Corporation.

Six metals—copper, molybdenum, gold, lead, mercury, and nickel—are considered for geologic and other reasons to have a good probability of being produced in significant amounts in the foreseeable future. Nine other metals, although present in significant amounts, are considered to have a low potential of developing into important commercial operations.

Present mining activity for the most part is concentrated in the nonmetallic minerals. The more common industrial minerals and aggregates are present in practically unlimited quantities, and the others are known to be present and available in varying amounts in the area. All are important to the present and future industrial requirements of the country. Metal-

lic minerals have not fared as well as the nonmetallic. There has been a decline in metallic production from the area since the 1940–49 period when the main producer, the Holden Mine, was in its heyday. In recent years a new 300-ton mill has been constructed at the Gold King Mine near the Study Area. Also, the Bear Creek Mining Co. and Phelps Dodge Corp. are making detailed examinations of three separate areas and have invested several million dollars in exploration.

The most thorough study and exploration of the North Cascades may never reveal a major mining district. The area has been thoroughly combed by prospectors for nearly a hundred years. There is hardly a ridge or peak that has not at some time been walked over by some prospector. On the other hand, like the geology, only a very small part of the area has been prospected in the modern sense, using newly developed tools of geology, geochemistry, and geophysics that are now available.

It is likely that most of the mineral deposits in the North Cascade Mountains that can be found easily—i.e., those that are readily visible at the surface—have already been discovered. This is probably true even in the more remote and inaccessible parts of the area. This does not mean, however, that no potential remains for discovery of new mineral deposits in the North Cascade Mountains, or that there is no possibility of bringing into production deposits that are already known. Mineral deposits of various kinds are scattered throughout the length and breadth of the Cascade Mountains.

Figure 26 Metal production from mines in the Washington portion of the North Cascades Area, 1904–1962.

	Quantity	Value	Production Years
Antimony	95 Tons	\$43,639	1941, 1942, 1951, 1952
Chromite	128 Tons	6,763 (1)	1942, 1955, 1956, 1959
Copper	113,466 Tons	39,770,912	1904–1962
Gold	1,097,685 Ounces	37,081,021	1904–1962
Iron ore	76,504 Long tons	273,968	1907–1910, 1918–1920, 1937–1943, 1958, 1959
Lead	1,403 Tons	300,014	1904–1962
Mercury	6,624 Flasks	711,304	1916, 1926–1938, 1940–1942
Silver	3,837,447 Ounces	3,023,862	1904–1962
Tungsten	7 Tons	15,443	1915–1917, 1940, 1942
Zinc	21,623 Tons	5,651,611	1943–1957
Total		\$86,878,537	

(1) Excludes value of production for 1942 and 1959.

Limitations on Mining

Mining on Federal lands in the area is conducted under a number of acts including the act of 1872, the Mineral Leasing Act of 1920, Multiple Use Mining Act of 1955, and the Wilderness Act of 1964. The 1955 act prohibited future location and removal, under the mining laws, of common varieties of sand, stone, gravel, pumice, etc. It also prohibited the use of mining claims for other than prospecting, mining and processing. It established a procedure whereby the administrators of surface resources could obtain the right to utilize and manage such resources provided this did not interfere with mineral development.

The Forest Service has completed the procedures provided under the 1955 act to clarify surface rights to the estimated 91,000 mining claims within the Study Area. This means the Forest Service has regained the right to manage the surface resources on 1½ million acres or more in the Study Area. Over the years,

590 claims have been patented, totaling about 11,750 acres.

Under the Wilderness Act of 1964, mining may continue in areas that are part of the Wilderness System until the end of 1983, after which no patent shall be issued except for valid claims existing prior thereto. However, prospecting in National Forest Wilderness areas may continue and the Secretary of the Interior through the Geological Survey and the Bureau of Mines is directed to survey these areas on a planned recurring basis to determine their mineral values.

Following are further restrictions on prospecting or development:

1. Federal Power Commission withdrawals. Mining claims are permitted in Federal Power withdrawals under certain conditions. In the Study Area about 187,000 acres of land is in Federal Power withdrawals. On one-third of this, mineral exploration is not permitted.



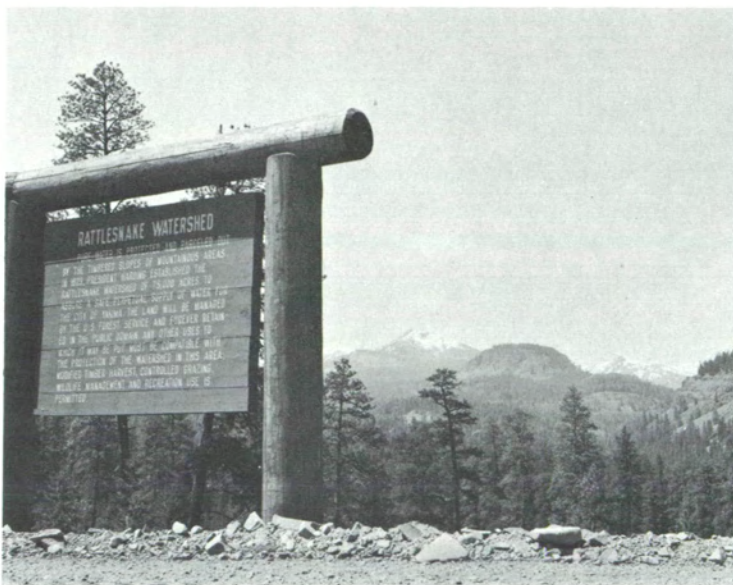
Land along Railroad Creek which the Federal Power Commission has withdrawn for a potential power reservoir. This canyon is a popular recreation travel route into the Glacier Peak Wilderness Area. (photo NPS 4214-312)

2. There are about 31,000 acres of Reclamation withdrawals in the area that are not open to mineral entry.
3. About 30,000 acres of National Forest lands have been withdrawn from mineral entry to protect administrative and public service sites.
4. Mount Rainier National Park is closed to all mineral location.
5. Rattlesnake Watershed, 75,000 acres, was withdrawn from location and entry under Presidential order in 1923.
6. Cedar River (23,000 acres), Green River (42,000 acres), and Sultan River (17,800 acres) watersheds are open to mineral entry but prospecting is difficult if not impossible because access is prohibited or limited.

It is the feeling of the study team in evaluating the mineral situation, that minerals have been locally important in parts of the Study Area, that old-time prospecting has been carried out over most if not all the area, that there is a possibility of developing deposits at some time in the future in the North Cascades which will contribute significantly to meeting domestic needs, and that mineral potential must be considered in overall management of the resources of the Study Area.

WATER AND POWER

For the purposes of considering the water and power resources, the study team used not only the defined



Rattlesnake Watershed area in the Snoqualmie National Forest, dedicated by Presidential order to protect the water supply of the City of Yakima. (photo FS 1660-1-2)

Study Area, but also a so-called “influence zone” including 12 counties; namely, Whatcom, Skagit, Snohomish, King, Pierce, Thurston, and Lewis, west of the Cascades, and Okanogan, Chelan, Kittitas, Yakima, and Benton, on the east side.

The Study Area consisted of parts of the following river basins: On the west side; Chilliwack, Nooksack, Skagit, Stillaguamish, Snohomish, Cedar, Green, Puyallup, Nisqually, Cowlitz; and on the east side, Pasayten, Okanogan, Methow, Chelan, Entiat, Wenatchee, and Yakima.

The basic assumption in considering water and power resources is that there will be continued population explosion and urban concentrations, particularly in the Puget Sound area, during the next century. The population is estimated to more than double by 2010, reaching a figure of 5.8 million.¹ This is higher than the national rate due to transportation advantages of the area and the present under-utilization of its natural resources.

It is assumed that (1) the Gross National Product will increase more than five times between 1960 and 2010 and (2) heavy industry will be encouraged to locate in the area because of a combination in part of low-cost electric power, large supplies of high quality water, inland and marine water transportation, and favorable recreation and climatic features.

The area has one of the largest low-cost electric supplies in the country, exceptional supplies in quantity and quality of fresh water, and it is available to the sea from Puget Sound and the Columbia waterway.

Water Supply

Much of the large water supply of the influence zone originates in the North Cascades. The many glaciers, snow fields, and lakes of the Study Area constitute a gigantic storage reservoir which releases water via the stream channels to the influence zone and maintains a considerable supply during the summer periods of low precipitation.

Most of the heavy moisture carried by passing storms is precipitated on the western, or windward, slopes of the North Cascades, a large share of it falling in the form of snow. Although winter precipitation is often heavy in restricted areas on the east side, most of that slope lies in the “rain shadow” of the mountains. As a result, the west-side basins produce more

¹The population assumptions in the water and power discussion are similar to, but slightly different from, those used in the earlier section on the area economy.



Glaciers, snowfields, and lakes of the North Cascades constitute a gigantic water storage reservoir. Here a snow surveyor gauges snow depth in the Snoqualmie National Forest. (photo FS 2500-1-9)

than three times the runoff of those on the eastern side. Over the 10-year period from 1953 to 1962, the streams draining the western slope had an estimated mean annual runoff of about 40 million acre-feet, while the eastern streams produced a mean annual yield of about 11 million acre-feet.

In addition to surface water, large and relatively undeveloped supplies of groundwater exist in the influence zone. On the east side, groundwater aquifers are recharged largely from the flow of streams coming from the Study Area. On the west side, recharge of groundwater in the flood plains of the rivers depends to a considerable extent on streamflow; but most of the recharge in the larger expanses of uplands intervening between the rivers comes directly from precipitation.

A very favorable water demand and supply relationship exists in the influence zone, especially on the west side. About one-third of the available supply is withdrawn. However, this favorable relationship cannot continue indefinitely without conservation measures such as artificial upstream storage, protection of quality, and economies in water use.

The estimated supply-withdrawal situation in 2010 is shown below:

	United States	Pacific Northwest	Influence Zone
Population, millions -----	375	15.5	5.8
Gross national product, \$ billions -----	3,000		
Total water supply, billion gpd ¹ -----		270	42
Available water supply, billion gpd -----	1,100*	143	20-25
Water withdrawals billion gpd -----	1,000*	70	10-11
Water losses billion gpd -----	170*	18	2
Storage capacity, million acre-ft. -----	900*	80	9-10

¹ Gallons per day.

*Contiguous (48-state) U.S.

One of the outstanding water features is the abundance of glaciers and lakes. Of the roughly 1,000 glaciers in the United States south of Alaska, over one-half, or 600, are in the 13 drainage basins in which the Study Area is located. About 270 of these are in the Skagit River Basin alone. The area covered by glaciers in the 13 basins is about 140 to 145 square miles.

In the Study Area, there are about 33,000 acres of lakes or reservoirs, 25 acres or larger in size (fig. 6). However, there are hundreds of other lakes smaller than this. A rough estimate is that the Study Area has about 5,000 lakes which are an acre or more in size. These may cover as much as 100,000 acres.

Water Quality

Users of North Cascades water enjoy a standard of water quality far better than most of the Nation's population. The trend in the past has been to develop surface water supply sources in upstream watersheds where human usage is held to a minimum. Such restricted use watersheds are the source of supply for Everett, Seattle, and Tacoma, for example.

A rough measure of the high quality to which the influence zone has been accustomed is the fact that of 221 municipal water facilities listed in the area by the Public Health Service, only 12 filter the water, 72 disinfect it, and 137 give it no treatment at all.

It is probable that as population and utilization of resources increase, it will be necessary in the future to resort to filtration and disinfecting measures as has been the case in most other parts of the country.

Water Needs

Water needs will increase markedly between 1960 and 2010. Municipal and industrial needs will triple and there will probably be substantial new needs for thermal power. There may be about a 25 percent increase in irrigation withdrawals. Irrigation and thermal power uses both may be substantially greater than municipal and industrial needs. These water withdrawals are estimated as follows:

	Influence Zone	
	1960	2010
Fresh water withdrawals, millions of acre-feet-----	3.9	10.6
Municipal and industrial-----	.7	2.3
Irrigation -----	3.1	4.1
Mining -----	.1	.2
Thermal power-----		4.0
Usable storage, all purposes-----	3.5	9.0
<hr/>		
Gross annual streamflow, millions of acre-feet:		
Total—Influence Zone-----		46
Study Area only-----		31

Bellingham, Everett, Seattle, Tacoma, and Yakima will need additional municipal and industrial

water. In some cases it will come from impoundments in the Study Area.

Expansion of irrigation on the east side will be relatively small, since most of the irrigable land is already being served, but on the west side there will be increased use for sprinkler irrigation, probably requiring increased storage.

Power Needs and Supply

The expanding economy in the influence zone will greatly increase the demand for electric power. Power loads in the zone will increase from 3 million kilowatts at present to about 15 million in 1985, and to 45 million in 2010 as shown below:

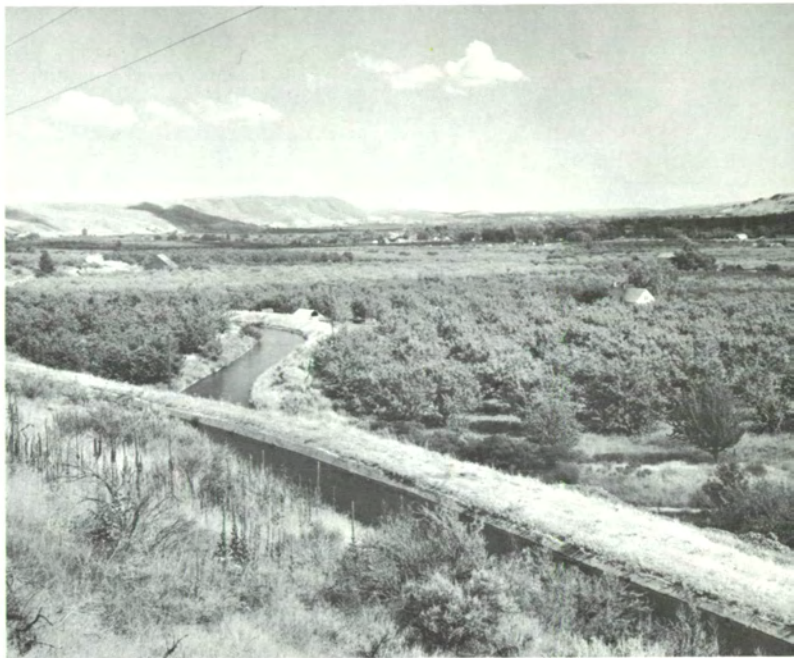
	CONTIGUOUS U.S.		PACIFIC NORTHWEST		INFLUENCE ZONE	
	1960	2010	1960	2010	1960	2010
Electric power loads in thousand megawatts:						
Peak load	138	2,000	9	137	3	45
Average energy	87	1,200	6	87	2	27

Although part of the demand of the influence zone is supplied from local facilities, the bulk of the power consumed in the area comes from the larger Pacific Northwest system. The Pacific Northwest is served on a coordinated basis through a number of interconnected generating and transmissions systems in which the Federal regional transmission grid of the Bonneville Power Administration provides the backbone lines. At present the system is almost entirely hydro-supplied, but a shift to a mixed thermal and hydro system will be well underway by 1980 when the bulk of the economical hydro-capacity will have been developed. It is believed, however, that economic hydro-peaking capacity may be under development for a considerable period after that time. Most future hydro development will be in connection with multiple-purpose water projects.

The hydro-capacity of the Study Area will meet only a minor and diminishing fraction of the energy needs of the influence zone. The zone's present hydro-capability of about 0.7 million average kilowatts might be expanded to about 2 million. Thermal energy plants using fossil fuels and petroleum can take up the slack with powerplants located near deposits near the Cascades but largely outside the Study Area. Petroleum-fired plants are likely to be located at tide-water on Puget Sound.



1



2



3

1. Water in the North Cascades is so pure that 137 of 221 municipal water facilities in the area give it no filtration prior to use. The City of Leavenworth is one of the 137. (photo Wenatchee Daily World)
2. Irrigation canals carry water to apple orchards in the Naches River Valley. Some irrigation increase is expected east of the Cascades Crest, more in the west. (photo FS 485654)
3. Industrial water needs are on the increase in the North Cascades. This mill pond at Darrington uses water from a western drainage of the area. (photo NPS 4214-654)



Power Transmission

Transmission capacity will approximately triple by 2010. This will mean additional lines and replacements in the belts of present trans-Cascade crossings in the vicinity of Stevens, Stampede, and Snoqualmie Passes. Most of the routes north of Stevens Pass, including that along the new North Cross-State Highway, are relatively undesirable for transmission purposes because high elevations and steep terrain make construction and maintenance costly and difficult.

Twenty-six water resource development projects now exist either within the Study Area or close to it. Eighteen of those are non-Federal. Seven are Bureau of Reclamation projects.

Eighty-one potential projects in or near the Study Area have been identified as technically feasible. This does not mean they are economically feasible, and most of the potential projects are relatively small. The water development projects, existing and potential, are identified by river basins in figure 27.

Although the Study Area and surrounding zone presently enjoy favorable water and power conditions,

future needs are such that these can be met only by further development and careful management.

The analysis of the water and power situation, coupled with the recognized value of free-flowing streams for both sport and commercial fishing and canoeing, indicates the importance of preserving a segment of at least one of the rivers in the Study Area for Wild River status in order to protect its natural condition. This conclusion is supported by the prospect of additional reservoirs and dams in the Study Area, by the 81 potential reservoir sites already identified, by the 187,000 acres in Federal power withdrawals and by the 31,000 acres in Reclamation withdrawals.

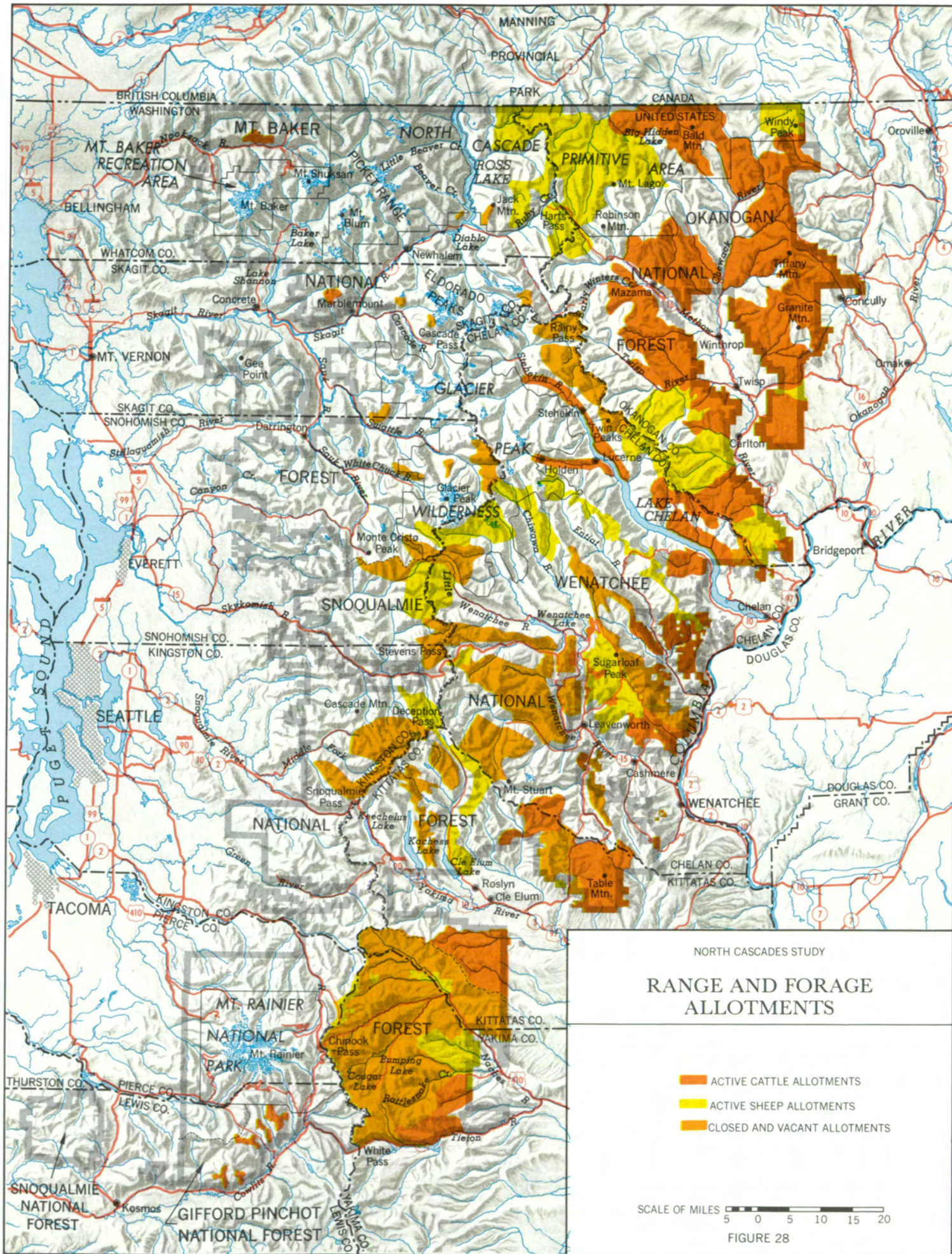
RANGE RESOURCES

About 150 stockmen run cattle and sheep on National Forest ranges in the Study Area during the summer. Most of the grazing permits are for east side summer range and the available summer feed is about 50 percent short of meeting present demands.

The North Cascades have been grazed by do-



1. Cattle being driven to range on Rattlesnake allotment, Snoqualmie National Forest. About 150 ranchers hold grazing permits on Federal lands in the North Cascades. See figure 28 map, page 74. (photo FS 2200-1)
2. Sheep on range in Horseshoe Basin, Okanogan National Forest. Domestic livestock have grazed the North Cascades since before establishment of the Forest Reserves in 1893. See figure 28 map, page 74. (photo FS 2200-5)



mestic livestock since prior to the establishment of the Forest Reserves in 1893. Mount Rainier National Park was grazed during the World War I years of 1918, and in 1919-20. There has been no grazing of cattle or sheep in the National Park since that time.

In 1962, about 7,600 cattle and 14,300 sheep were under paid permits for 3½ months on National Forest ranges, making up a total feed utilization of some 37,000 animal unit months. In addition, 6,280 recreation horses utilized 1,600 animal unit months of forage. The balance of the available feed was utilized by big game.

There are roughly 2.7 million acres of coniferous range and about 800,000 acres of sub-Alpine grasslands in the area. Studies show that over 85 percent of the range is in poor to fair condition.

The number of permittees and the number of

livestock grazed is small. Nevertheless, for those stockmen who do utilize National Forest ranges, this activity is an important and integral part of their operations. For the 150 operators involved, the cattlemen depend on National Forest range for 35 percent of their annual value of production, and the sheepmen for about 50 percent. The value of feed utilized totals about \$500,000 per year.

In summation, it may be said the utilization of National Forest summer feed on the east side of the Cascades is important to about 150 stockmen, that the ranges are not in good condition, and that there is a deficiency of summer range. Considerable forage is utilized under exchange permits, by horses used by recreationists in wilderness and other travel, and by big game. Sheep and cattle allotments in the Study Area in 1962 are shown in figure 28.

III RECOMMENDATIONS

The directive to the North Cascades Study Team from the Secretaries of the Interior and Agriculture states,

"Your report should include recommendations as to both management and administration, including jurisdictional responsibility. We recognize there may not be unanimous agreement among the study team, although we hope that agreement may be reached as to basic facts. If there is disagreement as to recommendations, we believe it would be appropriate for this dissent to be shown and recommendations of individual members of the team included where they differ from group viewpoint. It would be appropriate to include in your recommendations more than one action alternative."

The recommendations are obviously the key part of the report. These are based on the various resource reports, all the other background information and personal experience and judgment available to the study team, individual agency recommendations of both the National Park Service and the Forest Service, and by the public hearing record.

Prior to enumeration of the recommendations and a discussion of them, there are first summarized the separate proposals of both the National Park Service and the Forest Service. Also, as preliminary to the recommendations, the results of the hearing record are summarized.

At the conclusion of the recommendations, there is an appraisal of their economic impact and, also, the individual views of the team members are stated to the extent each individual decided to offer them. These views were necessarily addressed to the review draft of August 30, 1965, which immediately preceded this final report. To the extent that the chairman felt

able to accept these comments, they have been incorporated in, or are reflected in, this report. To the extent that this has been done, therefore, the comments of the study team members are not applicable. Nevertheless, they are of real value.

Among the major issues confronting the study team were: (1) Should there be a new National Park; (2) How much Wilderness is enough; (3) How best to provide for the more conventional types of recreation desired by the great mass of people; (4) How to reconcile national and local interests when the two appear to conflict; (5) How to utilize and manage the timber resource in harmony with other multiple uses of the area; and (6) The extent to which scenic roads should be an essential ingredient in making the North Cascades available to large numbers of people.

AGENCY RECOMMENDATIONS

The individual agency recommendations are given in full in the appendices. They are summarized here. The purpose of this is to make available in both complete and summary form the separate views of the two agencies directly concerned in management of the Federal lands in the area. Obviously these recommendations were given careful consideration by the study team.

NATIONAL PARK SERVICE

The statement by the National Park Service appears in complete form as Appendix C. That service made the following eight recommendations:

- "1. The Service proposes an enlarged Mount Rainier National Park to provide an eastside environment with visitor facilities and interpretive services developed as an integral part of the park

complex. An extension to the south to include the remainder of the Tatoosh Range is also proposed.

- "2. The National Park Service recommends the magnificent heartland of wild country in the Alpine Lakes and Mount Stuart and Enchantment Lakes region as a Wilderness area, which could be the core of a larger surrounding recreation region.
- "3. The National Park Service recommends a National Park surrounding Glacier Peak.
- "4. National Park status should be accorded that climatic Cascade country occurring from the Skagit Valley to the Canadian boundary, west of Ross Lake, embracing Mount Baker, Mount Shuksan, the Picket Range, and adjacent mountain country.
- "5. East of Ross Lake a North Cascade Wilderness Area should be established to protect a primitive region that is ideal for wilderness travel and experience.
- "6. In the region north and east of Glacier Peak the recreation lands are so outstanding, having, as they do, major water resources and scenic values of their own complementary to the area qualifying as a park that National Recreation Area designation is recommended there.
- "7. Design and development of a system of scenic drives and parkways in the Cascades region should receive high priority.
- "8. The recreational lands around Baker and Ross Lakes; those surrounding the wilderness heartland of the Alpine Lakes and Mount Stuart, and the land to the east of Mount Rainier National Park and its proposed eastward extension, are also of especial value in serving both State and out-of-State needs, and offer a wide variety of recreation opportunity. This is also true of the Okanogan Country. These areas should be given special protection and management for recreational use."

Figure 29 illustrates the following recommendations of the National Park Service in relation to existing areas dedicated for recreation:

1. Recommended extensions on the south and east sides of Mount Rainier.
2. A proposed new Wilderness area in the Alpine Lakes-Mount Stuart region.
3. A proposed extension of the Glacier Peak Wilderness Area on the western boundary.
4. A proposed new Eldorado Peaks-Lake Chelan National Recreation Area, encompassing the Eldorado Peaks High Country, a segment of the eastern shore of Lake Chelan, and extending

south and west to border the north and east boundaries of the Glacier Peak Wilderness Area.

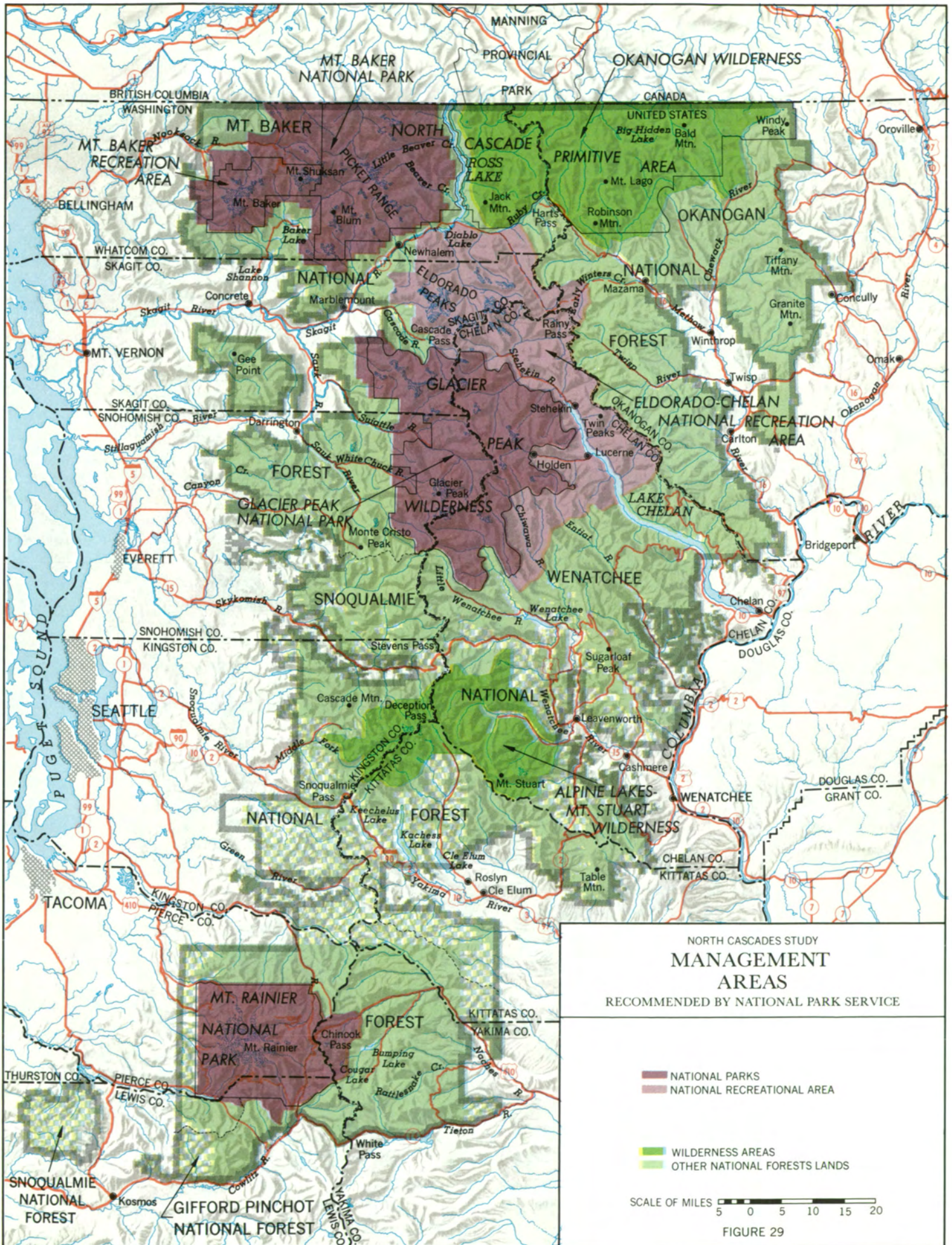
5. A proposed Okanogan Wilderness which would be essentially the same as that part of the North Cascades Primitive Area east of Ross Lake.
6. A proposed Mount Baker National Park which would embrace Mount Baker, Mount Shuksan, the Picket Range, and extending from roughly the Skagit River Valley on the south to the Canadian boundary, and east to Ross Lake.

FOREST SERVICE

The Forest Service views and recommendations are given in complete form in Appendix B.

The resource and land management plans of that agency call for the following 11 actions:

- "1. Adding some 237,000 acres to the area of dedicated Wilderness areas as well as reclassifying the 801,000-acre North Cascades Primitive Area to Wilderness area status;
- "2. Continuing the present intensive pattern of wildlife habitat management to support expanded levels of big and small game population;
- "3. Maintaining and increasing levels of fishing use;
- "4. Substantially expanding the number and location of developed recreation sites, including winter sports areas, organization camps, and resort facilities as well as the more numerous small camp and picnic areas;
- "5. Greatly expanding the opportunity for outdoor-type mountain recreation by significant new developments in areas where main roads are projected but are not yet built;
- "6. Continuing emphasis on maximum freedom of opportunity for individual recreation users to follow their recreation pursuits with the least possible limitation or restraint;
- "7. Continuing to harvest the sustainable allowable annual cut of timber, with intensified cultural treatment on the good timber growing sites, and following modified principles of designating the timber to be cut adjacent to recreation areas and on all other acres where the management of the landscape is as important as the management of the timber.
- "8. More water impoundment reservoirs where they are needed in the normal course of supplying water for use of Washington State residents, and intensifying efforts to manipulate vegetative cover so as to produce more water in the areas where water supplies comprise a future problem;



- “9. Continued use of appropriate areas of National Forest land for domestic livestock grazing;
- “10. Opportunity to continue and expand mining and mineral development in accordance with the laws Congress has enacted on this subject;
- “11. Expansion of the present road system in the National Forest area to be managed for commodity production, and provision of recreation trails and some recreation-way type roads on which the road location and use will emphasize scenery and the desire of people to see it from an automobile.”

The details of the Forest Service plans with respect to Wilderness areas are given in Appendix B. These include enlargement of the Glacier Peak Wilderness Area, reclassification and enlargement of the North Cascade Primitive Area, establishment of three additional Wilderness areas—Alpine Lakes, Enchantment, and Mount Aix.

In addition, the Forest Service proposes to manage certain areas with special emphasis on recreation, including Eldorado Peaks High Country, the Mount Baker Recreation Area, Mather Memorial Parkway, and the Cougar Lake Area. It proposes four recreation ways: Curry Gap, Cady Pass, Harts Pass, and Austin Pass.

With respect to the Eldorado Peaks, the Forest Service proposes:

1. To name this unit “The Eldorado Peaks High Country.”
2. To manage this “High Country,” the boundaries of which are shown in figure 30, in accordance with the policy directive established by the Secretary of Agriculture and referred to above.
3. To develop a system of public access and recreation use facilities.
4. To perform only such timber removal as public interest and the resource importance of the area clearly justifies, by selective cutting methods except as other systems of cutting may be required for mining, for road construction, for salvaging diseased, insect-infested, or dying timber, or for other authorized activities such as water impoundments or rights-of-way.
5. To do no additional road construction utilizing funds or authority of the Forest Service in Bridge Creek or in the Stehekin Valley.

Figure 31 shows Forest Service proposals in relation to existing dedicated recreation areas. These include:

1. A proposed southerly extension of Mount Rainier National Park to include 7,000 acres.
2. A new Mount Aix Wilderness Area of 45,000 acres.
3. A new Alpine Lakes Wilderness Area of 150,000 acres.
4. A new Enchantment Wilderness Area of 30,000 acres.
5. Small westerly extension of the Glacier Peak Wilderness Area in the Suiattle and White Chuck River Valleys, which would include about 10,000 acres.
6. A northeasterly extension of the Glacier Peak Wilderness Area of about 20,000 acres extending from Riddle Creek up the Stehekin Valley to Cascade Pass.¹
7. An Eldorado Peaks High Country area of 537,000 acres.
8. A new North Cascades Wilderness Area of 813,000 acres, which would be approximately the same size as the present North Cascade Primitive Area, and
9. Maintenance of the existing Mount Baker Recreation Area.

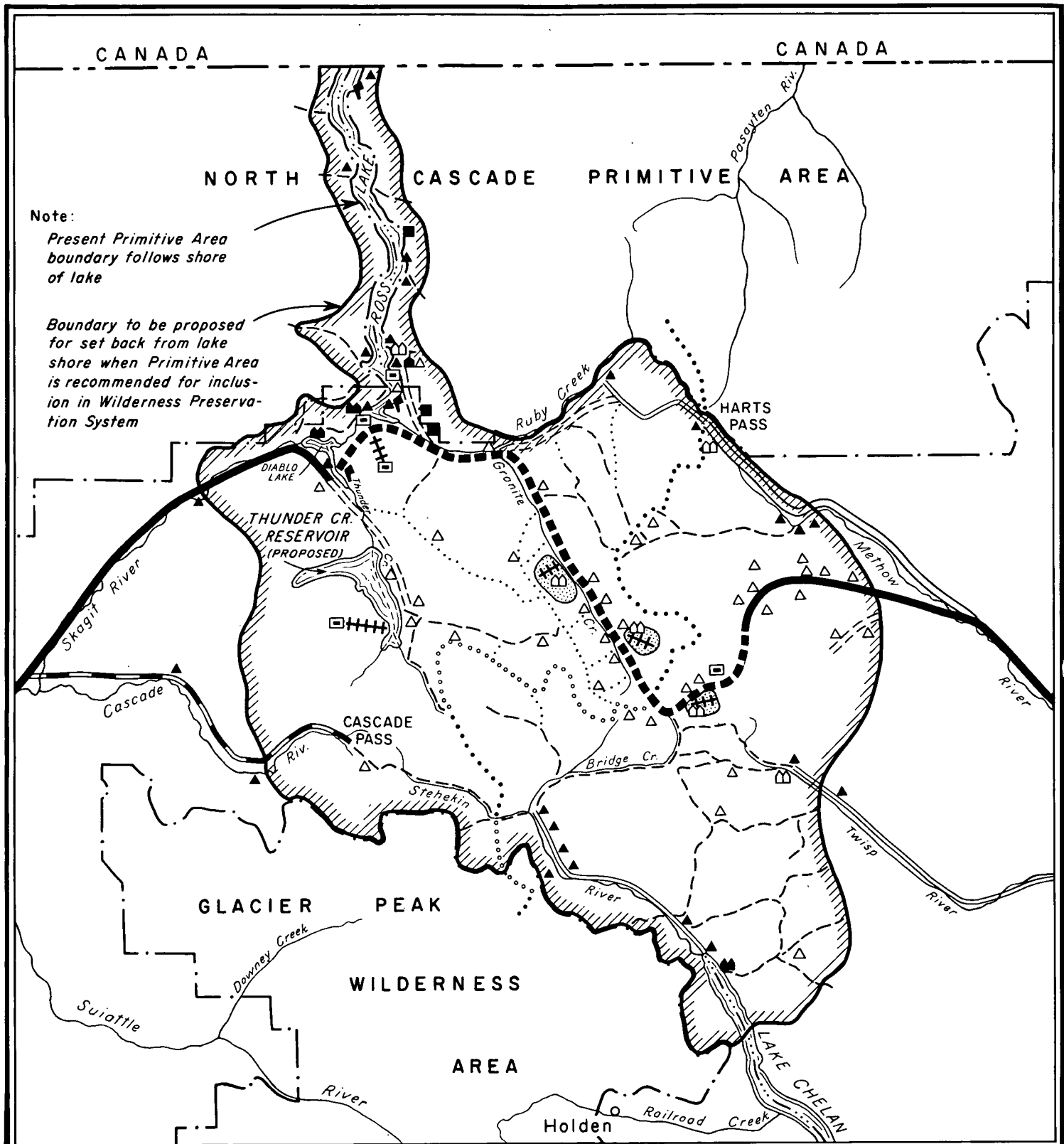
HEARING RECORD

The record of public hearings that were held in October 1963 had a consequential impact on views of the study team.

After the first day of testimony at Wenatchee, it was readily apparent that as far as those appearing were concerned only two issues were involved. These were (1) whether existing administration by the Forest Service and its policy of multiple use should be endorsed and (2) in contravention to this should there be another National Park in the North Cascades and additional areas preserved in Wilderness classification.

The bulk of the testimony at Mount Vernon and Wenatchee favored continuation of Forest Service management and administration. The reasons most commonly given were that the local and State economy would be adversely affected if additional National Forest lands were put in Wilderness areas or given National Park status; that the counties would be adversely affected with regard to their portion of the 25 percent fund which they receive from National

¹ The planimetered acreages of items 5 and 6 add to 39,000 rather than 30,000 acres.



Note:

Present Primitive Area boundary follows shore of lake

Boundary to be proposed for set back from lake shore when Primitive Area is recommended for inclusion in Wilderness Preservation System

NORTH CASCADE STUDY
 DEVELOPMENT PROPOSAL FOR
**ELDORADO PEAKS
 HIGH COUNTRY**
 AS SUBMITTED BY
 THE FOREST SERVICE

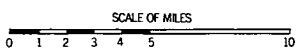


FIGURE 30

- ELDORADO PEAKS HIGH COUNTRY BOUNDARY
- WILDERNESS AND PRIMITIVE AREA BOUNDARY
- NORTH CROSS STATE HIGHWAY (COMPLETED)
- NORTH CROSS STATE HIGHWAY (UNDER CONSTRUCTION)
- STATE HIGHWAY
- RECREATION WAY (PROPOSED)
- FOREST ROAD (MAIN ROADS)
- COUNTY ROAD

- BOAT ACCESS
- CASCADE CREST TRAIL (COMPLETED)
- CASCADE CREST TRAIL (UNDER SURVEY AND PROPOSED)
- OTHER TRAILS (EXISTING)
- OTHER TRAILS (PROPOSED)
- CAMPGROUNDS (EXISTING)
- CAMPGROUNDS (PROPOSED)
- ORGANIZATION SITES (PROPOSED)
- ADMINISTRATIVE SITES (PROPOSED)

- OBSERVATION SITES (PROPOSED)
- RESORT SITES (PROPOSED)
- RESORT SITES (EXISTING)
- AERIAL TRAMWAY (PROPOSED)
- WINTER SPORTS SITES (PROPOSED)
- BOAT LAUNCHING AREA (PROPOSED)

NOTE: VISITOR INFORMATION SERVICE FACILITIES PLANNED AT A NUMBER OF DEVELOPED SITES.