

University of Montana

ScholarWorks at University of Montana

Graduate Student Theses, Dissertations, &
Professional Papers

Graduate School

1966

A study of land management and recreational users of the Mission Mountains Primitive Area Montana

William Fred. Wright
The University of Montana

Follow this and additional works at: <https://scholarworks.umt.edu/etd>

Let us know how access to this document benefits you.

Recommended Citation

Wright, William Fred., "A study of land management and recreational users of the Mission Mountains Primitive Area Montana" (1966). *Graduate Student Theses, Dissertations, & Professional Papers*. 5667.
<https://scholarworks.umt.edu/etd/5667>

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

A STUDY OF LAND MANAGEMENT AND RECREATIONAL USERS OF
THE MISSION MOUNTAINS PRIMITIVE AREA, MONTANA

1964

By

WILLIAM FRED WRIGHT

B.S. Louisiana Polytechnic Institute, 1963

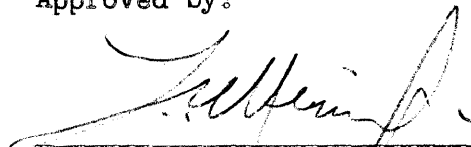
Presented in partial fulfillment of the requirements for the degree of

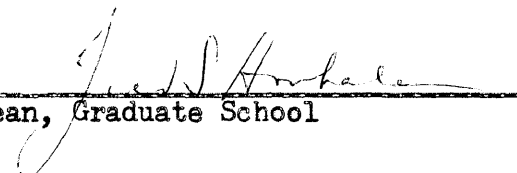
Master of Science

UNIVERSITY OF MONTANA

1966

Approved by:


Chairman, Board of Examiners


Dean, Graduate School

MAR 18 1966

Date

UMI Number: EP41131

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI EP41131

Published by ProQuest LLC (2014). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

ACKNOWLEDGMENTS

This paper could not have been completed without the efforts and contributions of many people and organizations.

My thanks go to the Condon District personnel of the U. S. Forest Service, the Northern Pacific Railway Company, and the Flathead Indian Reservation Agency personnel for their help in providing information about agency policies related to the Mission Mountain Range.

The members of my graduate committee, Dr. R. B. Ammons and Dr. Gordon Browder, contributed helpful suggestions and comments that benefited in the development of this paper.

My deepest and most sincere thanks go to my graduate committee chairman, Dr. L. C. Merriam, Jr. If not for his complete dedication to his work and graduate students, this paper would not have been completed.

Moral support and much help was given to me by my fiancée and new bride, Linda, for which I am deeply thankful.

William F. Wright

PLATE I



A view of the Glacier Creek drainage looking west into the
Mission Mountains Primitive Area

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
II. DESCRIPTION OF THE MISSION MOUNTAINS PRIMITIVE AREA	4
Physical	4
Location	4
Topography	4
Geology	6
Soils	7
Climate	7
Vegetation	7
Wildlife	9
Historical	10
III. LITERATURE REVIEW	19
Wilderness Concept	19
The Wilderness User	22
Wilderness Management	24
IV. RECREATIONAL USE IN THE MISSION MOUNTAINS PRIMITIVE AREA . .	28
Fatty Lake	28
Cedar Lake	28
Piper Lake	31
Jim Lakes Basin	31
Cold Lakes	33
Main Cold Creek	33
South Cold Creek	33

Elk Creek	35
Hemlock Lake	35
Crazy Horse Creek	36
Crescent Creek	36
Glacier Creek	36
Herrick Run Creek	40
Crystal Lake	40
Angel's Bathing Pools	43
Gray Wolf Lake	43
V. MANAGEMENT OF THE MISSION MOUNTAINS PRIMITIVE AREA AND	
BORDERING LANDS	44
Timber	44
Range	44
Watershed	46
Wildlife	46
Outdoor recreation	46
Mining	46
The Flathead Indian Agency	47
The Office of the Montana State Forester	50
The U. S. Forest Service	51
The Northern Pacific Railway Company	59
Other Owners and Operators	61
VI. INVESTIGATION PROCEDURES FOR STUDY OF THE RECREATIONAL USERS. 65	
Sampling Standards	65
Field Work	66
VII. ANALYSIS OF DATA 70	

Description of Interviewed Parties	70
Party size	70
Age and sex	70
Party type	73
Interviewed User Information	74
Sex	74
Age	75
Occupation	75
Income	77
Education	78
Residence	79
Area information source of interviews	80
First visit	81
User Activities and Trip Characteristics	81
Length of stay	81
Activities of respondents	81
Wilderness Concepts and Management	87
The beginning of wilderness	89
Trip expectations	90
Likes and dislikes of trip	91
Feelings toward television in wilderness	91
Feelings toward road being constructed into area	91
Items not important to wilderness	95
Recommended changes of facilities and management	97
Other	97
VIII. REVIEW, CONCLUSIONS, AND RECOMMENDATIONS	100

	vii
Review of the Problem	100
Study Limitations	101
The questionnaire	101
Data collection	101
User data analysis	102
The Interviewed Recreational User	102
Land Management	105
Recommendations	109
REFERENCES	113
APPENDIX	118
Wilderness Study Questionnaire	119

LIST OF TABLES

TABLE	PAGE
I. Number and Date of Recreational Users that Signed Register at End of Glacier Creek Road, Mission Mountains Primitive Area, Summer, 1964	38
II. Date, Location, and Number of Recreational User Interviews, Mission Mountains Primitive Area, Summer, 1964	68
III. Area Numbers, Interview Locations, and Numbers, Mission Mountains Primitive Area, Summer, 1964	71
IV. Sex Distribution of Age Groups, Interviewed Recreational Parties, Mission Mountains Primitive Area, Summer, 1964	73
V. Companions Desired on Trip by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	74
VI. Age Group Distribution by Sex of Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	75
VII. Occupations of Recreational Users by Location of Interview, Mission Mountains Primitive Area, Summer, 1964	76
VIII. Total Family Income of Interviewed Recreational Users, by Location of Interview, Mission Mountains Primitive Area, Summer, 1964	77
IX. Education Level of Recreational Users, Mission Mountains Primitive Area, Summer, 1964	78
X. Residence of Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	79
XI. Area Information Source of Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	80
XII. Length of Stay of Interviewed Recreational Users, by Location of Interview, Mission Mountains Primitive Area, Summer, 1964	82
XIII. Activities of Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	83

TABLE	PAGE
XIV. Activities of Interviewed Recreational Users, Depending upon Length of Visit, Mission Mountains Primitive Area, Summer, 1964	84
XV. Activities of Interviewed Recreational Users, by Location of Interview, Mission Mountains Primitive Area, Summer, 1964	85
XVI. The Meaning of the Word "Wilderness" by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	88
XVII. Where "Wilderness" Began to Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	90
XVIII. Trip Expectations of Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	92
XIX. Things Liked About Wilderness Trip by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	93
XX. Things Disliked About Wilderness Trip by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	94
XXI. Feelings of Interviewed Recreational Users Toward Television being Inside Wilderness, by Area of Interview, Mission Mountains Primitive Area, Summer, 1964	95
XXII. Items Considered <u>NOT</u> Important for Wilderness by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	96
XXIII. Recommended Changes in Facilities and Management by Interviewed Recreational Users, Mission Mountains Primitive Area, Summer, 1964	98

LIST OF MAPS

MAP	PAGE
I. General Location of Mission Mountains Primitive Area	5
II. Amount of Recreational Use, by Locations, Mission Mountains Primitive Area, Summer, 1964	29
III. Land Ownership, Mission Mountains Primitive Area, Summer, 1964	45
IV. Logging Operations in Relation to Mission Mountains Primitive Area	53
V. Future Trail and Road Locations, Mission Mountains Primitive Area, Summer, 1964	57
VI. Area Interview Locations, Mission Mountains Primitive Area, Summer, 1964	72

LIST OF PLATES

PLATE	PAGE
I. A View of the Glacier Creek Drainage Looking West into the Mission Mountains Primitive Area.	iii
II. Logging Operations at Jim Lake Next to Eastern Boundary of Mission Mountains Primitive Area, Summer, 1964	32
III. Make-shift Campground at Upper Cold Lake, Mission Mountains Primitive Area, Summer, 1964	34
IV. A Trail Sign in the Mission Mountains Primitive Area, Summer, 1964	39
V. Campground at Crystal Lake, Mission Mountains Primitive Area, Summer, 1964	41
VI. Rodent Damage of Pit Toilet at Crystal Lake, Mission Mountains Primitive Area, Summer, 1964	42

CHAPTER I

INTRODUCTION

Recreational use of the national forest lands, under the management of the United States Forest Service, has greatly increased since World War II. Higher standards of living and improved accessibility to the variety of attractions of these lands have helped cause this increase. National forest lands are managed by the Forest Service under a multiple use policy to obtain the maximum benefits from the natural resources for the public. The multiple purpose management encompasses timber, forage, watershed, wildlife, and outdoor recreation.

In the 1920's and 1930's, the Forest Service retained portions of national forest land in its natural environmental condition, provided no modern means of transportation, allowed no permanent inhabitants, and harvested no timber in these areas. The purpose of these natural areas was for "public education, inspiration, and recreation." (27, p. 20). The rules and regulations that govern the management of these natural lands under the Forest Service supervision are enforced at all times so that conflicts of management and use do not develop. The areas are designated as primitive, wilderness, or wild areas, depending upon size and classification.

The eastern slope of the Mission Mountains Range in western Montana was classified as a primitive area by the Forest Service in 1939. The western slope of the mountain range is generally in the same natural condition as the eastern, but is part of the Flathead Indian

Reservation. These lands are owned by the Confederated Salish and Kootenai Indian tribes and are private. The Indian lands are managed for the benefit of the Indian tribes by the Bureau of Indian Affairs. Besides the private land owned by the Confederated Indian tribes, the Northern Pacific Railway Company owns lands on the east slope of the mountain range.

The Mission Mountains Primitive Area was under consideration for reclassification from a primitive area to a wild area until 1964. With the passing of the 1964 Wilderness Act, all designated wild and wilderness areas managed by the Forest Service were collectively classified as wilderness areas in the National Wilderness Preservation System. The Act provides that all primitive areas not reclassified under Regulations U-1 or U-2 are to be reviewed by the Secretary of Agriculture during the ten years following the passage of the Act to determine the suitability of each area for preservation as wilderness (7, p. 31-33).

The Forest Service has determined that the recreational use of the Mission Mountains Primitive Area has increased during the past years (46). With this increase of recreational use, the Forest Service is increasing its managerial supervision to provide facilities for the recreational users. Also with the increase of recreational use, the conflicts of the different land management practices begin to become more apparent. The Forest Service, the Bureau of Indian Affairs, and the Northern Pacific Railway Company have different management practices and objectives for land use.

Because there has not been any previous study that dealt with the recreational users of the Mission Mountains Primitive Area or the

problems of land use management conflicts, the objectives of this study are:

1. To determine the characteristics of interviewed recreational users of the Mission Mountains Primitive Area and their understanding of the word "wilderness".
2. To study management policies and practices for the lands related to the primitive area.
3. To analyze information collected from the interviewed recreational users and the managers of the related lands in order to determine possible conflicts of land use.

This study is limited in location to the Mission Mountains Primitive Area and in time to the summer of 1964. The study is not designed to develop any management plans for the primitive area or the surrounding lands, but will discuss the different management practices and land users, and suggest recommendations that may aid the land managers.

The land management policies and practices were well defined and found written or practiced on the land. On the other hand, the study of the recreational user is more complicated. The complication develops from the fact that the recreational user information was drawn from an unknown population of users. Because the sample of recreational users was taken from an unknown population, a statistical analysis was not run to determine if the sample was adequate. The sample may not have been adequate for statistical analysis, but it does give insight as to what may be an "average" recreational user of the Mission Mountains Primitive Area. Though data were not analyzed statistically, it is assumed that the sample was adequate for this study and the information obtained is used in that context.

CHAPTER II

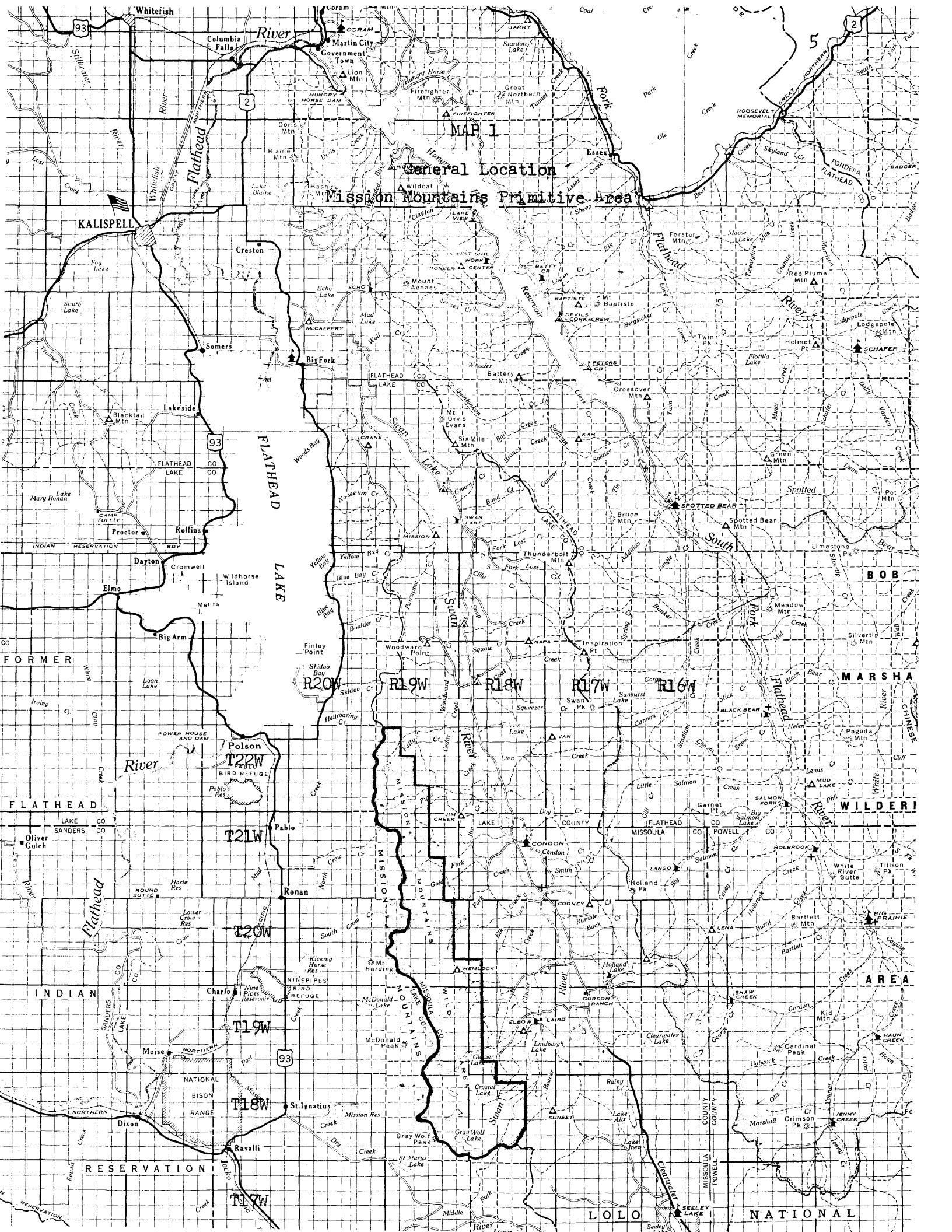
DESCRIPTION OF THE MISSION MOUNTAINS PRIMITIVE AREA

Physical

Location. The Mission Mountain Range is located in the western part of Montana in Lake and Missoula Counties. The range extends from the eastern shore of Flathead Lake almost due south approximately 50 aeronautical miles to the Jocko River drainage. It is bounded on the west by the Flathead Valley and on the east by the Swan Valley. The range is narrow with the widest part being in the southern portion.

The Mission Mountains Primitive Area is on the east slope of the Mission Range and extends from Township 22 North, south to Township 18 North. The boundaries of the primitive area are from the Mission Range summit eastward in portions of Ranges 17 and 18 West. The width of the primitive area varies from just over one mile in the northern end to approximately eight miles in the southern end. The average width of the primitive area is four miles and ^{65,000}75,500 acres are within the boundary (Map I).

Topography. The Mission Mountains separate the Flathead Valley from the Swan Valley. The range has sub-alpine and alpine terrain with the highest peaks being in the southern region. The very southernmost end of the range decreases in elevation and extends eastward to join the Swan Mountain Range and forms the Clearwater-Swan River divide. As the range progresses north, it becomes gradually lower in elevation



MAP 1

General Location
Mission Mountains Primitive Area

KALISPELL

Cresdon

Somers

Lakeside

Rollins

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Martin City

Blaine Mtn

Doris Mtn

Bigfork

Wooda Bay

Yellow Bay

Skidoo Bay

Skidoo Cr

South Crow Cr

Kicking Horse Res

Nine Pipes Res

Mission Res

Gray Wolf Lake

Government Town

Wildcat

Mount Renais

Wheeler

Battery Mtn

Woodward Point

Woodward Cr

Woodward Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Essex

Forster Mtn

Devils Corkscrew

Wheeler

Battery Mtn

Swan Lake

Swan Cr

Swan Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Essex

Forster Mtn

Devils Corkscrew

Wheeler

Battery Mtn

Swan Lake

Swan Cr

Swan Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Essex

Forster Mtn

Devils Corkscrew

Wheeler

Battery Mtn

Swan Lake

Swan Cr

Swan Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Essex

Forster Mtn

Devils Corkscrew

Wheeler

Battery Mtn

Swan Lake

Swan Cr

Swan Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Essex

Forster Mtn

Devils Corkscrew

Wheeler

Battery Mtn

Swan Lake

Swan Cr

Swan Cr

Condon

McDonald Lake

McDonald Peak

Gray Wolf Cr

Middle River

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Rollins

Dayton

Elmo

Big Arm

Polson

Pablo

Ronan

Charlo

Moise

Dixon

Ravalli

Proctor

Roll

until along the Flathead Lake it merges with the valley floor as the Swan and Flathead Valleys join (37, p. 17; 41, p. 145; 53, p. 104).

Geology. The mountains of western Montana were formed during the end of the Mesozoic geological era and the beginning of the Cenozoic geological era. During this time the oceans were gradually withdrawing from the western portion of North America. With the withdrawal of the oceans, a general disturbance of the earth's surface, called the Rocky Mountain Orogeny or Laramide Orogeny, formed the Rocky Mountain Range (38, p. 289-290).

After the recession of the oceans and the formation of the mountains, erosion occurred in the Mission Range and surrounding valleys during the Pliocene and early Pleistocene epoches before the Ice Age developed in the area. The southern portions of the greater Flathead glacial lobe extended into the Flathead and Swan Valleys during the pre-Wisconsin glacial drift. The glacial lobe extended along the flanks of the Mission Range and smaller glaciers in the mountains probably merged with portions of the Flathead glacier. There were at least two periods of glacier recession and return (2, p. 47).

The glacial action produced gorges and U-shaped valleys in the mountains, and partially wore down the long spur ridges that extended from the mountains. Beautiful lakes are now found where the glaciers made depressions in the mountains. Streams cascade down the deep rugged gorges and valleys. In the higher alpine elevations of the southern portion of the range, there are still several small glaciers (2, p. 46-47, 111).

Soils. The glacial movement in the primitive area removed most of the soil from the higher elevations and deposited it on the valley floors. In the higher elevations, the soil is usually located in the larger cracks and crevices formed in exposed hard, sedimentary rock slabs, but may form a thin mantle on top of the rock formations.

Climate. There are no climatological records of the primitive area, but snow survey courses are maintained in portions of the mountain range. Precipitation averages around 50 inches per year with the most of it falling as snow. Precipitation may fall as snow at any time during the year. Sudden, violent storms form over the Mission Range in the summer and fall months. The temperatures vary with the seasons, but frost may form on the ground at any time. Permanent snowbanks exist in the higher elevations and near the glaciers, but most of a winter's snow accumulation is gone by late June. The largest amount of precipitation occurs during June, September, and October. The prevailing wind blows from the west.

Vegetation. The vegetation in the Mission Mountains Primitive Area is abundant at lower elevations. The overstory is composed mostly of coniferous trees, and a few deciduous trees that are generally located near streams. Some of the conifers are of commercial value. The understory is composed of areas with dense shrubs and brush, and herbaceous plants cover the ground surface.

As the elevation increases, the size and number of species in the plant communities decrease to the hardier alpine-type, non-commercial conifers, an understory of shrubs, and a limited amount of

forage. The plant communities in the highest elevations are reduced to mosses, lichens, a few herbaceous plants, and deformed specimens of the hardiest of the alpine conifers.

The coniferous tree species observed are: Douglas-fir, Pseudotsuga menziesii (Mirb.) Franco.; Engelmann spruce, Picea engelmanni Parry; western hemlock, Thuja plicata Donn.; lodgepole pine, Pinus contorta Dougl.; whiteback pine, Pinus albicaulis Engelm.; limber pine, Pinus flexilis James; alpine fir, Abies lasiocarpa (Hook) Nutt.; Rocky Mountain juniper, Juniperus scopulorum Sarg.; Pacific yew, Taxus brevifolia Nutt., and creeping juniper, Juniperus communis L.

The deciduous broad-leaf species, found predominantly in lower elevations, are: western larch, Larix occidentalis Nutt.; Salix spp. L.; quaking aspen, Populus tremuloides Michx., and paper birch, Betula papyrifera Marsh. The understory species observed are: Rocky Mountain maple, Acer glabrum Torr.; alder, Alnus spp. L.; snowberry, Symphoricarpos L.; snowbrush, Ceanothus L.; huckleberry, Vaccinium L.; rose, Rosa L., and cinquefoil, Potentilla L. (18).

The ground cover in the lower elevations are partially composed of the following: mullen, Verbascum L.; balsamroot, Balsamorhiza Hook x Nutt.; beargrass, Xerophyllum Michx.; fescue, Festuca L.; june grass, Poa L., and bunchgrass, Agropyron Gaerth.

The higher elevations are mostly bare rock; the ground cover is limited to mosses, lichens, and a few herbaceous plants.

The preceding list composes only part of the plant life in the primitive area, but can give the reader an idea of the plant community which may be found in the area.

Wildlife. The Mission Range is inhabited by many animal species varying from big game to fur bearers and rodents. Birds are plentiful and fish are found in many of the lakes and streams.

The larger game animals are: white-tail deer, Odocoileus virginianus ochrourus Bailey; mule deer, Odocoileus hemionus hemionus Rafinesque; elk, Cervus canadensis canadensis Erxleben; moose, Alces alces shirasi Nelson; mountain goat, Oreamnos americanus missoulae Allen; mountain sheep, Ovis canadensis canadensis Shaw; black bear, Ursus americanus Pallus; grizzly bear, Ursus horribilis bairdi Merriam, and the cougar, Felis concolor missoulensis Goldman.

The smaller animals of the area are: beaver, Castor canadensis canadensis Kuhl; coyote, Canis latrans lestes Merriam; lynx, Lynx canadensis canadensis Kerr.; snowshoe rabbit, Lepus americanus bairdi Hayden; marten, Martes americana caurina Rhoads; porcupine, Erethizon dorsatum L., and smaller members of the Rodentia order such as marmots, squirrels, pikas, rats, and mice (24).

Most of the birds in the primitive area are song birds common to most mountainous areas of western Montana. Also plentiful are the larger birds of prey, such as the Montana horned owl, Bubo virginianus occidentalis Stone; western red-tailed hawk, Buteo borealis calurus Cassin; northern red-shouldered hawk, Buteo lineatus lineatus Gmelin; golden eagle, Aquila chrysaetus canadensis Linnaeus, and others. The game birds in the primitive area are the ruffed grouse, Bonasa umbellus L.; Franklin grouse, or "fool hen", Canachites franklini L., and the blue grouse, Dendragapus obscurus L. (14).

The fish in the stocked lakes and streams are cutthroat trout,

Salmo clarkii Richardson, and eastern brook trout, Salvelinus fontinalis Mitchell. Dolly Varden, Salvelinus malma spectabilis Girard, are found in the streams along the eastern boundary during the fall spawning runs. Several of the lakes have been stocked with golden trout, Salmo augea bonita roosevelti Evermann, by the Montana Fish and Game Department, but there is no report of the survival of this species (34).

Historical

A chronological summary of the historical development best demonstrates the formation of the land ownership, management pattern, and policy making in relation to the Mission Mountains Primitive Area.

David Thompson,¹ a trapper for Hudson's Bay Company, came to the Flathead Valley in 1809. He is the first known white man to be in the Flathead Valley. Thompson traded with the major tribes in the area: the Salish, commonly known as the Flatheads; the Kalispell, known as the Upper Pend d'Oreille; and the Kootenai.² These tribes were located at that time in northwestern Montana and Idaho. The Indians told Thompson about Flathead Lake and took him to the lake in 1812. With this journey, Thompson was the first known white man to view the Mission Mountains and Flathead Lake (4, p. 5; 10, p. 59).

In the 1820's the Flathead Indian Nation learned of Christianity through Iroquois Indians who accompanied early Northwest Company fur

¹Thompson Falls, Montana, was named after David Thompson.

²These tribes were usually considered as different tribes of the Flathead Indian Nation.

trappers in the area. Four Iroquois and a white man deserted the trapping parties to live with the Flathead Indians.³ These men tried to explain Christianity to the Flatheads, but were not well versed on the subject. However, the Flathead Indians became so inquisitive that they sent delegations to St. Louis to obtain a priest for their tribe. The delegations were sent in 1831, 1835, 1837, and 1839. All the trips to St. Louis were unsuccessful until 1839, when a young Jesuit priest, Father Pierre-Jean de Smet, came to live with and teach the Flathead Indians. In 1844 Father de Smet went back to St. Louis and returned with Fathers Gregory Mengarina and Nicholas Point, and two lay brothers. They established the first mission, St. Mary's Mission, in the Bitterroot Valley near the present town of Stevensville, Montana. (11; 12, p. 35-36).

In the Flathead Valley, Angus McDonald⁴ was the first white settler in 1847. He established a Hudson's Bay Company trading post at Post Creek on the west slope of the Mission Mountain Range (37, p. 17-18).

Seven years after McDonald settled in the valley, the Jesuit Fathers established a mission at St. Ignatius, one of the favorite meeting places of the Flathead tribes. The Mission Mountain Range was named after this mission (42, p. 145-146).

³The writings are varied about the actual numbers of Iroquois Indians and how they happened to arrive in the area, but this seemed to be the most accurate account.

⁴McDonald Peak and McDonald Reservoir in the Mission Range are named after Angus McDonald.

The basic treaty for the establishment of the Flathead Indian Reservation boundaries for the Salish, Upper Pend d'Arenelles, and the Kootenai tribes was written in 1855. The reservation boundary was from the Jocko River drainage (20 miles north of Missoula, Montana) north to include the lower half of Flathead Lake. The eastern boundary was to be the summit of the Mission Range and the reservation was to extend westward approximately 35 miles. The treaty gave the Indians the reservation in trade for western Montana.

The Salish Chief Victor, main spokesman for the Indians, signed the treaty after General Isaac Stevens, Federal Government representative at the council, added an eleventh article to the treaty:

It is moreover, provided that the Bitterroot Valley, above the Loo-Lo [sic.] Fork, shall be carefully surveyed and examined, and if it shall prove, in the judgement of the President, to be better adapted to the wants of the Flathead tribe than the general reservation provided for in this treaty, then such portions of it as may be necessary shall be set apart as a separate reservation for the said tribe. No portion of the Bitterroot Valley above the Loo-Lo [sic.] Fork shall be opened to settlement until such examination is had and the decision of the President made known (15, p. 3).

The eleventh article was added because the Salish tribe was living in the Bitterroot Valley at the time of the treaty and did not want to leave the valley. Chief Alexander of the Upper Pend d'Arenelles and Chief Michelle of the Kootenai were willing to live in either location, the Bitterroot Valley or the reservation. The Salish stayed in the Bitterroot while the other tribes moved onto the reservation. The Federal Government did not survey the land in the Bitterroot Valley at that time and white settlers were allowed to develop the valley (12, p. 31-32; 15, p. 4).

When the Organic Act of the Territory of Montana passed Congress

on May 28, 1864, the 16th and 36th sections in each township, when surveyed, were to be reserved for the schools of the territory (8, p. 25). This resulted in the possible establishment of State lands in the Mission Range and the surrounding region.

Also in 1864, the Federal Government passed the Act of July 2, which granted the Northern Pacific Railway Company alternate, odd-numbered sections of non-mineral land for 40 miles on both sides of their laid tracks in Montana and other territories. And five miles beyond the 40-mile boundary, lieu lands could also be selected by the Company if it desired (9, p. 384). Such land grants to railroad companies were made to encourage their expansion in the West.

The first record of white men using the Swan Valley was in 1866 for fur trapping (8, p. 26).

In 1872, President U. S. Grant sent Representative James A. Garfield to Missoula, Montana, for a council with the Flathead Indian tribes. The council was to make final establishment of the Flathead Indian Reservation. Chief Charlot (son of Victor) did not want to leave the Bitterroot Valley and could not understand why the Federal Government did not follow through with article eleven in the 1855 treaty signed by his father.

Representative Garfield thought that it would be necessary to move the Salish Indians to the reservation because of the number of white settlers in the Bitterroot Valley. A contract for moving to the reservation was signed by the tribe's lesser Chiefs, Arlee and Adolph, but Chief Charlot did not sign the document. Congress passed the bill for the removal of the Salish from the Bitterroot Valley to the

reservation June 5, 1872. Chief Charlot refused to move his people to the reservation (15, p. 4, 8-9).

By 1891 the Salish Indians under Chief Charlot had reached a state of poverty in the Bitterroot Valley. The second Chief, Arlee, died and Chief Charlot conceded to move his tribe from the valley to the reservation.

White men had been in the valleys on both sides of the Mission Range and the pattern of land ownership and managerialship was slowly forming, but the white man had not ventured into the Mission Range itself according to written history. The Indians had used the mountains for hunting and other purposes, but not until 1883 is there any knowledge of the white man going into the range.

In 1883 the Northern Pacific Railway Company completed its railroad line construction across the United States and celebrated with the driving of a golden spike at Gold Creek, Montana. Mr. Henry Villard, Northern Pacific promotion agent, had in his charge the entertainment and side trips for the "great financiers from the European money centers, dukes and earls, and lesser fry in the rank of nobility" (39, p. 165). Mr. Villard had a wagon road constructed to McDonald Lake in the Missions for one of these side trips. Several hundred people were to make the trip, but about half did not want to put out the effort to ride the wagons. Finally about three hundred traveled by wagon to McDonald Lake; a small band of young men were to climb McDonald Peak, but there are no records regarding the success of the climb. This promotion extravaganza is the first recorded expedition of white men going into the Mission Range (39, p. 165-172).

Father Louis Taelman and two of his Jesuit pupils from St. Ignatius Mission hiked to the top of McDonald Peak one day in July of 1894. This is the first recorded scaling of McDonald Peak (37, p. 18). It is believed that Father Taelman erected an iron cross on the mountain peak, but this is not certain for the records are varied (42, p. 148).

In 1891 the Congressional Act of March 3 gave the President of the United States the power to create public reservations of public forest lands (44, p. 1). The Lewis and Clark Forest Reserve, Montana, was established by executive order February 22, 1897. The eastern slope of the Mission Range and all the northern portion of the range above the Flathead Indian Reservation were included in the Reserve (3, p. 35).

With the passing of the Organic Act of June 4, 1897, the public forest reservations were established

. . . to improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States (44, p. 2).

The established Forest Reserves became known as National Forests by the Act of March 4, 1907 (44, p. 2).

In 1910, a Forestry branch of the Indian Service was established to administer all tribal timber and water~~bed~~ lands for obtaining the highest economic return under sound management in relation to the probable future of the land (9, p. 190).

A State forest was created in 1912 in Townships 23 and 24 North and Ranges 17 and 18 West in Lake County (Map I). The State forest,

comprised of 37,180 acres of land, was selected in lieu of unsurveyed school land sections within national forests. In 1925, the State forest received its official name, the Swan River State Fire Protection District, and had increased in size to a total of 42,000 acres (8, p. 27-28). The concentration of the State lands in the Swan Valley reduced the amount of State controlled lands in the Mission Range.

In September, 1922, the Northern Pacific Railway Company and the Forest Service made a joint expedition onto the east slope of the Mission Range to find what was actually there, for most of the range's features were unknown. The members of the expedition party were greatly surprised at the magnificent landscape. Theodore Shoemaker, Sr., states in his article, "Trail's End and Beyond":

We hoped this would be one of those rare journeys where we could gratify that element part of our natures by a first discovery of things and places. We were not disappointed. We came back feeling that our hope had been more than realized. 11 (36, p. 219).

Mr. Shoemaker made triangulation shots from mountain tops during this and other trips in 1923 and 1924 and made the first maps of the area.

Forest Service Regulation L-20 establishing primitive areas in the national forest lands became effective July 12, 1929 (27, p. 20). In 1931 a portion of the east slope of the Mission Mountain Range in the Flathead National Forest was classified as the Mission Mountains Primitive Area under the Forest Service Regulation L-20. The newly established primitive area contained 67,000 acres. An additional 8,500 acres were added to the primitive area May 29, 1939. The addition was from Piper Lake north to Fatty Lake (46).

With the passing of the Act of June 18, 1934, the Secretary of

the Interior was to make rules and regulations for managing Indian forest land units on the principle of sustained yield (9, p. 263; 50, p. 986).

Forest Service Regulations U-1 and U-2 replaced L-20 September 19, 1939, and all primitive areas were to be reclassified into wilderness or wild areas, depending on the size of the given area. During the periods of reclassification, all primitive areas were to be managed under Regulation U-1 (27, p. 21).

In the late 1940's and early 1950's, the Northern Pacific Railway Company and the Forest Service traded most of the Northern Pacific land holdings inside the primitive area boundaries for Forest Service lands elsewhere. All but 2,800 acres of Northern Pacific lands have now been traded.

During an intense storm in November 1949, one thousand acres of timber were blown down on the east slope of the Mission Range. This blowdown occurred in heavy timber stands in drainages intersecting the southeastern boundary of the primitive area. The Chief Forester of the Forest Service authorized a salvage logging operation to prevent the development of an insect infestation in the down timber. However, no logging was done because the logging companies did not think it economically sound to log in the area (46).

By 1952, spruce bark beetles, Dendroctonus pseudotsuga Hopk., had built up to epidemic proportions in the blowdown areas and were spreading into sound stands of timber. The Forest Service and the Northern Pacific Railway Company jointly carried out controlled logging operations within the primitive area, and adjacent to the eastern

boundary, to prevent further spread of the insects. Eight roads penetrated into the primitive area, but were blocked after the logging operations were completed in 1958. About 2,000 acres were logged inside the boundary, 425 acres of which were Forest Service lands (46).

During the 1950's and 1960's the Northern Pacific and the Forest Service continued negotiations of land trades for Northern Pacific lands in the primitive area, but no lands were traded.

With the passing of the Multiple Use Sustained Yield Act of June 12, 1960, the national forests were to be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. This act was supplemental to the Act of June 4, 1897 (44, p. 2).

On September 3, 1964, the Wilderness Act of 1964 passed Congress and the National Wilderness Preservation System was established. The primitive areas should be reclassified under the Wilderness Act by 1974 if they are to be retained as an area of natural conditions.

CHAPTER III

LITERATURE REVIEW

The past two decades have been the true beginning of the development of outdoor recreation. After World War II and the increase in outdoor recreation, land managers began to realize that their management plans would have to allow for and include outdoor recreation as a resource of growing importance.

Many publications are being produced annually that are related to the research, problems, and management of outdoor recreational areas. Most of the publications cover the broad field of recreation, with only a few being refined to the study of outdoor recreation in wilderness and the management of such areas. Most work related to wilderness has concentrated on what is wilderness, wilderness user studies, and wilderness management.

Wilderness Concept

Wilderness is part of the American heritage that dates back to when the Pilgrims arrived on the Mayflower. In the 1800's some individuals became alarmed that the United States might lose its natural environment areas through construction, logging, and mining. People such as Henry David Thoreau and John Muir began to express their feelings and tried to develop public interest for the preservation of some of the natural areas of the Nation.

In the 1920's and 1930's, Robert Marshall, capable forester, author, and naturalist, developed the Nation's desire to save part of

its heritage of wilderness lands and helped develop the wilderness concept in the present day thinking. Marshall had set ideals as to the characteristics of wilderness lands. William Zimmerman quotes Marshall describing a wilderness area as:

. . . regions which contain no permanent inhabitants, possess no means of mechanical conveyance, and are sufficiently spacious that a person may spend at least a week or two traveling in them without crossing his own tracks. The dominant attributes of such areas are: first, that visitors to them have to depend exclusively on their own efforts for survival; and second, that they preserve as nearly as possible the essential features of the primitive environment. This means that all roads, settlements, and power transportation are barred. But trails and temporary shelters, features such as were common long before the advent of the white race, are entirely permissible (56, p. 10).

These characteristics are also expressed, in general, by the Wilderness Society (40, p. 2), Aldo Leopold (17, p. 719), N. B. Livermore (19, p. 153), and others.

The Forest Service Regulation L-20 became effective July 12, 1929, in the establishment of primitive areas. They were established for the purpose of "public education, inspiration, and recreation" (27, p. 20). No occupancy or construction of permanent improvements were permitted and they were to remain in a primitive state of environment, transportation, and habitation (27, p. 20). This also coincides with Marshall's ideals of wilderness.

The Forest Service again had the same characteristics in mind when Forest Service Regulations U-1 and U-2 replaced L-20 and primitive areas were to be reclassified into wilderness or wild areas (43, p. 16).

With the passing of the 1964 Wilderness Bill, all wilderness areas under the National Wilderness Preservation System are defined as:

. . . an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this Act an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticed; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation; (3) has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in unimpaired condition; and (4) may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value (7, p. 31).

Besides the management definition of wilderness which states given natural characteristics and boundaries, there is also the "intangible wilderness" that many people enjoy. In Chester J. Olsen's article, "Glimpses of Bob Marshall Afield," Marshall is quoted as defining intangible wilderness to be as follows:

It is the song of the hermit thrush at twilight and the lapping of waves against the shoreline and the melody of the wind in the trees. It is the unique odor of balsam and of freshly-turned humus, and of mist rising from mountain meadows. It is the feel of spruce needles under foot and sunshine on your face and wind blowing through your hair. It is all of these at the same time, blended into a unity that can only be appreciated with leisure and which is ruined by artificiality (26, p. 10).

John Muir, Henry Thoreau, and others have expressed their feelings of the intangible aspects of wilderness. In the House of Representative Wilderness Hearings in 1961-62, the following statement was made about the concept and value of wilderness:

The value of wilderness to human beings is both active and passive. The physical and esthetic benefits of wilderness are usually keener to those who actually enter the wilderness and come in direct contact with its beauty, its restfulness, its inspiration. Yet to the many who view it from without and see a great sweep of wilderness before them untouched by the hand of man there come deep pleasure and gratification that such places exist, that such beauty is in this world (16, p. 18).

Stewart L. Udall, Secretary of the Interior, wrote the following about wilderness which relates to both management and intangible qualities of wilderness type lands:

The concept of wilderness that has been cherished by Americans is the ideal of lands where man and his works do not dominate the landscape, where the earth and its whole community of life are untrammelled by man, where man himself is a visitor who does not remain. . . .

Requirements for national wilderness protection include definition of wilderness conditions and boundaries, and at the same time recognition of emergency or resource scarcity conditions which might make nonconforming uses of wilderness essential in the overriding national interest (41, p. 6).

Wilderness User

Most studies on recreational users have been conducted outside wilderness-type areas in campgrounds and other recreational locations. Burch (6), Wagar (52), Reid (33), and Love (20) are a few of the individuals who have done studies on non-wilderness recreation.

Before the Outdoor Recreation Resources Review Commission (O.R.R.R.C.) conducted an outdoor recreation study of the United States in 1958, little information had been gathered that related to users of wilderness lands. Between 1956 and 1958 two sociologists, Bultena and Traves, studied the characteristics and attitudes of vacationers in the wilderness of the Quetico-Superior region of Minnesota. Bultena and Traves found that the users had five images of the area before entering:

1. Wilderness as a locale for sports and play.
2. Wilderness as fascination.
3. Wilderness as sanctuary.
4. Wilderness as heritage.
5. Wilderness as personal gratification. (5, p. 167-168).

These five wilderness images that were reported varied from

actual physical stimulation to personal gratification. The interviewed people were

. . . much more perceptive of the concrete elements of the area, such as its lakes and opportunities for fishing, than they are of more abstract qualities such as its medicinal character, and potentialities for escaping pressing cares and problems (5, p. 168).

Frissell and Duncan conducted a study in the Boundary Waters Canoe Area on campsite preference and deterioration. They found that the interviewed users preferred campsites that were on islands and in stands of pine trees. Over 50 percent of the respondents looked at other campsites before they chose the one they were using and around one-third of these people were satisfied with their location. Frissell and Duncan determined "that most of the respondents lacked clearly defined preferences as to campsite location" but the campsites chosen were mostly on islands and in stands of pine trees (13, p. 257-259).

Lucas tried to determine the wilderness visitor's perception and use of the Boundary Waters Canoe Area. He found that there were three means of transportation in the area: paddling in a canoe, motorboats, and canoe with motors. For each different travel group perception differed as to where wilderness began and what should be in wilderness. None of the wilderness beginnings were related in location and they did not coincide with the established Forest Service management wilderness boundary. The wilderness of the users was generally smaller than the established Forest Service area. There were four different ideals of wilderness areas; one for each mode of travel, and the established Forest Service wilderness. Each user type had different perceptions as to wilderness and its beginnings.

The user who traveled by canoe did not want any facilities available, while the motorboaters wanted more facilities for their use. The users that traveled in canoes with motors were between the other two in the demand for facilities (21, p. 394-411).

The O.R.R.R.C. study found that more males traveled into wilderness areas than females. Occupations of wilderness users were mostly professional and semi-professional and the users had an above average education. This study also found a general tendency for wilderness users to have a higher than average income (27, p. 130-132). These same users' characteristics were found in Merriam's land use study of the Bob Marshall Wilderness Area in Montana (22, p. 55-63).

Wenger found in his study of unmanned registration stations in two Oregon wilderness areas that they can be used adequately to obtain much information about wilderness users. Wenger also considered that the information collected would be beneficial for immediate management purposes and for future research (53, p. 35).

The studies conducted on wilderness users have been related to their personal and trip characteristics, and their sociological aspects and feelings toward wilderness. The studies are mostly pilot studies that are searching for information which relates to the wilderness users and also determining better methods for obtaining information from these users.

Wilderness Management

Studies related to the management of wilderness areas are limited in number and there are none, as such, for the Mission Mountains Primitive Area. Wilderness lands have been managed through maintenance work

on trails, fire prevention, and excluding uses and other items considered not in harmony with the wilderness concept. This type of management may have been adequate when wilderness areas were first established but because of increasing use by the public, the land managers have found that management problems develop through this use.

As recreational use increases, there is the problem of forage damage to certain localities by stock; increasing amount of trash left behind by the users; damage to the vegetation in areas of heavy camping use, and others. These are damages caused by the user but cannot be considered as being consistent with the natural concept of wilderness. These user damages are not natural to the area and this means that something has to be done to reduce these unnatural happenings caused by recreational use.

Fressell and Duncan found that over 80 percent of the ground cover in campgrounds is lost with light use by wilderness users, and concluded that:

It appears that if any recreational use is to be allowed in the wilderness areas, some immediate loss of the natural vegetation will have to be tolerated. . . .

Considerable amounts of bared soil and exposed tree roots, extreme increases in soil compaction, and the lack of pine reproduction are indicative of use which may cause ecological changes unfavorable to the maintenance or regeneration of a pine overstory. When such indications are observed, some form of management is essential to prevent further deterioration (13, p. 258-259).

Besides vegetative deterioration of the land, the National Park Service found in a study of the Sequoia and Kings Canyon National Parks that users constructed camping facilities (tables, fireplaces, etc.) at heavily used campsites and, after use, would leave the makeshift materials. Each following party that used the area would use the materials

already there and/or add to them. This gave the area a "slum-like" appearance that was not natural to the environment (48, p. 25). The National Park Service considered that with the present user pressure and the damage caused by this use on vegetation and site characteristics that

. . . developed campsites have become absolutely necessary as a tool of management in the more popular and heavily used areas of the back country.

Simple rustic facilities, properly located and spaced by the Service, will tend to hold camping within the carrying capacity of the area. This will prevent fragile meadows and lakeshores from becoming so ringed by innumerable unplanned, closely spaced campfire pits that take on the appearance of a slum, with deterioration and eventual destruction to the natural scene. Developed campsites include provisions for the periodic collection of camp refuse. . . .

Rustic developed campsites would not be looked upon primarily as a convenience for the visitor, but rather as a management tool to assist in controlling indiscriminate camping in areas where it has proven destructive to wilderness values (48, p. 24-26).

Bultena and Traves found that many wilderness users wanted "improvements" for their own use, not for management purposes.

One of the major management problems . . . is that of preserving the wilderness image which visitors cherish, while at the same time providing minimal facilities to satisfy the most urgent demands of those desiring improvements. As greater numbers of campgrounds are developed . . . the wilderness character . . . will begin to disappear (50, p. 170).

Besides providing user facilities in a wilderness for management purposes and for the benefit of the users, it was found that the users are going to have to be educated.

Any management program clearly must be accompanied by user education in wilderness camping and perhaps in forest ecology (13, p. 259).

Through this education of the users, it is hoped to reduce the amount of litter left by the users and also explain some of the reasons

for properly placed facilities and the damage caused to wilderness by improper use.

With this brief review of some of the works conducted on wilderness management and users, it can be seen that the management of wilderness lands and the user are very much related. The manager is going to have to learn more about the actual users and their characteristics of use in wilderness and determine how damage caused by use can be reduced, while giving the user his freedom and retaining wilderness character.

CHAPTER IV

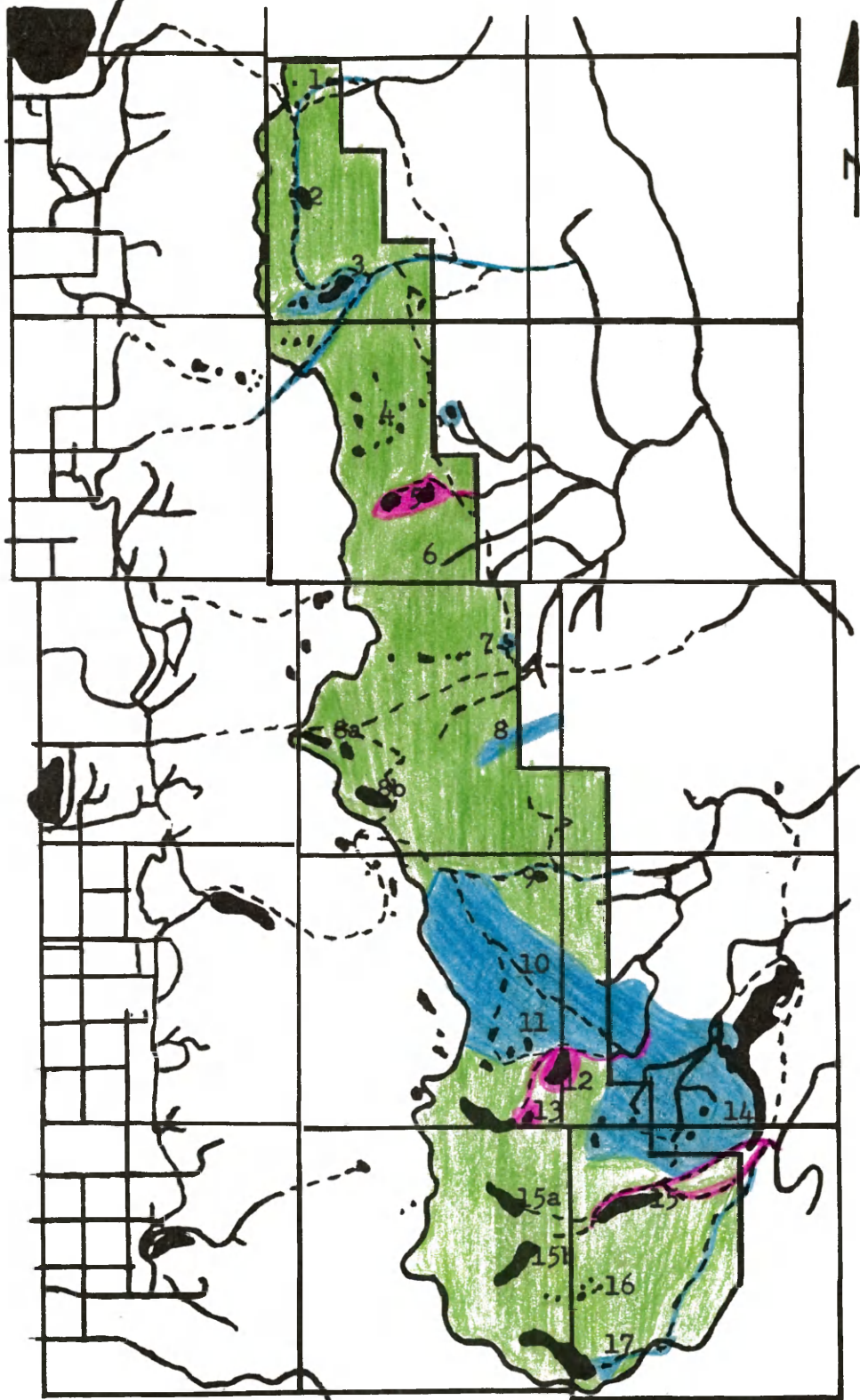
RECREATIONAL USE IN THE MISSION MOUNTAINS PRIMITIVE AREA

The Mission Mountains Primitive Area has many regions of attractions for recreational users. Most of the primitive area was visited during the summer of 1964 to analyze the recreational use. The pattern of use will be discussed by lakes and drainages since the bodies of water are the major attractions and drainages are the larger general areas of use. (See Map II). The discussion of these areas will move from north to south.

Fatty Lake. Fatty Lake is a 20-acre lake in the most northern portion of the primitive area. The lake was stocked with cutthroat trout in 1959 and receives use mostly by fishermen. It is reached by a $1\frac{1}{2}$ mile fisherman's trail from the Fatty Creek road. The beginning of the trail is not marked on the road and is hard to find. The area is littered and the trail around the lake is rough. A camping spot is located at the outlet of the lake.

Cedar Lake. This 80-acre lake is reached by a maintained Forest Service trail about 4 miles from the end of Fatty Creek road. The Forest Service has established a turnaround, stock unloading ramp, and a pit toilet at the end of the road. Cedar Lake can also be reached from the west slope of the Mission Range by a trail up Hellroaring Creek, or by trail from North Crow Creek and Crow Pass on the Flathead Indian Reservation.

Amount of Recreational Use
Mission Mountains Primitive Area



LEGEND



Heavy use areas

Moderate use areas

Light use areas

--- Trails

— Roads

● Lakes

MAP II

Amount of Recreational Use, Mission Mountains Primitive Area

Location

1. Fatty Lake
2. Cedar Lake
3. Piper Lake
4. Jim Lakes Basin
5. Upper and Lower Cold Lakes
6. Main Cold Creek Drainage
7. South Cold Creek Drainage
8. Elk Creek Drainage
- 8a. Mollman Lake
- 8b. Elk Lake
9. Hemlock Lake
10. Crazy Horse Creek Drainage
11. Crescent Creek Drainage
12. Glacier Lake
13. Turquoise Lake
14. Herrick Run Drainage
15. Crystal Lake
- 15a. Lost Lake
- 15b. High Park Lake
16. Angel's Bathing Pools
17. Gray Wolf Lake

Cedar Lake is supposedly good fishing and has several camping locations near the shore. There are signs of heavy usage in the camp sites, especially horse damage to the bases of trees and litter. The area is evidently frequented by users that spend at least one night and use horses as a means of transportation.

Piper Lake. This 150-acre lake is reached by a 3-mile trail from Cedar Lake, by the Crow Pass trail, or by a 9-mile trail from Salmon Prairie in the Swan Valley. There are a few places suitable for camping near the lake, most of which show signs of some, but not heavy use. Overnight trips employing horses for travel are most frequent in this area.

Jim Lakes Basin. The Jim Lakes Basin is at the head of Jim Creek and has 15 to 20 lakes ranging in size from pot-holes to about 20 acres. The area received very little use during the study period since the old Forest Service road to the lowest lake (Jim Lake) was in very poor condition. A new logging road was being constructed by the Royal Logging Company of Columbia Falls, to a Northern Pacific Railway Company logging operation next to the primitive area (Plate II). With the poor condition of the Forest Service road, the new road construction, and logging operations in the area, few users could drive to Jim Lake which is located outside the primitive area. Only a poor hunter's trail goes into the area and a person must go through dense brush to reach the higher elevations.

At most of the lakes there are several campsites which receive little or no use. The lowest lake has very good fishing; however, the

PLATE II



APR • 64

Logging operations at Jim Lake next to eastern boundary
of Mission Mountains Primitive Area, summer, 1964

other lakes seem to be barren. The Montana Fish and Game Department supposedly stocked some of the larger lakes with golden trout in 1962, but there is no report of survival. The area will receive heavier use in the future with the improved access and with the spread of the story of the golden trout being in some of the upper lakes.

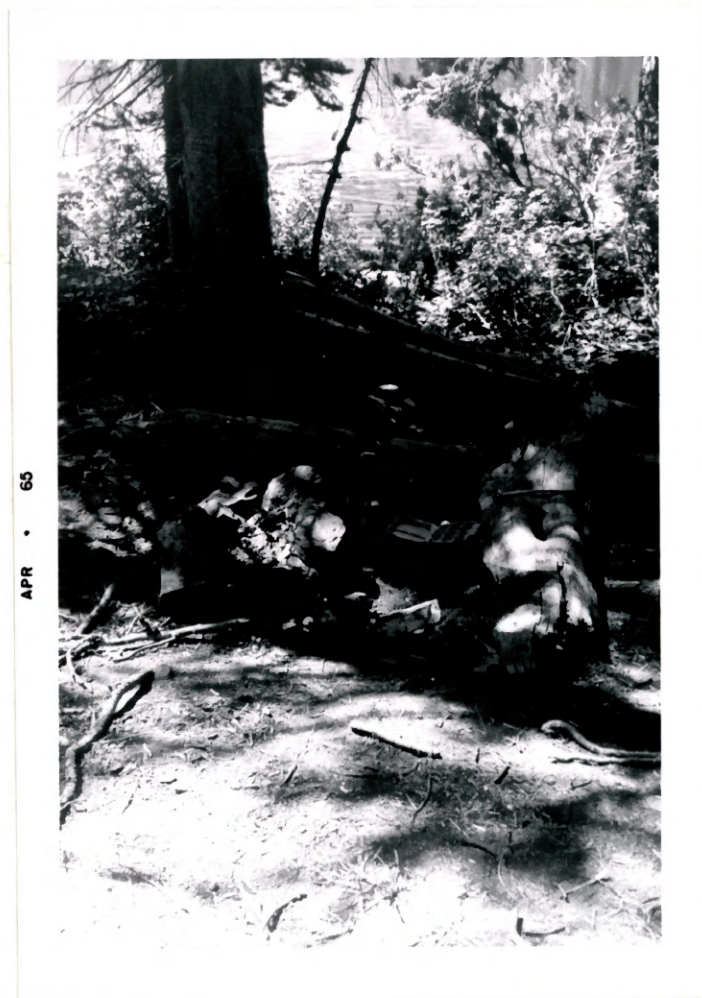
Cold Lakes. Upper and Lower Cold Lakes are about a quarter mile apart with the lower lake being reached by 2 miles of maintained Forest Service trail from the end of the Cold Creek road. The trail to the upper lake is not maintained. Both lakes are about 80 acres in size and provide excellent fishing. The area is heavily infested with mosquitoes in the spring.

A turnaround has been established at the end of the Cold Creek road for users. The makeshift campsites at both lakes have had very heavy use and are littered (Plate III). The Forest Service erected a pit toilet at Lower Cold Lake but porcupines and rodents have ruined the facility by chewing the wooden part of the toilet. The use is mostly of day duration, but road camping and primitive camping at the lakes are popular.

Main Cold Creek. The valley floor of the Main Cold Creek was logged in 1955 to reduce the spruce bark beetle infestation. An individual can drive a motorized vehicle beyond the primitive area boundary because of usable logging roads still in the area. There is little use of this area, except during fall hunting season, because of lack of attractions and the logging operations that have taken place there.

South Cold Creek. The land adjacent to the primitive area in

PLATE III



Make-shift campground at Upper Cold Lake, the
Mission Mountains Primitive Area, summer, 1964

this location has been logged as has part of the primitive area, and logging roads extend into and along the boundary. South Cold Creek includes a string of lakes varying from 3 to 20 acres that are supposedly good fishing. There are no trails in the area and access is very difficult from South Cold Creek road because of the dense underbrush. This area receives very light use.

Elk Creek. The headwaters of this drainage are Elk and Mollman Lakes at the crest of the Mission Range. Elk Creek receives one day fishing use in the late summer and early fall when the Dolly Varden trout are spawning in the creek just east of the primitive area boundary. The rest of the drainage receives very light use.

Elk and Mollman Lakes are reportedly good fishing areas but receive very light use because of travel distance. Trails reach the lakes from both sides of the mountain range but they are not maintained except by users and consequently are of rough nature. Travel in this area is probably by horse and the visits are of more than one day because of the distance.

Hemlock Lake. Hemlock Lake is a lake 30 acres in size and located about 4 miles from the end of the Red Butte road by maintained Forest Service trail. There are two campsites on the lake which have had fairly heavy use in the past. One of the campsites was established by a packer for use by his guests, but after logging operations near Red Butte made the lake more accessible, it is no longer used by the packer. The lake was not in heavy use during the period of the study. The trail to Hemlock Lake continues on to the head of Crazy Horse drainage and to

Summit Lake on the Flathead Indian Reservation. From there it is possible to journey to Elk and Mollman Lakes, but the trail is in poor condition.

Crazy Horse Creek. The Crazy Horse drainage is lightly used except in fall hunting season. Bud Cheff of Cheff Ranch has a camp permit for the area and uses the drainage for hunting parties. The drainage contains a packer's trail that enters from the Glacier Creek road. The Forest Service also has a trail which connects with the packer's trail passing through the Crescent Creek drainage to Glacier Lake. This trail is not maintained.

Crescent Creek. This drainage is reached by the trail from Glacier Lake which goes to Lace Lake and Turquoise Lake, and by trail from the Crazy Horse Creek area. The drainage contains three picturesque lakes (Island, Heart, and Crescent) along with two smaller lakes. The lakes are barren and were not used at all in the summer. The trail going to this drainage is blocked off on the Lace Lake trail and people generally do not know of the area, although hunters used this area rather heavily in the fall months.

Glacier Creek. The Glacier Creek drainage receives the heaviest use of the entire primitive area. From the end of the Glacier Creek road it is $1\frac{1}{2}$ miles on a new Forest Service trail to Glacier Lake. The lake is about 150 acres in size and is reportedly good fishing.

At the end of the road is a turnaround and a campground which was established by the Northern Pacific when conducting logging operations in the area. An old pit toilet is located there, as is also a

Forest Service register. The distribution of users that signed the register during the time of field study is shown in Table I. Not all people that used the area signed the register and in no way will this data imply what is the total use of the area.⁵

The Forest Service has established a campground with a garbage pit and toilet facilities one quarter mile below Glacier Lake. The campground, which was a Forest Service trail crew camp, is in poor condition, receives very heavy use, and has a great deal of litter. The toilet is partially flooded in the spring months due to high water. There is no maintained trail to the toilet and the facility has been partially destroyed by porcupines and rodents.

A new trail is presently being constructed from Glacier Lake to Lace Lake and Turquoise Lake. The trail has a maximum grade of 8 percent by Forest Service regulations. This new trail construction caused the trail to Crescent Creek to be blocked at the time of this study.

Lace Lake is about 50 acres in size and is located several hundred yards below the 200-acre Turquoise Lake. With construction of the new trail to Lace Lake, this area received heavy use during the study period. One day and overnight users as well as road campers used this area. The campers at Lace Lake littered the area and cut down most of the smaller trees for shelter construction during the study period. The new trail encouraged many users to enter this area but because of the trail's shallow grade, it is farther to the lake than indicated on the trail sign (Plate IV).

⁵Wenger's study of unmanned registration stations explains the shortcomings and benefits of such facilities (53).

TABLE I

NUMBER AND DATE OF RECREATION USERS THAT SIGNED THE REGISTER
AT THE END OF GLACIER CREEK ROAD, MISSION MOUNTAINS PRIMITIVE AREA
SUMMER, 1964

Date	Number	Date	Number	Date	Number
6-26	0	7-29	11	8-31	0
6-27	2	7-30	0	9-1	0
6-28	11	7-31	0	9-2	0
6-29	1	8-1	0	9-3	0
6-30	0	8-2	5	9-4	0
7-1	0	8-3	0	9-5	0
7-2	3	8-4	0	9-6	3
7-3	14	8-5	0	9-7	3
7-4	6	8-6	3	9-8	0
7-5	0	8-7	4	9-9	0
7-6	0	8-8	5	9-10	2
7-7	2	8-9	17	9-11	0
7-8	0	8-10	6	9-12	1
7-9	0	8-11	4	9-13	3
7-10	2	8-12	0	9-14	1
7-11	24	8-13	5	9-15	1
7-12	0	8-14	5	9-16	0
7-13	0	8-15	12	9-17	5
7-14	0	8-16	13	9-18	1
7-15	0	8-17	0	9-19	0
7-16	0	8-18	0	9-20	4
7-17	0	8-19	0	9-21	3
7-18	12	8-20	3	9-22	2
7-19	59	8-21	10	9-23	0
7-20	0	8-22	0	9-24	1
7-21	8	8-23	7	9-25	0
7-22	7	8-24	2	9-26	8
7-23	3	8-25	1	9-27	1
7-24	3	8-26	0	9-28	2
7-25	17	8-27	4	9-29	1
7-26	7	8-28	0	9-30	0
7-27	4	8-29	8	10-1	5
7-28	0	8-30	4	10-2	0
				10-3	3
				10-4	2

PLATE IV



A trail sign in the Mission Mountains Primitive Area

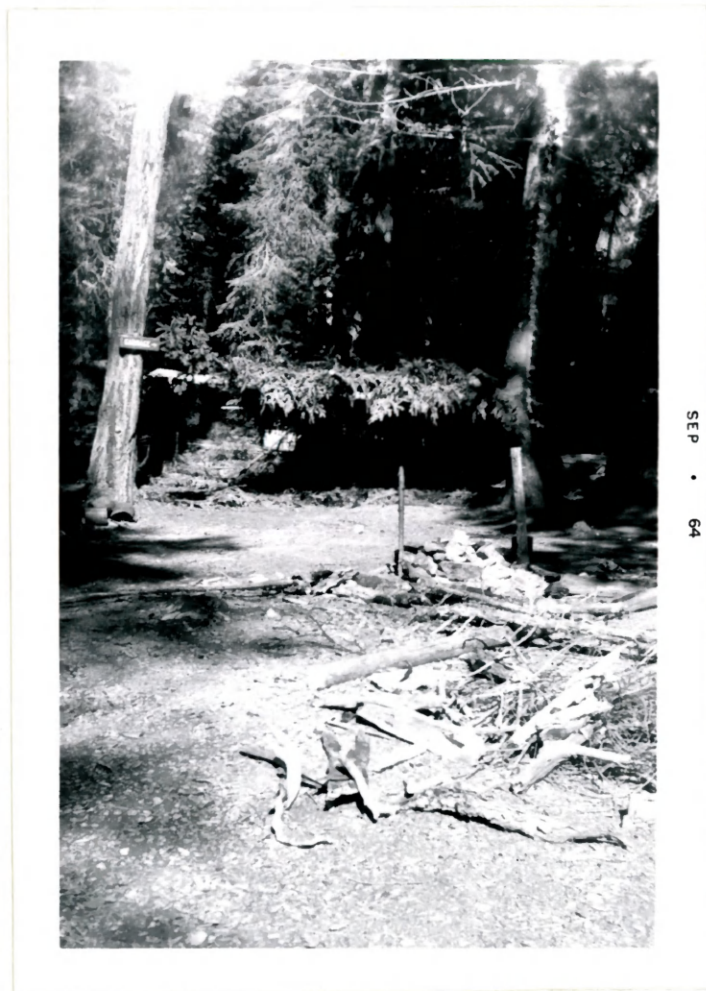
Herrick Run Creek. This area lies predominantly between the eastern boundary of the primitive area and the west shore of Lindbergh Lake. It has been logged because of the 1949 windthrow and ensuing insect infestation. The area receives little use during the summer but does receive heavy hunting pressure in the fall. There are few lakes in the area and the fishing is not considered good.

Crystal Lake. The main attraction in this drainage is the 175-acre Crystal Lake. This lake has very good fishing, and can be reached by maintained Forest Service trails from the end of Lindbergh Lake or from Beaver Creek road. The lake also can be reached by a poor trail from Meadow Lake in the Herrick Run drainage.

Crystal Lake receives heavy use from the guests at the Diamond L Bar dude ranch on Lindbergh Lake, campers on the Forest Service campground on Lindbergh Lake, and the people who have summer cottages on Lindbergh Lake. There is a campsite at the outlet of Crystal Lake which is much abused and littered (Plate V). The Forest Service constructed a pit toilet at the campground but it has been partially destroyed by porcupine and rodents, as have the toilets at Glacier Lake and Lower Cold Lake (Plate VI).

Dick Hickey of Diamond L Bar dude ranch has a permit for a camp at the north shore of Crystal Lake. Mr. Hickey takes some of his guests by horseback to the camp for several days, and many of his guests hike from Lindbergh Lake to Crystal Lake for one day use (29). Other people besides the ones located on Lindbergh Lake use Crystal Lake area for recreational purposes; however, they are usually one day users that hike.

PLATE V



SEP • 64

Campground at Crystal Lake, Mission Mountains
Primitive Area, summer 1964

PLATE VI



Rodent damage to pit-toilet at Crystal Lake,
Mission Mountains Primitive Area, summer, 1964

Above Crystal Lake is Lost Lake and High Park Lake which can be reached by very poor packer's trails. These lakes are both over 150 acres in size and are considered good fishing. They receive light use because of poor trails and travel distance. Occasionally some of Hickey's guests travel to Lost Lake. Use at the lake is generally longer than one day. The lakes are clean and show little signs of use.

Angel's Bathing Pools. This group of small scenic lakes is located in the drainage between Crystal Lake and Gray Wolf Lake. There are no fish in the lakes and scenery is the main attraction. Because there are no trails into this area, it receives very little use.

Gray Wolf Lake. Gray Wolf Lake is about 300 acres in size, and is reached by an 8-mile trail from Beaver Creek road. The trail is maintained by the Forest Service to Buck Lake, and from there it is a poor packer's trail. This area does receive overnight use, but practically no day use. Horses are often the means of travel to the lake. There is little litter in the area.

In the southern end of the primitive area to the west of Lost Lake, High Park Lake and Gray Wolf Lake, is an area most used for mountain climbing and cross-country hikes. There are no trails in this region and the user would have to be in the area for several days and travel on foot. This area generally receives light use.

The access roads were rough and not in the best of maintained condition, especially the Glacier Creek road. The Jim Creek road was kept graded, on the lower portions, by the Royal Logging Company. This was done because they were using the road for log removal from the Jim Lake timber sale. Other access roads had little or no maintenance.

CHAPTER V

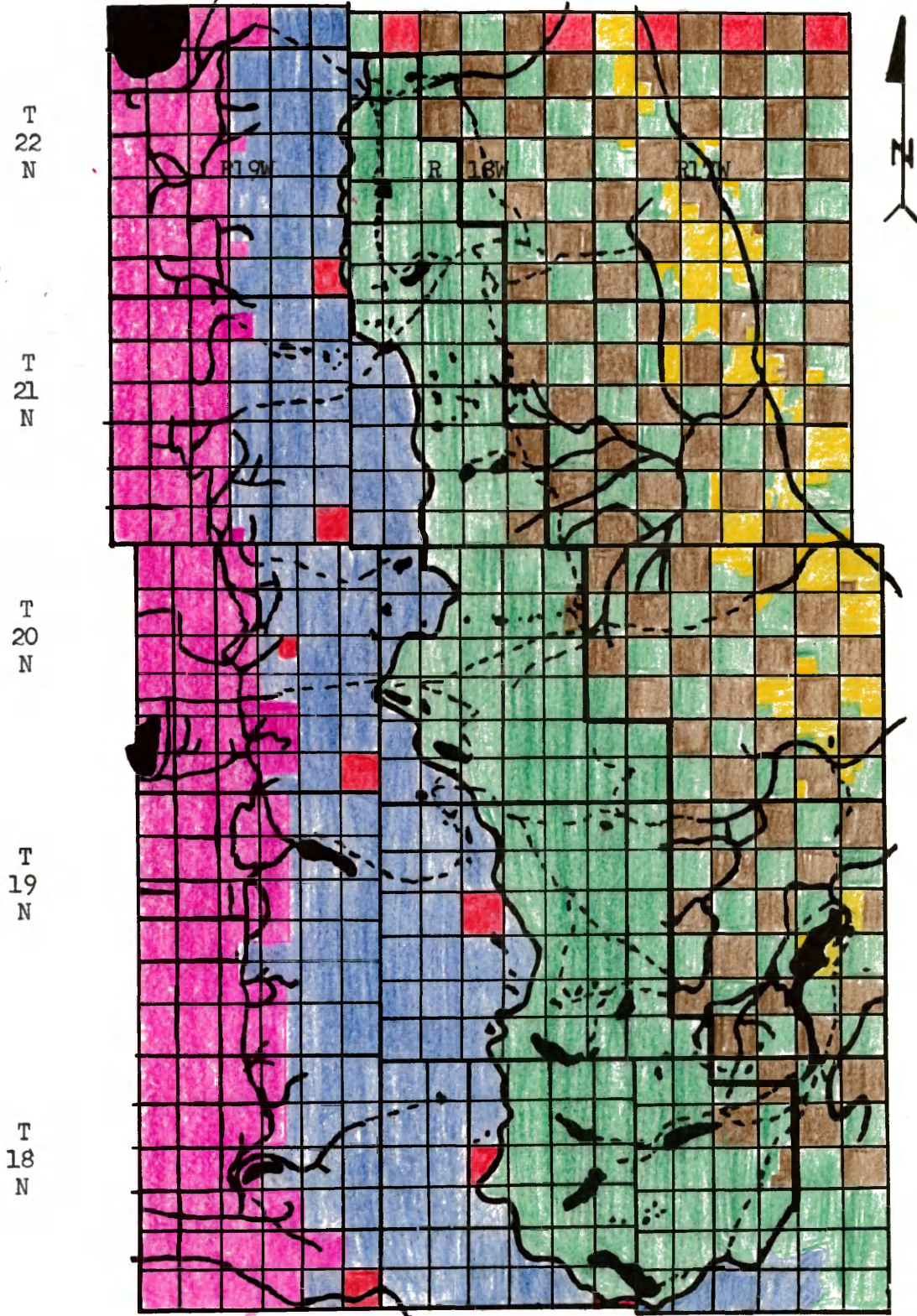
MANAGEMENT OF THE MISSION MOUNTAINS PRIMITIVE AREA AND BORDERING LANDS

The land bordering the Mission Mountains Primitive Area is managed by the Flathead Indian Agency, the U. S. Forest Service, the Northern Pacific Railway Company, and the Montana Forestry Department (Map III). These agencies manage the land under their jurisdiction to obtain the maximum benefit from the natural resources that are available. The resources that are considered by these agencies in their management plans are: timber, range, watershed, wildlife, outdoor recreation, and mining. Each resource varies in value depending upon the land and the agency's overall purpose of management.





Timber. Most of the timber that is of commercial nature in the Mission Range is located below 5,000 feet above sea level, or is situated on the lower mountains of the range to the north of the primitive area. In the primitive area itself, there is an estimated 33,000 acres of barren and alpine vegetative cover with a total of 50,000 acres that are unproductive by present day standards of commercial logging. About 11,000 acres in the primitive area are considered by the Forest Service to contain commercial timber (27, p. 328).


Range. The Mission Range has very little meadow or grassland. The only grazing permitted in the mountain range is in the lower elevations and most of that is on the Flathead Indian Reservation.

Land Ownership Pattern
Mission Mountains Primitive Area



LEGEND

-  U. S. Forest Service
-  Northern Pacific Railway
-  Other private lands
-  State of Montana

-  Flathead Indian Tribe
- Mixed ownership
private, tribal,
allotted, and State

Watershed. The Mission Range is an important source of water for surrounding lands. The management for watershed and protection is of importance to all the agencies, but the Bureau of Indian Affairs has the water rights for the entire mountain range. Although the water rights are owned by the Flathead Indians, the water is used by most of the people in the surrounding valleys. Consequently, each agency and private land owner is interested in the prevention of wild fire on these lands for the protection of the watershed and other land uses.

Wildlife. The wildlife in the area is under the management of the Montana Fish and Game Department. The Fish and Game Department try to regulate hunting seasons, bag limits, and hunting regulations so as to maintain a healthy wildlife population and still provide the hunter with the opportunity to hunt. The land managing agencies cooperate with the Fish and Game Department as best they can in the management of wildlife.

Outdoor recreation. Outdoor recreation, as such, is considered by the Forest Service under the Multiple Use policy. The other owners and agencies have less interest in recreation, at the present, because of lack of direct economic benefit for the people represented by the managing agency or company officials. However, the recreational potential is being recognized by the agencies and will become more important with time and demands.

Mining. There are no mining operations within the Mission Range, and none are likely to develop because of remoteness, ruggedness, and general lack of mineral potential (11, p. 19; 35; 46). Since there are

no mining operations or potential development in this area, mining will not be discussed in this thesis.

Because of the characteristics of the higher elevations of the Missions, there is little conflict of management use patterns at present. In the lower elevations of the range where there are stands of commercial timber and a more complex land ownership pattern, the conflicts between management practices are more acute, as can be seen in the following survey of management practices.

The Flathead Indian Agency

The Flathead Indian Reservation is located, in part, on the western slope of the Mission Range, as established by the Treaty of 1855. The land ownership on the reservation is distributed as follows: 531,574 acres of tribal land, 86,058 acres of allotted lands, and 2,222 acres are owned by the Federal Government (49, p. 19).

The tribal lands are owned in common by the estimated 2,881 members of the Flathead Tribe⁶ and are administered by the Indian Agency. Allotted lands are owned by individuals or single or multiple inheritors and are managed by the owners. The Government-owned lands are school reserves, administrative sites, and such, which may be used by or for the Indians of the reservation (49, p. 4, 19).

Most of the reservation land on the western slope of the Mission Range above 4,000 feet sea level is tribal land and thus managed by the Indian Agency for the benefit of the tribe. The tribal land in the Mission Range is used for timber, forage, watershed, wildlife, and

⁶As of June 30, 1962.

recreation.

The Agency manages its timber stands on a sustained yield basis with a maximum return for the tribe. Since an economic return from the land for the Indians is the main objective in the Agency's land management policy, the Agency combines all the land uses to obtain the most compatible combination at the highest return for the tribe, for the longest period of time.

The tribal land above 5,000 feet sea level in the Missions is nearly inaccessible and has little or no economically commercial timber (5, p. 6). Mr. V. K. Meeker, Agency Forester, stated that the Agency Forestry Department did not plan to harvest any timber from tribal lands near the western boundary of the primitive area because of the lack of accessibility and commercially valuable timber. Most of the timber that is being harvested on the reservation portion of the mountain range at present is near the east shore of Flathead Lake in the Boulder Creek drainage (32). Many of the lower slopes on the reservation have been logged, but these areas are not close to the primitive area boundary.

The Indian Agency has range allotments in the lower elevations of the Missions. The Indians use the allotments for their own cattle, or the tribe may receive a monetary return from user-fees paid by non-tribal members. The logging operations in some of the areas have changed the ecology from timberland with some grazing to areas with much browse and grass species of high forage value (51, p. 5). The amount of grazing that is done is closely regulated by the Agency to prevent damage to the forage, the soil, the watershed, and still leave adequate amounts of food for the wildlife. When properly conducted,

the small amount of grazing by domestic stock in the higher elevations has been helpful in the protection of the watershed. The areas that are regularly grazed to a safe limit generally have the least difficult fires (51, p. 36).

The main benefit obtained from the Mission Range for the tribe and others on the reservation is water. The tribe has the water rights for the entire Mission Range including the eastern slope (35). The management of the watershed by the Agency is mostly protecting the land from fire and the storage and distribution of the water obtained from the mountain range.

Outdoor recreation in the mountains is not economically important to the tribe. There is limited access because trails into the Missions are few in number, rugged, and may be dangerous. Most of the trails are old Indian trails or were constructed for fire protection. These trails are usually maintained by the users. Although recreational use is limited right now, it should grow with future development.

With the approval of a Job Corps Camp at Kicking Horse Reservoir, the Agency plans to further develop the recreational potentials of the Mission Range. After the establishment of the camp by 1966 or 1967, the Agency will use the available labor to develop a better network of recreational and fire control trails in the Missions, and construct campgrounds and picnic grounds where possible, with tables, fireplaces, and pit toilets as minimum facilities. These camp and picnic grounds will be made as modern as possible, but such facilities will be limited in the Missions. Facilities for water sports (docks, etc.) will also be considered for establishment at McDonald Lake and Mission Reservoir.

The Agency is now developing plans to establish a winter recreation area in the Skidoo Creek drainage off the east shore of Flathead Lake (31).

Office of the Montana State Forester

The State Forestry Department has lands on the western slopes of the Mission Range in the Indian Reservation. The lower elevations are managed under a sustained yield policy, but these lands are not close to the western boundary of the primitive area, and therefore not important to this study.

In the higher elevations, close to the western boundary of the primitive area, there are four sections of State land. By the Organic Act of May 26, 1864, the 16th and 36th sections in each Township were to be reserved for the support of the schools of the Montana Territory, only after they have been surveyed (8, p. 25). The State Forester is obligated to obtain the maximum economic return from these lands to support the school systems of Montana. The State lands near the crest of the Mission Range have not been surveyed and, lawfully, are not State lands. Because these sections have not been surveyed, and are generally barren and inaccessible, the State Forestry Department has no plan to do anything with them in the near future.

Adjoining the north end of the primitive area is part of the Swan River State Fire Protection District. Road construction, timber sales, and timber harvest are directly related in the State Forest. The construction of roads into the higher elevations and logging operations may be carried out in the future, but there are no plans at present for such operations near the primitive area. The management

of the Swan River State Forest is discussed in R. M. Conrad's Master's thesis: Recreational Use and the "Renewable" Resources, Swan River State Forest (8).

The U. S. Forest Service

Since June 12, 1960, the national forest lands have been managed under a "multiple use" policy. Multiple use in this aspect means

. . . the management of all the various renewable surface resources of the national forest so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some of all these resources or related service over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and the harmonious and co-ordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative value of the various resources, and not necessarily the combination of uses that will give the greatest dollar value return or the greatest unit output (44, p. 3).

The various renewable surface resources considered are outdoor recreation, range, timber, watershed, and wildlife and fish.

Resource management was not really begun in the Condon District until after the passing of the Multiple Use Act. Previously the Forest Service played the role of custodial management, watching over the land and controlling fires. One reason for this custodial management role was the land ownership pattern. The 176,375 acres of national forest land in the district are interspersed with 88,740 acres of private land of which the Northern Pacific owns 67,002 acres. The mixed ownership has made it difficult to obtain access to isolated areas.

The district had its first timber sale of any size in 1949, but timber sales remained small until the insect control logging operations

began along the east boundary of the primitive area through the mid-1950's (Map IV). With the improvement and completion of Montana Secondary Highway 209, and the development of a cost-share road construction agreement with the Northern Pacific,⁷ timber harvest and road development through the district increased.

The overall objective of the management of the resources is more clearly defined when the individual national forest, the management circles, and the districts are considered.

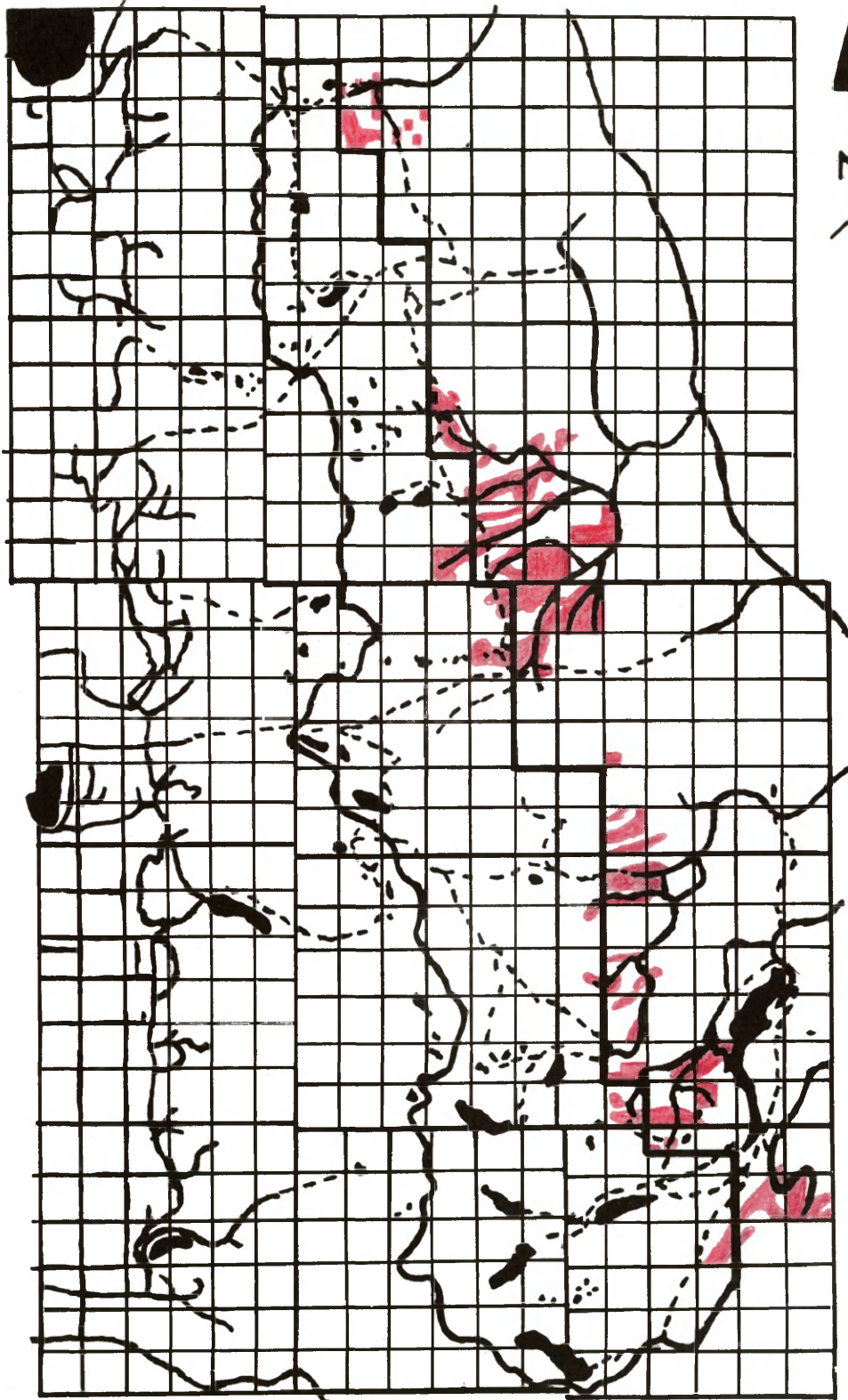
The Mission Mountains Primitive Area is part of the Flathead National Forest and is located in the Swan Working Circle, the Condon Block, in which is the Condon Ranger District. The national forest lands within the boundaries of the Condon Ranger District are managed under the main objectives of the Swan Working Circle:

. . . to develop the forest resources of the entire working circle for the most appropriate use and to gain the maximum productivity, composition, and quality of desired forest products commensurable with existing economic conditions, local markets, and other land uses. The present forest industry is based on the utilization of sawtimber; therefore, primary consideration will be given to production of sawtimber. Secondary consideration will be to the production and utilization of other products which are slowly increasing in importance to local economy. To attain the overall objectives, attention will be given the problems of community stabilization, marketing, silviculture, growing stock, forest development, sustained yield, and production (45, p. 14).

The Mission Mountains Primitive Area is part of the Swan Working Circle, but is considered as a reserve area, and is not subject to management for commercial timber production (35, p. 3). The primitive

⁷The cost-share road construction agreement involves both the Forest Service and the Northern Pacific jointly constructing roads that will benefit both parties. Each pays for construction and maintenance, depending upon the amount of use each agency gives the road.

Logging Operations Related to
Mission Mountains Primitive Area



LEGEND

Red indicates the general locations of past and present logging operations conducted by the USFS and the Northern Pacific Railway up to the time of this study.

area has a total of 61,089 acres of its 75,500 acres covered with commercial and non-commercial timber. The volume of this timber is just over 199 million board feet for an average of just over 3,200 board feet per acre of timberland (45). The natural resources, except recreational, in the primitive area have been valued from \$0 to \$50 per acre (46).

The Condon District has an annual average cut of 11 million board feet under the present management plan. This annual board foot volume will continue until 1969. After 1969, there will probably be a reduction of annual harvest with the development of a new timber management plan at that time (35, p. 24).

The Forest Service usually harvests its timber by the clear-cut method, although selective harvesting may be carried out in some areas. Clear-cuts have a maximum size of 60 acres and regeneration is encouraged through natural seeding or replanting by hand (35, p. 10).

There are no planned logging operations on national forest lands near the east boundary of the primitive area under the present timber management plan; however, this may change after 1969 with the development of the new timber management plan.

All fire control is conducted by the Forest Service on both national forest and private lands. All slash disposal regulations are established by Montana State Laws and all logging operations follow at least the minimum requirements set by the State.

Commercial grazing is not allowed in the primitive area by the Forest Service. This is because of the lack of forage and the rough terrain in the area.

Since the Mission Mountains Primitive Area is not considered for timber management in the Swan Working Circle, it is managed as a primitive area at the present time under Forest Service regulation U-1:

. . . there shall be no roads or other provisions for motorized transportation, no commercial timber cutting, and no occupancy under special permit for hotels, stores, resorts, summer homes, organizations camps, hunting and fishing lodges, or similar uses; provided that roads over national forest lands reserved from the public domain and necessary for ingress and egress to or from privately owned property shall be allowed under appropriate conditions determined by the Forest Supervisor, and upon allowance of such roads the boundary of the wilderness area may be modified --with prior notice or public hearing--to exclude the portion affected by the roads (43, p. 16).

Before the passing of the Wilderness Bill, the primitive area was to be reclassified under Regulation U-2.⁸ With the passing of the Wilderness Bill, all primitive areas are to be considered for reclassification under the National Wilderness Preservation System within ten years following the passing of the Bill. Until that time, all primitive areas are to be managed under their present management program.

Main activities in the primitive area are outdoor recreational which range from sightseeing to big game hunting and others. The use of the area has increased many times with the improvement of access by the construction of logging roads to the boundary. Because of this easier access, the use of the area is concentrated in certain locations. The Forest Service realizes that recreational use of the primitive area is concentrated in those areas which offer quick and easy access. Thus, they maintain trails that are most often used in the primitive area.

⁸Regulation U-2 is related to wild areas. U-1 relates to wilderness areas. The only difference in a wilderness and a wild area is that wilderness areas are at least 100,000 acres in size while wild areas are at least 5,000 acres, but not over 100,000 acres in size.

The trails that are maintained during the study period were:

From Fatty Creek road to Cedar Lake;

From Cold Creek road to Lower Cold Lake;

From Red Butte road to Hemlock Lake;

From Glacier Creek road to Glacier and Lace Lakes;

From Diamond L Bar Ranch at outlet of Lindbergh Lake to Buck Lake;

From inlet of Lindbergh Lake to Crystal Lake, and

From Beaver Creek road to Crystal Lake.

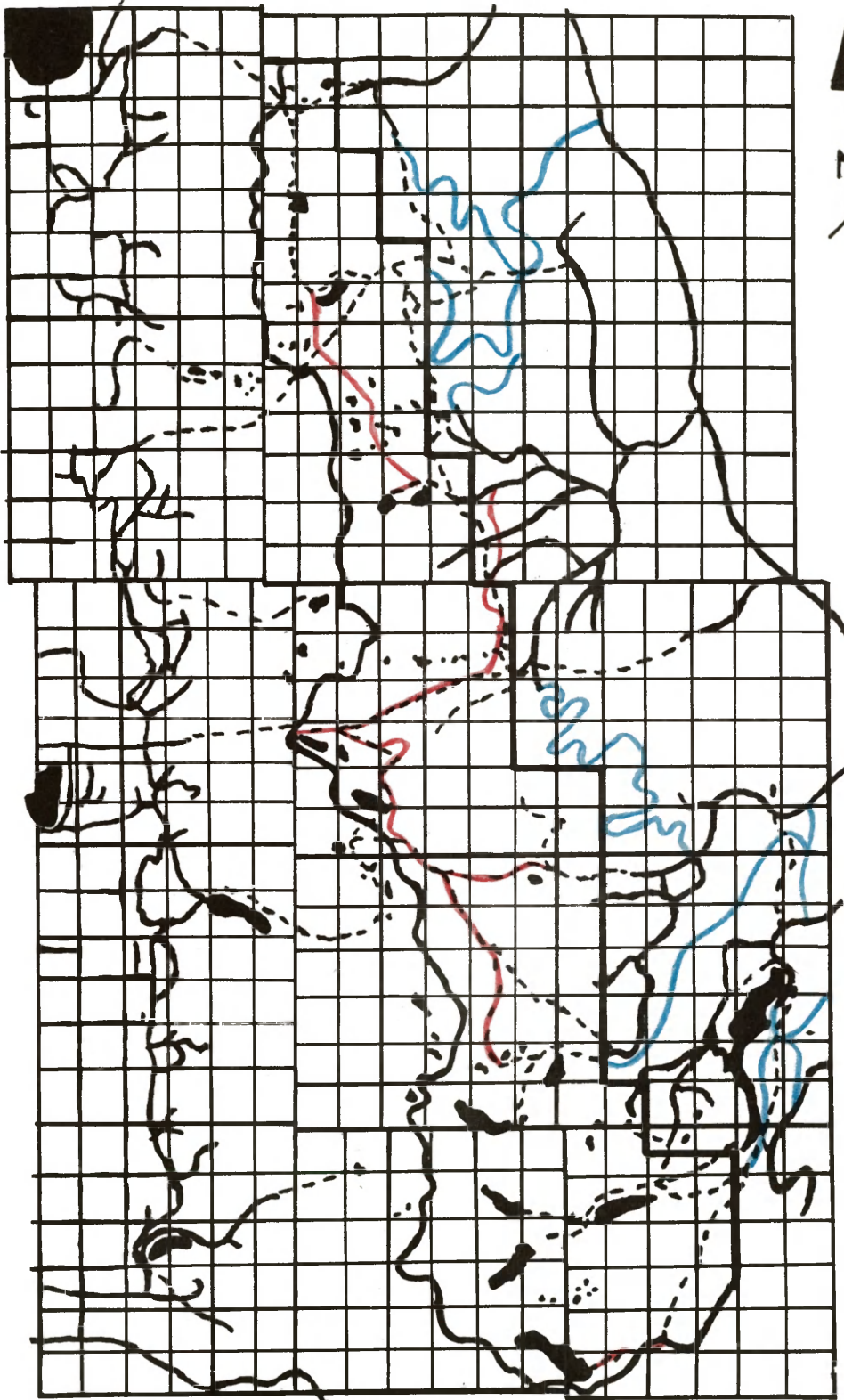
Other trails are periodically cleared depending upon the need, available funds, time, and manpower. Some trails have not been cleared for several years, except by the users. Most are no more than old Indian trails and packer trails, and are dangerous and difficult to travel.

At the time of this study Barney G. Sedlacek, Condon District Ranger, was developing a Multiple Use Management Plan for the district. The district was divided into three distinct areas of management: the general forest area which will be managed under Multiple Use; the water oriented areas which will be mostly recreational, and the special use area which is the Mission Mountains Primitive Area.






In this Multiple Use Plan Mr. Sedlacek formulates the future management of the primitive area. The development of the plan and actual execution of the management practices will probably be a few years apart. The Multiple Use Management Plan proposes that the following developments, considerations, and practices should be followed.

The Forest Service will develop a 50-mile all-purpose trail going north and south in the primitive area (Map V). Short spur trails

Future Trail and Road Locations
Mission Mountains Primitive Area



LEGEND

-  Future trails
-  Future roads
-  Present trails which will be relocated and reconstructed
-  Present trails
-  Present roads

will be constructed from the trunk trail to scenic points. A trail will also be constructed from Buck Lake to Gray Wolf Lake. Road-end recreational facilities will be established at the end of most primitive area access roads. Facilities are considered for placement at the end of the Cold Creek road, Jim Lake road, Red Butte road, Glacier Creek road, and Beaver Creek road. These road-end areas will provide toilets, parking space and other stop-over facilities (35).

Recreational facilities are considered for establishment in the heavy use areas within the primitive area. These facilities would be of rustic nature so as to blend with the nature of the area. Toilets, fireplaces, and hitchposts are the facilities being considered for construction.

The area around Jim Lake, which is next to the primitive areas' eastern boundary, is considered as a water oriented area and will be used for recreational purposes.

Recreational facilities will be established at the outlet of the lake and only selective logging operations, that blend naturally with the surrounding scenery, will be conducted. Lindbergh Lake is considered under the same management as Jim Lake. A future campsite is considered at the inlet of Lindbergh Lake after a road is constructed around the east shore of the lake. There will be a recreational zone established around the lake with only selective timber harvest being conducted. The other lands that border the primitive area are considered in the general management plan of multiple use and will be susceptible for timber harvest.

The Northern Pacific Railway Company

The Northern Pacific Railway Company manages its lands to maximize profits for company stockholders. At the present time, the Northern Pacific is managing its timberlands on a sustained yield program. The present timber harvest in the Swan-Clearwater Valleys for the Northern Pacific averages 45 to 50 million board feet per year over a 10-year period. The company is trying to eliminate its stands of mature and over-mature timber to reduce possible economic loss by insects and windthrow. After the reduction of the mature and over-mature stands, the annual cut will be reduced to equal or be less than the annual growth of the timber on their lands (30).

Northern Pacific timber harvesting is done by several silvicultural systems which vary from clear cutting, and selection cutting, to variations of the seed tree method. Around 25 percent of their logging is done by the clear-cut method. The harvest methods vary, depending upon topography, tree species, and possible future use of the land (30).

Natural regeneration is the major means for the establishment of reproduction after most Northern Pacific logging operations. The company is considering using helicopters, in the future, for possible use in seeding logged areas for faster and better regeneration (30).

The Northern Pacific lands adjacent to streams and lakes and other lands that have any potential recreational use are managed to obtain the best use from both timber and recreation. For example, on Holland Creek in the Swan Valley, the Northern Pacific has made accessible some of their land with stream frontage. The company removed all trees that were considered "risk" or dangerous. Lots were then

established to be leased as summer home sites. These leases are generally for 20 years duration and all improvements made on the land by the lessee cannot be detrimental or reduce the value of the lots or surrounding lands (30).

The Northern Pacific has just started its program of leasing potential recreational lands for summer home sites. The company has not advertised their efforts as yet, and are still trying to develop the program and determine if it will be of monetary benefit to the company. The establishment and leasing of future lots will be determined probably by the public demand for such lands (30).

The Northern Pacific is giving considerable attention to its lands next to the primitive area for recreational development, especially around Lindbergh Lake and Jim Lake, possibly Glacier Creek, and others. During the logging operations on the Herrick Run windthrow in the 1950's, the Northern Pacific constructed a road to the west shore of Lindbergh Lake and removed risk trees along the shore in preparation for possible future development of summer home sites on the land (34).

The Northern Pacific was logging portions of their land next to Jim Lake outside the primitive area during the study period in preparation for possible future development of summer home lots. The Forest Service and the Northern Pacific had made an agreement that the company would not log within five chains (330 feet) of the north shore of the lake. The timber was old growth spruce and susceptible to windthrow, so the Northern Pacific personnel decided to remove the timber next to the lake also. This would reduce the possibility of salvage operations in the area. They also considered that the trees would have had to be

removed before leasing the land for summer home sites. It will be at least several years before summer homes will be established in the area (30; 35, p. 67).

The end of the Glacier Creek road is on Northern Pacific land. This area is used for parking and camping by recreational users of the primitive area. There is an old pit toilet at this location that was left from old logging operations. The Northern Pacific is considering leasing the land to the Forest Service so that the Government agency could establish proper and adequate recreational facilities at the end of the road.

The lands owned by the Northern Pacific that are within the primitive area boundary are presently under consideration for trade for Forest Service lands, of equal value, outside the primitive area. Negotiations have been conducted off and on for several years. If a trade cannot be accomplished, the land may be considered for its timber (30).

Other Owners and Operators

Besides the agencies that manage the lands related to the primitive area, the local population in the Swan-Clearwater Valleys and the Flathead Valley should be considered.

The people living in the Flathead Valley have an economy based mostly on lumber, ranching, and farming. Besides these main occupations, tourism and recreation-oriented business (motels, dude ranches, restaurants, and resorts) are active during the summer months. Flathead Lake is an important focal point for water-oriented recreation while seasonal hunting for migratory birds is popular in the valley near Kicking Horse and Ninepipe Reservoirs. U. S. Highway 93 is a major access route to

Glacier National Park and is another reason for heavy tourist travel in the area.

Mr. Bud Cheff has a dude ranch at the base of the Mission Range almost due east of Ninepipe Reservoir. Mr. Cheff uses the Mission Range for his guests during the summer and fall months. His guests generally camp at Summit Lake on the reservation side and take short trips into the primitive area. These trips are usually to the head of Crazy Horse drainage, Elk Lake and Mollman Lake. In the fall months Mr. Cheff establishes a hunting camp in the Crazy Horse drainage of the primitive area for his guests that hunt. Mr. Cheff's guests are on the reservation side of the Mission Range during most of their trips. He does not have many guests during one season, and usually no more than two hunting trips in the primitive area in the fall (28).

The Swan-Clearwater Valley's economy is derived from two main sources, timber and recreation. The timber industry is centered around timber sales by the Forest Service, the Northern Pacific Railway Company, and the Montana State Forestry Department. There are two lumber mills at Seeley Lake and several small portable stud mills which utilize most of the lumber sold by the Forest Service. The timber sold by the Northern Pacific is shipped to Missoula, Kalispell, and Columbia Falls, Montana. Most of the lumber that is sold on the State lands is transported to the Kalispell area.

Most of the people who live in the valleys permanently are engaged in the timber economy by working at the mills located in the valleys, with the Forest Service, with the Northern Pacific, or they are the sawyers and haulers that work in the field for logging contractors.

The recreational aspects of the valley are very important with dude ranches, Forest Service camping facilities, and summer homes. Montana Secondary 209 is the access road through the valleys and leads to Glacier National Park, a drawing card for recreation and tourists. The Bob Marshall Wilderness Area lies to the east of the valleys and Holland Lake is one of the major entrances to the wilderness area (Map I).

Around Holland Lake, Seeley Lake, Lindbergh Lake, and other lakes in the valleys are numerous summer homes and established campgrounds that receive heavy use from people that are camping, have summer homes in the valleys, or that live permanently in the valleys. Most of the guests from dude ranches go into the Bob Marshall for pack trips except for Dick Hickey's guests who go into the Missions. Guests from other dude ranches in the valleys travel into the Missions on their own, without packers and usually for one day trips. Most of Hickey's guests make at least one day trip to the Crystal Lake or Glacier Lake areas during their stay at his ranch. Hickey's dude ranch has a steady clientele of family groups who return year after year. They stay at his ranch at least one week or longer, and make some kind of a trip into the primitive area during their stay. The ranch is usually full during July and August and he has a large number of guests annually (29).

Hickey plans to develop a program of one day "show me" trips to various scenic locations in the primitive area. The trips will be by horseback, and these will be available to his guests and summer home people on Lindbergh Lake (29). These trips will increase the use of portions of the primitive area and the overall horse use in the area.

During the controversy in the 1950's about the insect control logging operations within the primitive area, a survey was made of a few people in the valleys to determine their viewpoint on the logging controls. The ones in opposition to the logging operations were generally concerned with the recreational aspects of the economy through operating a dude ranch or owning a summer home. The individuals that were generally for the controlled logging were related to the logging industry and would generally profit by the removal of the timber (46).

The residents of the Swan Valley today, as determined in Mr. Sedlacek's Report on Multiple Use Management of the Condon Ranger District, are generally in favor of the Mission Mountains Primitive Area (35, p. 3).

CHAPTER VI

INVESTIGATION PROCEDURES FOR STUDY OF THE RECREATIONAL USERS

This portion of the study that pertains to the recreational users is part of an extensive research project related to users and management of wilderness areas. The study is being conducted by the University of Montana, School of Forestry. During the time that this study was being conducted, similar research studies on wilderness users were being conducted in the Bob Marshall Wilderness Area and the Glacier National Park back country. The field work was supported by a Federal McIntire-Stennis grant (Congressional Act of October 10, 1962) to the School of Forestry, University of Montana.

The questionnaire for user information was developed by Dr. R. B. Ammons, Professor, Psychology, University of Montana; Dr. L. C. Merriam, Jr., Associate Professor, Forestry, University of Montana; and two graduate students at the University of Montana, W. C. Bradt and the investigator (Appendix).

Sampling Standards

An individual had to meet the following requirements to be considered eligible for interview:

1. The person had to be within or just outside the primitive area;
2. The person had to be at least 13 years of age;
3. The person had to be in the primitive area for recreational

purposes. If a party had a guide or packer, this individual was not considered for interview.

4. Only one person in every five was to be considered for interview.

The head of each party generally was selected for interview, but the investigator was also to interview other party members so as to get a distribution of sexes and ages in the interviews that resembled the sex and age distribution of the parties.

Field Work

The collection of field data began June 21, 1964, and terminated October 4, 1964. The main objective of the field work was to contact the recreational users and obtain as many interviews as possible within the sampling standards. An itinerary was developed for July 2 through September 8, 1964. Following this itinerary, most of the primitive area was to be covered at least once. Because of the rugged terrain, weather variations, locations of access routes into the primitive area, and an unexpected concentration of recreational users in certain locations, it was soon apparent that few users could be contacted if the itinerary was followed. To accomplish the objective to contact recreational users, a new method of finding the users was devised.

Because the major access roads into the primitive area are located on the eastern boundary, a concentration of users was found there. To locate these users and obtain interviews, an automobile was driven to the end of a primitive area access road. If one or more automobiles were parked there, it was assumed that recreational users were in the primitive area and a trip would be made into the area on foot to locate

the users. If no cars were parked at the end of the access road, it was assumed that there were not any recreational users in the primitive area and a trip would be made by automobile to the end of the next access road. This process was continued until some users were found.

The above method of finding users in the primitive area assumes that most of the users would travel to the end of an access road, leaving an automobile there, and that users probably would not travel to the location from access routes on the western side of the Mission Range.

Longer trips of several days duration were also made into the primitive area in hopes of finding people in more inaccessible places. Close contact was maintained with Forest Service trail crews and individuals in the Swan Valley to obtain any possible information about user activities in the primitive area.

During the period of field data gathering, the investigator made contact with 41 recreational parties within the primitive area. There was a total of 154 people in the 41 parties from which 54 interviews were made. More than 41 recreational parties were observed within the primitive area but contact was not made because of the nature of the time, weather conditions, and the activities of the users.

Of the 54 interviews, 45 were retained for use in this study. The interviews were not used if more than one interview was taken from a party of five or less. The first interview from such a group was retained and the rest removed so as to follow sampling standards. Table II shows the date, location, and number of retained interviews during the time of field data gathering.

TABLE II

DATE, LOCATION AND NUMBER OF RECREATIONAL USER INTERVIEWS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Date 1964	Location	Number		
		Male	Female	Total
6-21	Glacier Lake	3	0	3
6-25	Glacier Lake	1	0	1
7-2	Glacier Lake	0	1	1
7-3	Lace Lake	1	0	1
7-4	Glacier Lake	1	1	2
	Glacier Lake Campground	1	0	1
7-8	Crystal Lake	1	0	1
7-11	Crystal Lake	1	0	1
7-12	Lost Lake	1	0	1
	Crystal Lake	1	0	1
7-15	Lower Cold Lake	1	0	1
7-21	Glacier Lake	0	1	1
7-22	Lost Lake	1	0	1
8-4	Lower Cold Lake	1	0	1
	Glacier Lake Campground	1	0	1
8-6	Hemlock Lake	1	0	1
	Glacier Lake	2	0	2
	Glacier Lake road	1	0	1
8-7	Upper Cold Lake	1	0	1
8-11	Glacier Lake Campground	0	1	1
8-13	Glacier Lake road	1	0	1
8-15	Crystal Lake	2	0	2
8-17	Upper Cold Lake	1	0	1
8-22	Welp Lake	1	0	1
8-23	Welp Lake	0	3	3
	Buck Lake	1	0	1
8-24	Holland Lake Campground ¹	1	0	1
8-25	Lace Lake	1	0	1
9-6	Lace Lake	1	0	1
	Glacier Lake road	1	0	1
9-7	Upper Cold Lake	2	1	3
	Lower Cold Lake	1	0	1
9-11	Elk Creek	1	0	1
9-19	Crazy Horse Creek	1	0	1
9-20	Crazy Horse Creek	1	0	1
10-4	Crystal Lake	1	0	1
Total		37	8	45

¹The interview at Holland Lake Campground was taken from an individual that had been to Gray Wolf Lake in the primitive area the previous day.

The information obtained from the interviews relates only to the interviewed individuals and their parties. The sample and the parties from which the sample was drawn is not to be considered a representative sample of the population of recreational users of the primitive area. Because the population is unknown the gathered information from the sample is assumed adequate to give general characteristics of the recreational users.

The interview was well received by the respondents and it was of interest to most of them. No one refused to answer the questionnaire or even any single question. The time per interview averaged 45 minutes in length, depending on conditions and interviewee.

CHAPTER VII

ANALYSIS OF DATA

Originally the collected user data were to be grouped by mode of travel. However, it was decided that the location of interview would be a better means of grouping because most of the interviewed recreational users hiked as their means of travel. The interviews were generally taken at the trip destination or at the base camp.

The interview locations are assembled into five groups for better presentation of the collected data. Table II gives the location and number of interviews during the period of data collection. Table III gives the location and number of the interviews and the assigned area numbers. Map VI shows the locations of the interviewed group areas.

Description of Interviewed Parties

Party size. The 41 interviewed parties ranged from one individual to a Montana Wilderness Association walk-in of 23. There were a total of 154 people in the 41 parties for an average of 3.8 people per party. There was an average of 1.09 interviews per party.

Age and sex. Males have usually been found to outnumber females in wilderness parties in past wilderness users studies; the same holds true for this study (22; 27). The male members of the parties outnumbered the females nearly three to one.

While obtaining the number and sex of the individuals in the

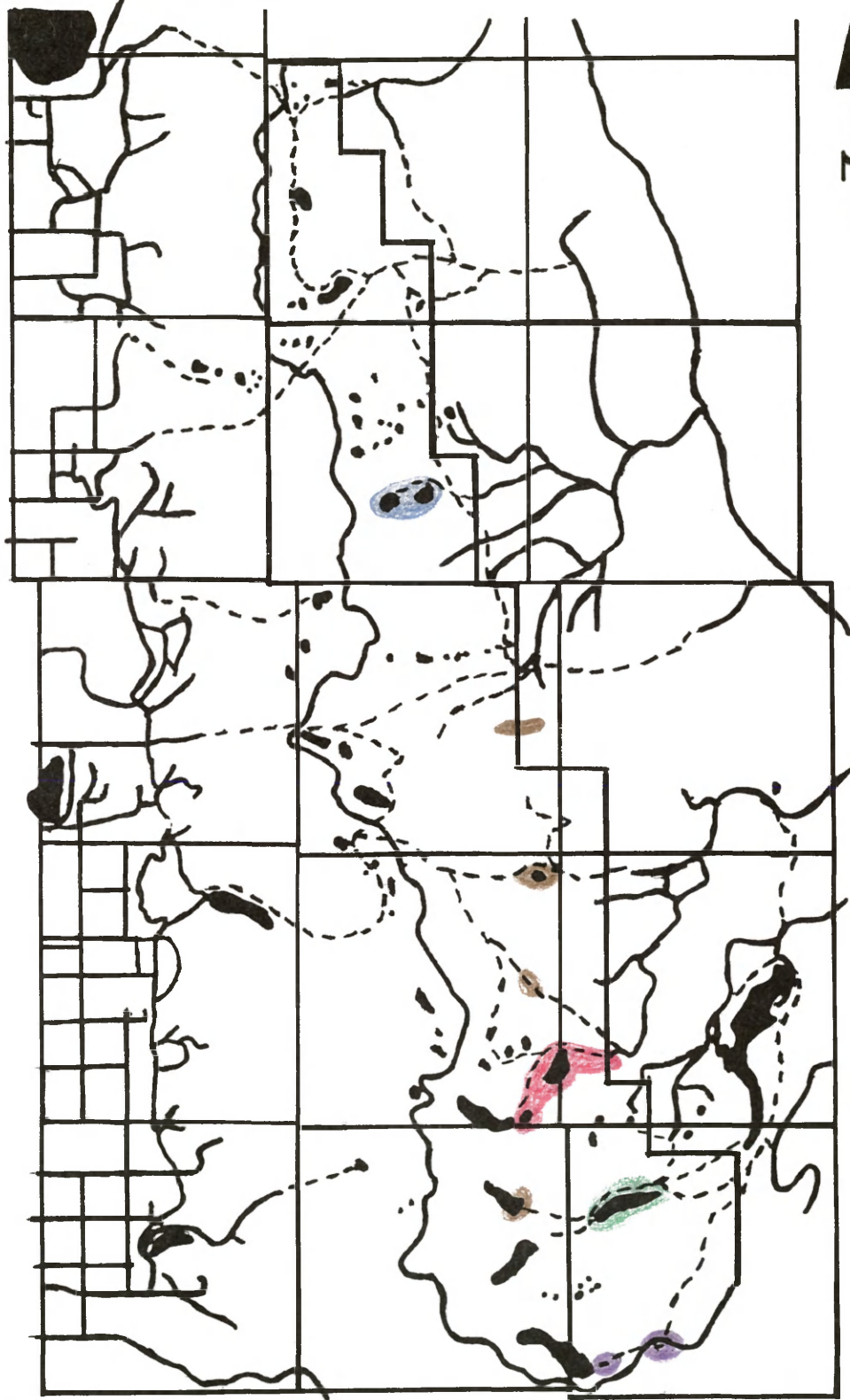
TABLE III

AREA NUMBERS, INTERVIEW LOCATIONS, AND NUMBERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Area Number	Location of Interview	Number of Interviews	Percent of Interviews
1	Glacier Lake	9	
	Glacier Lake Campground	4	
	End of Glacier Creek road	3	
	Lace Lake	<u>3</u>	
	Sub-total	19	42.3
2	Upper Cold Lake	5	
	Lower Cold Lake	<u>3</u>	
	Sub-total	8	17.8
3	Crystal Lake	<u>6</u>	
	Sub-total	6	13.3
4	Welp Lake ¹	<u>6</u>	
	Sub-total	6	13.3
5	Crazy Horse drainage	2	
	Lost Lake	2	
	Elk Creek	1	
	Hemlock Lake	<u>1</u>	
	Sub-total	6	13.3
Total		45	100.0

¹Includes one interview from same party (Montana Wilderness Walk-in to Gray Wolf Lake) at Buck Lake and one interview taken from member of party at Holland Lake Campground after the trip into primitive area.



Interview Area Locations
Mission Mountains Primitive Area



LEGEND

 Area 1
 Area 2

 Area 5

 Area 3
 Area 4

interviewed parties, the ages of all the people in the parties were also asked or estimated. This was done to determine the general age distribution of the party members. Since some of the ages were estimated, the ages were separated into three broad groups: Under 30 years of age; 30 to 40 years of age, and over 40 years of age. Table IV indicates that over half of the individuals (53.9 percent) in the parties were under 30 years of age. The age range of the people varied widely in the interviewed parties; for example, a 71-year-old male hiker was observed at Lost Lake, as was an 18-month-old male at Upper Cold Lake. Several children of two and three years of age and younger were also observed at Glacier Lake and Crystal Lake.

TABLE IV

SEX DISTRIBUTION OF AGE GROUPS, INTERVIEWED RECREATIONAL PARTIES, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Age group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Under 30	60	53.6	23	54.8	83	53.9
30 to 40	24	21.4	13	30.9	37	24.0
Over 40	28	25.0	6	14.3	34	22.1
Total	112	100.0	42	100.0	154	100.0

Party type. The parties varied from individuals to groups of friends and families to an organization group. Most of the parties were composed of families, with or without children, and parties of friends. All the parties hiked some, but three used horses as their major means

of travel. Only one hunting party was interviewed because of the few trips made into the primitive area during hunting season.

Besides determining the party types, the respondents were also asked who else they might desire to have on the trip other than their present companions. Most (77.8 percent) of the respondents considered members of the family or close friends as individuals they desired to have on the trip with them (Table V).

TABLE V
COMPANIONS DESIRED ON TRIP BY INTERVIEWED RECREATIONAL
USERS, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Desired companions	Number	Percent
Member of family ¹	22	48.9
Close friend ²	13	29.9
Nobody else	4	8.9
An outdoor type person	5	11.1
Nobody in particular	1	2.2
Total	45	100.0

¹Includes wives, husbands, sons, daughters, fathers, mothers, cousins, grandparents, and other close relatives.

²Includes boy or girl friends, close friends, etc.

Interviewed User Information

Sex. When the sex distribution of the interviewed recreational users and the sex of the individuals in the interviewed parties were compared, the sex distribution of the interviewed users was about 10

percent above or below the distribution for the population of the parties interviewed. Males were 10 percent higher because the male was usually the head of the party, the first person spoken to, and males occurred more often.

Age. The average age for the interviewed recreational users was 34 years. No difference exists in the average age between sexes. The age range for males was 16 to 69, and for females, 23 to 41 years. There was no general trend of certain age groups using certain locations in the primitive area. Table VI gives the age distribution of interviewed recreational users.

TABLE VI

AGE GROUP DISTRIBUTION BY SEX OF INTERVIEWED RECREATIONAL
USERS, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Age Group	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Under 30	16	43.3	2	35.0	18	40.0
30 to 40	10	27.0	5	62.5	15	33.3
Over 40	11	29.7	1	12.5	12	26.7
Total	37	100.0	8	100.0	45	100.0

Occupation. The major occupation groups using the primitive area were laborers (common and skilled), educators, businessmen, and high school and college students. The above groups comprised 69.2 percent of the sample (Table VII).

TABLE VII
 OCCUPATIONS OF RECREATIONAL USERS BY LOCATION OF INTERVIEW
 MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Occupation	Area 1	Area 2	Area 3	Area 4	Area 5	Total
	N=19	N=8	N=6	N=6	N=6	N=45
Percent of Respondents						
Laborer	42.2	0.0	33.3	16.7	16.7	26.8
Student	21.1	25.0	16.7	0.0	16.7	17.8
Education	21.1	25.0	0.0	16.7	0.0	15.6
Business	0.0	12.5	16.7	16.7	33.2	11.2
Medicine	5.2	0.0	0.0	33.2	0.0	6.6
Public Service	0.0	12.5	0.0	16.7	16.7	6.6
Engineering	5.2	12.5	0.0	0.0	0.0	4.4
Lawyer	0.0	0.0	33.3	0.0	0.0	4.4
Agriculture	0.0	12.5	0.0	0.0	0.0	2.2
Priest	5.2	0.0	0.0	0.0	0.0	2.2
Retired	0.0	0.0	0.0	0.0	16.7	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

A female, if married, was asked to respond with her husband's occupation. The married women were all housewives and the unmarried women (two) were medical technicians. High school and college students were asked their father's occupation, but are considered as students in Table VII. Table VII separates the occupations of the respondents by location of interview. The table shows that the distribution of occupations is fairly even throughout the interview areas.

Income. The total family income of the person interviewed was asked, unless the person was less than 18 years of age, to determine the general family income of the interviewed user. All the students over 18 years of age were semi- or totally independent and were engaged in part or full-time employment. All these students earned less than \$5,000 a year and are tabulated in the "less than \$5,000" a year category in Table VIII because of their partial or full independence from the family.

TABLE VIII

TOTAL FAMILY INCOME OF INTERVIEWED RECREATIONAL USERS BY LOCATION OF INTERVIEW, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Income Groups	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
Percent of Respondents						
Under 18 years	5.2	0.0	0.0	0.0	0.0	2.2
Less than \$5,000	47.4	25.0	33.3	0.0	16.7	31.2
\$5,000-\$7,999	21.1	50.0	0.0	33.3	16.7	24.4
\$8,000-\$9,999	5.2	0.0	0.0	50.0	33.3	13.4
\$10,000-\$14,999	21.1	12.5	33.3	16.7	33.3	22.2
\$15,000-\$19,999	0.0	12.5	33.4	0.0	0.0	6.6
Over \$20,000	0.0	0.0	0.0	0.0	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0

It will be noticed that 14 (31.2 percent) of the respondents made less than \$5,000 total income. Seven of these respondents were self

supporting students. Of all the respondents, 69 percent had a total family income of less than \$8,000. Because of the variation in the monetary spread of the categories, an average total family income could not be determined. In 1963, the U. S. Department of Commerce determined that the average total family income in the United States was \$7,510 (46, p. 377). The trend of the total family income for the respondents is relatively close to the latest known national average. If the college student's family income were considered, the incomes would have been higher.

Education. The interviewed recreational user was generally well educated with only five (11.1 percent) of the respondents not having a high school degree. There were two respondents that were still in high school and planned to graduate. A total of 66.7 percent of the respondents had at least some college education (Table IX).

TABLE IX
EDUCATION LEVEL OF RECREATIONAL USERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Education	Number of Respondents	Percent of Respondents
Less than high school degree	5	11.1
High school degree	10	22.2
Some college	10	22.2
College degree	14	31.2
Some graduate work	2	4.4
Graduate degree	4	8.9
Total	45	100.0

Residence. The majority of the interviewed recreational users (73.3 percent) were from Montana while the rest represented eight other states. Except for one respondent at Lost Lake and two in the Crazy Horse drainage, the out-of-state recreational users were located in the three heavy use areas of the primitive area (Glacier Lake, Crystal Lake, Cold Lakes). Most of the Montanans interviewed lived within a 100-mile radius of the primitive area. It was anticipated that more local people (Montanans) would be interviewed than people from other states because of the remote location and obscurity of the study area (Table X).

TABLE X

RESIDENCE OF INTERVIEWED RECREATIONAL USERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Residence of Respondents	Number of Respondents	Percent of Respondents
<u>Montana</u>	33	73.3
Missoula	11	
Great Falls	6	
Ronan	3	
Helena	2	
Deer Lodge	2	
Whitefish	2	
Bonner	1	
Kalispell	1	
Polson	1	
<u>Out-of-State</u>	12	26.7
California	4	
Washington	2	
Massachusetts	1	
Michigan	1	
New Jersey	1	
Ohio	1	
Oregon	1	
Wisconsin	1	
Total	45	100.0

Area information source of interviews. Most of the interviewed users from Montana had learned of the primitive area by word-of-mouth from friends, or family, and Forest Service literature. The out-of-state users learned of the area from sources such as magazines, had lived near the primitive area, or learned of the area through friends or members of the family (Table XI).

TABLE XI

AREA INFORMATION SOURCE OF INTERVIEWED RECREATIONAL USERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Source of Information	Residence		
	Montana N=33	Out-of-State N=12	Total N=45
	Percent of Respondents		
Friends	39.3	25.0	35.6
Forest Service pamphlets	21.2	0.0	15.6
Live near area	12.1	0.0	8.9
Family	9.1	16.6	11.1
Montana Wild. Ass'n.	9.1	0.0	6.7
Montana Fisherman's Handbook	3.1	8.4	4.4
Magazines	0.0	25.0	6.7
Found by accident	6.1	0.0	4.4
Use to work or live near area	0.0	16.0	4.4
Dude ranch operator	0.0	8.4	2.2
Total	100.0	100.0	100.0

First visit. This was the first trip to the primitive area for almost half of the interviewed users. Of all the respondents, 48.9 percent had visited the area before and 51.8 percent had not. Only 25 percent of the out-of-state users had visited the primitive area before as compared to 54.5 percent for the Montanans. Several of the respondents stated that they visit the area several times each summer.

Most of the respondents (82.2 percent) indicated that they would like to return to the primitive area, but some of the individuals, especially those from out-of-state, stated that they did not know if they would return.

User Activities and Trip Characteristics

Length of stay. The length of stay varied from a few hours to 11 days. The interviewed users that were in the primitive area for a few hours were grouped under the category "one day or less." The average length of stay in the primitive area for the interviewed user was 2.5 days. Eighty percent of the users spent two days or less on their trip into the primitive area. The respondents are separated by area of interview and length of stay in the primitive area in Table XII.

Activities of respondents. The activities in which the interviewed recreational users engaged varied according to the length of stay and location of visit. The respondents were given a card listing outdoor activities and they verbally indicated the activities they engaged in. It soon became apparent that two categories had to be added to the list. Some of the respondents were camping at the end of the road for several days and would hike in and out of the primitive area

TABLE XII

LENGTH OF STAY OF INTERVIEWED RECREATIONAL USERS BY LOCATION OF INTERVIEW, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Length of stay	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
	Percent of Respondents					
1 day or less	52.5	62.5	83.3	0.0	0.0	44.4
2 days	26.7	25.0	0.0	100.0	50.0	35.6
3 days	0.0	12.5	0.0	0.0	0.0	2.2
4 days	0.0	0.0	0.0	0.0	0.0	0.0
5 days	15.7	0.0	0.0	0.0	0.0	6.7
6 days	0.0	0.0	16.7	0.0	0.0	2.2
7 days	0.0	0.0	0.0	0.0	0.0	0.0
8 days	0.0	0.0	0.0	0.0	50.0	6.7
9 days	0.0	0.0	0.0	0.0	0.0	0.0
10 days	0.0	0.0	0.0	0.0	0.0	0.0
11 days	5.1	0.0	0.0	0.0	0.0	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Average length of stay (days)	2.4	1.5	1.2	2.0	5.0	2.5

each day. Also, it was found that some primitive area users would ride a boat to the southern end (inlet) of Lindbergh Lake and then travel the maintained Forest Service trail to Crystal Lake. These two activities took place outside the primitive area, but were part of the overall trip into the area. Table XIII shows the activities of the

respondents during their trip into the primitive area. Table XIV relates the activities as to length of stay, and Table XV relates the activities as to location of interview.

TABLE XIII
ACTIVITIES OF INTERVIEWED RECREATIONAL USERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Activities engaged	Number of Respondents N=45	Percent of Respondents ¹
Hiking	45	100.0
Fishing	32	71.1
Photography	25	55.5
Wildlife and Nature study	23	51.4
Primitive camping	19	42.2
Road camping	9	20.0
Boating	7	15.5
Swimming	6	13.3
Mountain climbing	6	13.3
Horseback riding	4	8.8
Rock climbing	3	6.6
Boating on Lindbergh Lake	3	6.6
Hunting	2	4.4
Motor scooter riding	0	0.0
Painting	0	0.0
Skiing	0	0.0

¹The total is over 100 percent because the respondents could engage in more than one activity during the trip.

TABLE XIV

ACTIVITIES OF INTERVIEWED RECREATIONAL USERS, DEPENDING
UPON LENGTH OF VISIT, MISSION MOUNTAINS PRIMITIVE AREA,
SUMMER, 1964

Activities engaged	Length of Visit						
	1	2	3	5	6	8	11
	day N=20	days N=16	days N=1	days N=3	days N=1	days N=3	days N=1
Percent of Respondents							
Hiking	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fishing	80.0	62.5	100.0	100.0	100.0	0.0	100.0
Photography	60.0	56.2	0.0	0.0	100.0	66.6	100.0
Wildlife and Nature study	50.0	62.5	0.0	33.3	0.0	33.3	100.0
Primitive camping	5.0	68.7	100.0	33.3	100.0	100.0	100.0
Road camping	10.0	31.2	0.0	66.6	0.0	0.0	0.0
Swimming	0.0	25.0	0.0	66.6	0.0	0.0	0.0
Boating	10.0	18.7	0.0	33.3	0.0	0.0	100.0
Mountain climbing	0.0	12.5	0.0	0.0	0.0	100.0	100.0
Horseback riding	0.0	0.0	0.0	0.0	0.0	100.0	100.0
Rock climbing	5.0	12.5	0.0	0.0	0.0	0.0	0.0
Boating on Lindbergh Lake	15.0	0.0	0.0	0.0	0.0	0.0	0.0
Hunting	0.0	0.0	0.0	0.0	0.0	66.6	0.0
Motor scooter riding	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Painting	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Skiing	0.0	0.0	0.0	0.0	0.0	0.0	0.0

¹Total percent is greater than 100 because respondents could engage in more than one activity.

TABLE XV

ACTIVITIES OF INTERVIEWED RECREATIONAL USERS, BY LOCATION
OF INTERVIEW, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Activities engaged	Location of Interview				
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6
	Percent of Respondents ¹				
Hiking	100.0	100.0	100.0	100.0	100.0
Fishing	89.4	87.5	66.6	16.7	50.0
Photography	63.1	25.0	66.6	66.6	50.0
Wildlife and Nature study	47.3	50.0	50.0	66.6	33.3
Primitive camping	21.0	37.5	16.7	100.0	83.3
Road camping	36.8	12.5	0.0	0.0	16.7
Swimming	21.0	0.0	0.0	16.7	16.7
Boating	15.7	33.3	0.0	0.0	16.7
Mountain climbing	5.2	0.0	0.0	16.7	66.6
Horseback riding	0.0	0.0	16.7	0.0	50.0
Rock climbing	10.0	0.0	0.0	16.7	0.0
Boating on Lindbergh Lake	0.0	0.0	50.0	0.0	0.0
Hunting	0.0	0.0	0.0	0.0	33.3
Motor scooter riding	0.0	0.0	0.0	0.0	0.0
Painting	0.0	0.0	0.0	0.0	0.0
Skiing	0.0	0.0	0.0	0.0	0.0

¹Total percent will be greater than 100 because respondents could engage in more than one activity.

The activities of the recreational users agreed with the reasons the users stated for coming to the area. In answering question 3 of the questionnaire, the respondents stated that they just wanted to get away from their everyday life, go fishing, hiking, and to relax and enjoy themselves. Some of the respondents had planned for a long time to make the trip, while others decided to come to the area on the spur of the moment. Several made trips into the area at least once a year and considered it as an annual family outing.

It will be noted in Table XIII that all of the respondents hiked to some degree. Four of the 45 respondents used horses for all or part of their trip but still did some hiking. Horses are seldom used in the primitive area, except during hunting season, because of the lack of good horse trails and feed for the animals.

Due to the lack of trips into the primitive area after the September 15, 1964, opening data for big game hunting, only two hunter-users were interviewed for the study. The area does receive heavy hunting pressures in the later big game hunting season during October and November.

As shown in Table XIV, all respondents (55.6 percent) who stayed in the area longer than one day engaged in one of the forms of camping. It will also be noticed in Table XIV that some of the respondents engaged in primitive camping and road camping while in the area for one day or less. This would be the case when a user hiked into the primitive area one evening, spent the night and part of the following day, then came back out. The users that road-camped would drive to the end of the road and spend the night at the road and then hike into the primitive area the next day. These trips took 24 hours or less to complete.

Wilderness Concept and Management

As stated in the literature review (Chapter III), wilderness has different meanings to different people. It may be something of the mind, a feeling, or it may be an actuality with an area that has dense natural stands of timber, lakes, mountains, swamps, or desert. Table XVI is the findings on the question asking the respondents what the word "wilderness" meant to them. Some of the individuals had a single definite idea, others thought that it could be several ideas, areas, and feelings, and expressed it in that manner. The wilderness meanings in Table XVI are not separated by interview area because all the respondents answered in the same general way and had the same general feeling as to what "wilderness" meant to them.

All respondents stated their feelings with different words and expressions. A table could not be made to show each individual answer as stated, so the answers were analyzed and grouped into the meanings in Table XVI. All meanings were used to make the table and each statement was tallied each time it was expressed.

It can be determined from Table XVI that the general meaning of "wilderness" to the interviewed recreational users of the primitive area was that it is an area in a natural condition with no human development such as roads, logging operations, and commercialization, and that the area has few people and offers privacy for the users.

The respondents expressed a strong desire to have privacy and see few users while they were in the area. This was their response, but the users were almost always happy to talk to someone else that they might meet in the area and they seemed to enjoy each other's company.

TABLE XVI

THE MEANING OF THE WORD "WILDERNESS" BY INTERVIEWED RECREATIONAL
USERS, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Meaning of "wilderness"	Number of Respondents	Percent of Respondents ¹
A natural area	13	28.9
An area with no human development (roads, logging, commercialization)	12	26.7
Privacy, no people	12	26.7
Getting away from everything (civilization)	5	11.1
An area that is peaceful, relaxation	4	8.8
The scenery	3	6.6
An area with no motorized vehicles	3	6.6
A place to regroup thoughts	2	4.4
Unspoiled land	2	4.4
An area of difficult access	2	4.4
An area that is wild, untamed	1	2.2
An area with reverent atmosphere	1	2.2
Something nice and wonderful	1	2.2
A retreat	1	2.2
A protected area	1	2.2
Fresh air	1	2.2
Good fishing	1	2.2
Primitive communication with nature	1	2.2
Not really sure	1	2.2

¹Total percent is greater than 100 because respondents could express more than one meaning.

The beginning of wilderness. The Mission Mountains Primitive Area is about 40 miles long and averages 4 miles wide. It has relatively long access routes on the west, but has several easy access roads that end within one mile of the east boundary with good trails leading into the area. The respondents were asked where "wilderness" began for them on their trips; 35.7 percent thought that leaving the road was sufficient to be in the wilderness. Some of the respondents stated actual mile distance from the road and others stated a location, depending upon the location of the interviewee, e.g., beyond Upper Cold Lake or at Crystal Lake. Table XVII shows the distance to be traveled by the interviewed users to be in wilderness. If the user stated a location, the actual trail distance in miles was calculated and put in Table XVII in such manner.

The responses were varied and many individuals thought they were in wilderness at their main destination of the trip or wilderness began just beyond their main destination. One individual thought that he was only "in a setting amongst wilderness" because of the number of people he was with. (He would have considered his location as wilderness if he had been by himself.) Over half the respondents (55.7 percent) considered themselves in wilderness within two miles or less from the road.

It will be noted in Table XVII that there was a high response of wilderness beginning at the end of the road in Areas 3 and 4. This may be due to the fact that an individual will lose site of any roads and civilization almost immediately after leaving the motorized access routes to these areas. This may have given the respondents a more

TABLE XVII

WHERE "WILDERNESS" BEGAN TO INTERVIEWED RECREATIONAL USERS,
BY LOCATION OF INTERVIEW, MISSION MOUNTAINS PRIMITIVE AREA,
SUMMER, 1964

Distance to travel to enter wilderness	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
	Percent of Respondents					
End of access road	21.0	37.5	50.0	83.3	16.7	35.7
1 mile or less	5.2	12.5	0.0	0.0	16.7	6.7
2 miles	21.0	12.5	0.0	0.0	16.7	6.7
3 miles	5.2	12.5	0.0	0.0	0.0	4.4
4 miles	10.6	0.0	50.0	0.0	16.7	13.3
5 miles	5.2	0.0	0.0	0.0	0.0	2.2
Over 5 miles	10.6	12.5	0.0	16.7	16.6	11.1
No set distance	10.6	0.0	0.0	0.0	0.0	4.4
Where you cannot see traces of civiliza- tion or meet man	10.6	12.5	0.0	0.0	0.0	6.7
When I am by myself	0.0	0.0	0.0	0.0	16.7	2.2
Total	100.0	100.0	100.0	100.0	100.0	100.0 ^{93.4}

rapid feeling that they were actually in wilderness and thus could have influenced their response in this manner.

Trip expectations. When an individual plans to visit an area, he may develop some ideals as to what to expect during the trip. There were 28 (62.2 percent) of the respondents who stated that the trip was different than what they had expected. The differences most often

expressed concerned the trails, number of people seen, the fishing, and finding campgrounds and toilets at Glacier Lake and Lower Cold Lake (Table XVIII).

Likes and dislikes of trip. Generally, the respondents seemed to enjoy their outing into the primitive area, even during inclement weather and adverse conditions. Table XIX related what the interviewed recreational users especially like about the visit to the primitive area. Seventeen (37.7 percent) of the respondents found nothing wrong with their trip. The beauty of the scenery, the fishing, the traveling into the primitive area, and the good weather seemed to be the most important things liked on the trips. The three major dislikes were of a natural nature: Mosquitoes, poor weather, and poor fishing. The other dislikes varied as to the individual's preference (Table XX).

Feelings toward television in wilderness. The feelings towards television varied from very strong disapproval (68.9 percent) to approval (6.7 percent). Road campers approved of television in this situation. Some people did not care one way or the other, and some of the respondents disapproved, but they thought if a person wanted to watch television in the primitive area, that was their privilege (Table XXI).

Feelings toward road being constructed into area. When the question, "How would you feel if you came back next year and discovered that you could make the trip in here very easily and comfortably in some type of motor vehicle?" (Question 8) was asked, there was a 100 percent negative response by the interviewed recreational users. None of the respondents considered a return trip of that nature as being appropriate

TABLE XVIII

TRIP EXPECTATIONS OF INTERVIEWED RECREATIONAL USERS
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

User Expectations	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
	Percent of Respondents					
As expected	36.8	50.0	6.7	33.3	50.0	37.8
Trip different ¹	63.2	50.0	83.3	66.7	50.0	62.2
Easier trail	15.7	12.5	0.0	0.0	0.0	8.8
Less people	10.5	0.0	33.3	0.0	0.0	8.8
Poor fishing	15.7	0.0	0.0	0.0	0.0	6.6
More people	5.2	0.0	6.7	16.7	0.0	6.6
Scenery	0.0	12.5	16.7	16.7	0.0	6.6
Finding outhouse campground	10.5	12.5	0.0	0.0	0.0	6.6
More rugged	0.0	0.0	0.0	0.0	33.3	4.4
Lack of wildlife	5.2	0.0	6.7	0.0	0.0	4.4
Nice weather	5.2	0.0	0.0	0.0	16.7	4.4
Other ²	10.5	25.0	16.7	33.3	16.7	22.2

¹Total percentage for reasons trip expectations were different will be more than given percentage because respondents could express more than one item as being different than what they expected.

²This category includes one each of the following statements: Good fishing; longer walk; more snow and water; more peaceful; enjoyed companionship; hotter; finding huckleberries; being able to drive so close to area; thought part of the area had been logged; and was not sure we could find our way in.

TABLE XIX

THINGS LIKED ABOUT WILDERNESS TRIP BY INTERVIEWED RECREATIONAL
USERS, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Items liked	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
	Percent of Respondents ¹					
Beauty of scenery	47.3	62.5	16.7	83.3	33.3	48.9
Fishing	26.8	50.0	16.7	0.0	50.0	28.9
The trip in	5.2	12.5	16.7	33.3	0.0	11.1
Good weather	15.7	12.5	0.0	0.0	16.7	11.1
Everything	15.7	0.0	0.0	0.0	16.7	8.8
Being outdoors	10.5	0.0	33.3	0.0	0.0	8.8
Camping out	5.2	12.5	16.7	0.0	16.7	8.8
Being in wilderness	5.2	0.0	16.7	16.7	0.0	6.6
Peaceful, relaxation	0.0	12.5	33.3	0.0	0.0	6.6
Good companionship	0.0	0.0	16.7	33.3	0.0	6.6
Meeting nice people	5.2	0.0	0.0	16.7	0.0	4.4
Solitude, remoteness	5.2	0.0	0.0	16.7	0.0	4.4
Fresh air	5.2	0.0	0.0	0.0	16.7	4.4
Not many people	5.2	0.0	0.0	0.0	16.7	4.4
Getting away from civilization	5.2	0.0	0.0	16.7	0.0	4.4
Other ²	26.8	0.0	33.3	33.3	50.0	26.6

¹Total percent will equal more than 100 percent because respondents could express more than one item.

²This category includes one of each of the following: nothing special; natural unspoiled country; the ruggedness; being in new country; nature; freedom; bringing other people in; pioneer type feeling; feeling life is just beginning; the challenge; taking pictures; enjoyed campsite.

TABLE XX

THINGS DISLIKED ABOUT WILDERNESS TRIP BY INTERVIEWED RECREATIONAL
USERS, MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Items disliked	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
Percent of Respondents ¹						
Nothing	31.5	25.0	66.7	50.0	33.3	37.7
Mosquitoes	15.7	12.5	0.0	0.0	33.3	13.3
Poor weather	21.0	0.0	0.0	0.0	0.0	8.8
Poor fishing	10.5	12.5	0.0	0.0	0.0	6.6
Litter	5.2	12.5	0.0	0.0	0.0	4.4
Trail not marked	0.0	12.5	0.0	16.7	0.0	4.4
Back packing	5.2	0.0	0.0	16.7	0.0	4.4
Other ²	31.5	25.0	33.3	33.3	33.3	33.3

¹Total percent will equal more than 100 percent because respondents could express more than one item disliked.

²This category includes one each of the following: too many people; not enough time; not enough food; new trail; dry trail (no streams for drinking water); outside toilet; the underbrush; alcoholic hangover; seeing illegal fish spear; long walk; getting fishhook in hand; failure for rest of party to show; the number of cars at end of the road; lack of game, and uninteresting view from trail.

TABLE XXI

FEELINGS OF INTERVIEWED RECREATIONAL USERS TOWARD TELEVISION
BEING INSIDE WILDERNESS, BY AREA OF INTERVIEW
MISSION MOUNTAINS PRIMITIVE AREA, SUMMER, 1964

Feeling of respondents	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
	Percent of Respondents					
Approve	10.6	0.0	0.0	0.0	16.7	6.7
Disapprove	73.6	50.0	66.7	83.3	66.6	68.9
Disapprove but not bothered	10.6	25.0	0.0	16.7	0.0	11.1
Impartial	5.2	25.0	33.3	0.0	16.7	13.3
Total	100.0	100.0	100.0	100.0	100.0	100.0

to the area and were against it in any form. The people associated roads with the question and did not want a road constructed into the area.

Items not important to wilderness. The respondents were asked to determine if certain items in a list were considered important for wilderness in their own opinion. Table XXII states the response toward the items that were considered not important for wilderness. A 100 percent response to "motels" means that it is not considered part of wilderness by the respondents. As the percentage decreases, the more that item is considered important for wilderness to the respondents. The item "free of roads" has an 0.0 percent response which means that the item is considered very important to wilderness by all the respondents. The major items of importance to wilderness as considered by the

TABLE XXII

ITEMS CONSIDERED NOT IMPORTANT FOR WILDERNESS BY INTERVIEWED
RECREATIONAL USERS, MISSION MOUNTAINS PRIMITIVE AREA,
1964

Items	Number of Respondents	Percent
Motels	45	100.0
Motor scooters	43	95.6
Motor boats	41	91.1
Timber cutting	41	91.1
Chain saws ¹	40	88.8
Airplanes ²	37	82.2
Supply center	37	82.2
100,000 acre size	16	35.6
Guided party	5	11.1
Horses	4	8.8
Few people	4	8.8
Staying out overnight	2	4.4
Free of roads	0	0.0

¹Thirteen of these 40 respondents approved of Forest Service use of chain saws in the area for trail maintenance and fire fighting.

²Twelve of the 37 respondents approved of Forest Service use of airplanes and helicopters in the area.

respondents were: having the area free of roads, staying out overnight in the area, seeing few people, using horses, and having guided parties. The trend of response was generally the same in the different interview areas.

Recommended changes of facilities and management. A list of items (Table XXIII) was read to the respondents and they were to determine if they thought that there should be improvements or additions of the listed items for the benefit of the primitive area users. Besides what was on the list, the respondents also had an opportunity to add other items which they thought should be included. Information signs, shelters, and trails were the items most often selected as improvements or additions to the primitive area for the users. Simple campgrounds and emergency telephones were considered important improvements. One individual said primitive roads should be included in the area, which contradicted his previous negative response about allowing motorized vehicles in the area. There was a trend that the users in the interview areas close to the end of the access roads wanted more changes of facilities and management.

Other. It will be noticed by looking at the questionnaire in the Appendix that not all of the information obtained from the respondents was analyzed. Not all of questions 4, 5, 5a, and 6 were considered as being important to this study.

Generally the response about the difference between a national park and a wilderness in question 4 was that a national park was too crowded, too commercialized, and that it had too many restrictions when

TABLE XXIII

RECOMMENDED CHANGES IN FACILITIES AND MANAGEMENT BY INTER-
VIEWED RECREATIONAL USERS, MISSION MOUNTAINS PRIMITIVE
AREA, SUMMER, 1964

Recommended changes	Location of Interview					Total N=45
	Area 1 N=19	Area 2 N=8	Area 3 N=6	Area 4 N=6	Area 5 N=6	
Percent of Respondents ¹						
No change	10.5	0.0	0.0	0.0	16.7	6.6
Wider or more trails	26.8	0.0	33.3	66.6	33.3	28.9
Simple campgrounds	31.5	12.5	16.7	0.0	16.7	20.0
Information signs	68.4	62.5	50.0	83.3	16.7	57.8
Concession for users	5.2	12.5	16.7	0.0	16.7	8.8
Shelters	21.0	37.5	66.6	33.3	16.7	31.1
Primitive roads	0.0	0.0	16.7	0.0	0.0	2.2
Telephones	10.5	0.0	0.0	0.0	0.0	4.4
Telephones at end of road	5.2	12.5	0.0	16.7	0.0	6.6
Emergency telephone only	5.2	37.5	16.7	33.3	0.0	15.5
Better maps	10.5	12.5	16.7	0.0	0.0	8.8
Other ²	21.0	25.0	50.0	33.3	50.0	28.9

¹Total percent will equal more than 100 percent because respondent could express more than one change in user facilities or management.

²This category includes one each of the following: cache places, clean up litter; registration boxes; garbage pits for heavy use areas; wood supply at camps; toilet and garbage facilities; have controlled access; indoor toilets; plant area with horse feed; kill predators; better fish and game department practices; log walks over creeks, keep trails clear; and cut wood for camp at end of the road.

compared to a wilderness.

Question 5 and 5a were to determine if a respondent was active in wilderness oriented organizations and a strong supporter of wilderness. All respondents stated that they were supporters of wilderness, but only six (13.3 percent) actually belonged to any wilderness oriented club or read such literature.

Question 6 asked for the respondent's feelings toward hiking and horseback riding. Most of the respondents enjoyed hiking although a few stated that they did not care for backpacking. Several also expressed their desire for or against horse travel, but most of the respondents enjoyed both means of travel and were using the one most practical.

CHAPTER VIII

REVIEW, CONCLUSIONS AND RECOMMENDATIONS

Review of the Problem

The problem of this study is twofold. The land ownership is mixed and the management policies are varied so that land usage is different and uses are often conflicting. The recreational use of the Mission Mountains Primitive Area has not been studied before and is not generally known.

The objectives of this study were to determine the characteristics of interviewed recreational users of the Mission Mountains Primitive Area, including their understanding of the meaning of wilderness, and review the history of land use and the management policies and practices on lands related to the primitive area. The collected information from the interviewed recreational users and the managers of the related lands was studied to determine if there were land use conflicts.

Forty-five interviews were taken from recreational users who met the established study criteria. These users answered questions about themselves, their meaning of the word "wilderness", and what user facilities they thought should be included in wilderness-type lands. The land managers provided information related to the management practices of lands located close to the primitive area. All natural resources were considered but the main emphasis was placed on timber and recreation.

Study Limitations

The interviewing portion of the study was based on several assumptions. The investigator assumed that the interviewed recreational user had an understanding of the word "wilderness" and could express himself verbally. It was also assumed that the respondent understood the question when asked and that he would answer as he truly felt.

The questionnaire. The questionnaire was designed after the wilderness land questionnaire developed for the Outdoor Recreation Resource Review Commission. Since the questionnaire was not pre-tested, some faults were not discovered until after the collection of field data had begun. For example, some of the questions were developed for a specific response (yes or no) but the respondents expressed variations of the desired answers, making the question difficult to analyze.

Data collection. It was difficult to find the primitive area users because there was no means of knowing precisely where they were in the area. User's automobiles were located at the ends of access roads and the investigator then traveled into the primitive area until users were found. Camping equipment was not carried on these trips and some interviews were missed because users were not found in the available time.

The responses of the interviewed recreational users were affected in some immeasurable degree by the weather, location, time of day, conditions of interview, and the personality of the investigator. The investigator tried not to convey any of his personal feelings or influence the respondent's answer in any way outside of his necessary

presence.

User data analysis. Because most of the questions in the questionnaire were of "open-end" construction, the respondents could answer the questions verbally in any way seen fit. They made no two responses the same, although the respondents may have been conveying similar thoughts. The answers were written down verbatim or as near as possible as stated by the respondent. This introduced means of distorting the information collected; the information might have been misunderstood and written down wrong as a result. The investigator had to separate the many different responses into broad groups of meanings. The grouping of the responses was done by the investigator and, thus, again introducing his own feelings into the matter.

The Interviewed Recreational User

The interviewed recreational user traveled into the primitive area in parties that averaged four in number. The parties were mostly family parties, or groups of friends, but varied from single individuals to organized groups. Males outnumbered females nearly three to one in the interviewed parties.

The average respondent was in the mid-thirties and had at least a high school education. The occupations that the users would most likely be employed in were laborer, educator, or businessman, with a good chance of the user being a student. The interviewed user's total family income was close to the 1963 average national total family income of \$7,510.

Nearly three of every four interviewed users were Montanans,

most of whom lived within 100 miles distance of the primitive area. The respondents generally learned of the primitive area through friends, members of their family, or Forest Service information pamphlets. Almost one-half of the respondents had previously visited the primitive area, especially Montanans. Most users expressed a desire to return to the area but some did not know if they ever would return.

The interviewed users usually spent two days or less in the primitive area but trips of longer duration were not uncommon, especially to the areas that were far away from the end of the access roads. On the average, the interviewed user did not make trips that would penetrate deep into the primitive area, traveling most often to places of easy access. These locations were concentrated at Glacier Lake, Cold Lakes, and Crystal Lake.

The user engaged in many activities during the trip, but the most common were hiking, fishing, photography, wildlife and nature study, and primitive or roadside camping. The different activities were not restricted to certain areas, except roadside camping which took place on the end of the access roads.

The interviewed recreational user expressed the meaning of the word "wilderness" as an area of land in a natural condition, without human developments such as roads, logging operations, or commercialization, and which offered some privacy and had few people. The desire for privacy was a frequent response, although the users seemed to enjoy meeting and talking to other users in the area. The respondent thought that wilderness began within two miles or less, in actual trail distance, from the road's end. In the interview areas where

the respondent quickly lost sight of the road from the trail, the sooner he felt that wilderness began from the end of the road.

The trip was usually different from what the user expected for reasons such as: not seeing any big game, meeting fewer people, or more people, and finding campground facilities. The trip into the area was enjoyed because of good fishing, good weather, and other reasons, while natural things like mosquitoes, poor weather, and poor fishing were the most disliked aspects of the trip.

The interviewee was strongly against having a road constructed into the primitive area and would not consider traveling into the primitive area on a motorized vehicle. When asked about the use of television in the area, the average respondent was opposed to having television in the primitive area, but not as strongly as to the use of roads and motorized transportation. The users that engaged in roadside camping were more in favor of the use of television than the other users. This may be attributed to the reasoning that they had more user facilities (gas stoves, lanterns, etc.) with them at the road end than would other users, and they may not have felt that television would have been out of place with their other equipment.

The respondents considered motels, motor scooters, motorboats, timber harvesting, chain saws, airplanes, and supply centers unimportant and felt they should be excluded from wilderness lands. Guided parties, seeing few people, staying out overnight in the area, and being free of roads were considered very important characteristics of wilderness areas. Having a wilderness of at least 100,000 acres in size was considered fairly important by the average respondent. The

answers give the land manager an idea of what the user thinks is not part of a wilderness type area.

The recreational user thought the following improvements would be beneficial: the number of information signs should be increased, and most of the trails should be improved or extended, shelters and simple campgrounds were wanted near the trails for their use. The placement of telephones at the end of the access roads and within the primitive area was considered a very helpful instrument in case of emergency. The users who did not travel far into the primitive area expressed their desire for more user facilities than did users that traveled long distances into the area. With the previous information, the land manager has a better idea as to what the users think should be included in a wilderness type area.

Land Management

Both the Flathead Indian Agency and the Office of the Montana State Forester manage lands that are adjacent to the primitive area. The Flathead Indian tribal lands are managed mainly for watershed values, while the State lands are managed for sustained-yield timber harvest. At the time of this study neither agency had plans, present or future, to develop or harvest any timber on the lands immediately adjoining the primitive area. The Indian Agency does plan to develop a better trail system and some recreational facilities on the tribal lands in the Mission Range with the labor from the Job Corps Camps which are presently being established on the reservation.

The Northern Pacific Railway Company has lands that are within or next to the eastern boundary of the primitive area. The land inside

the primitive area is being held in reserve by the Northern Pacific for possible trade for Forest Service lands of equal value outside the primitive area. The Northern Pacific was conducting logging operations on their land at Jim Lake next to the primitive area. The future plans for the Northern Pacific include possible development of summer home sites at Jim Lake and any other locations that have lake shore and stream frontage.

The primitive area is managed by the Forest Service to maintain the area in a natural environment for the use, education, and benefit of the users. The watersheds of the primitive area are protected from wildfire but no other watershed management is practiced. The Forest Service works in conjunction with the Montana Fish and Game Department in the management of the wildlife and fish in the primitive area but the main effort is carried on by the State agency.

The Forest Service maintains the major access trails into the primitive area, provides a few trail information signs, three pit toilets in the heavily used areas, two campground areas with facilities, and three road turnarounds. There is one register box for users to sign at the end of the Glacier Creek road; however, the information obtained is not very accurate or informative because of the design of the questionnaire.

The Forest Service will continue to encourage the users of the primitive area to burn all burnable litter and pack out all cans and other non-burnable materials. Registration points will be located at the major access routes of the primitive area; parking locations and campgrounds with rustic facilities will be constructed at the road ends.

A 50-mile all-purpose trail is to be constructed the length of the Mission Range. Some spur trails to scenic spots are to be constructed from this major trunk trail. The packer's trail to Gray Wolf Lake will be relocated and an all-purpose trail will be constructed to the lake. Signs will be posted at necessary locations along the trails. No trail will be located in the southern portion of the primitive area to the west of Gray Wolf Lake and High Park Lake. This is because of the topography, soil, and rock formations.

The Forest Service does not harvest any timber from the lands adjacent to the primitive area under the present timber management plan, but these lands are managed for timber as the main resource and probably will be harvested, in part, with the development of the new timber management plan in 1969. The Northern Pacific is presently harvesting the timber on part of its lands adjacent to the primitive area.

The Northern Pacific and the Forest Service will construct roads on the cost-share basis to the lands in the Piper Creek, Cedar Creek, and Elk Creek drainages for timber harvest outside the primitive area. The road into the Piper Creek and Cedar Creek drainages is being constructed at the present time, but a road into the Elk Creek drainage will not be developed until a much later date. These cost-share roads will become access roads to the primitive area when completed. The recreational user of the primitive area will have easier access to these drainages and will take advantage of the roads.

During the study period there were no actual conflicts of land management or land use inside the primitive area, but some conflicts

had developed next to the eastern boundary of the primitive area. There was the normal conflict of land management practices that would develop with mixed land ownership and different land management practices. The major problem of land use during the study was that of people having difficulty getting access through the roads on the lands bordering the primitive area. This problem was due to the logging operations conducted by the Northern Pacific on their land at Jim Lake. Because of new road construction and the movement of large equipment and logging trucks, recreational users access to Jim Lake and the Jim Lake Basin was very difficult. Parts of the road were closed to public use and caution had to be exercised to travel the main access road which also was the main road to the Cold Creek drainage. In the past, the movement of logs from other timber sale locations has caused similar problems, and this will continue to be a problem with future logging operations in the Piper, Cedar, and Elk Creek drainages.

Portions of the logging operations could be seen and the sound of chain saws and logging equipment could be heard from within the primitive area. They do not cause permanent damage to the primitive area, but these sights and sounds could distract from the natural aspect of the primitive area at the time of the occurrence. The amount of distraction would depend upon the individual recreational user and his concepts of wilderness. From the statements of the interviewed recreational users of this study, the sight and sound of a logging operation would not be in accordance with their idea of wilderness.

Recommendations

This study does not begin to answer all the problems of use and management of the Mission Mountains Primitive Area, but does acknowledge some of the problems related to the area through mixed land ownership and management practices in 1964. These problems will become more acute if the land managers do not develop cooperative, extensive, and intensive management plans for their lands.

The Swan-Clearwater Valleys are a recreation complex that will receive increasing recreational use in the future. This is realized by the Forest Service and the agency has reserved recreational sites for development as the demand arises. The Northern Pacific also knows that the recreation use of the valleys will probably increase and will establish summer home sites for lease to the public. These sites will be developed as demanded. Dude ranches will probably continue to attract many recreational users to the valleys.

With this indication of probable increase of recreational use of the valleys, the Mission Mountains Primitive Area will play an important role in the overall recreational complex of the area. The people who will be using the recreational facilities in the valley floor will be tourists, dude ranch guests, summer home owners, and local people. The Swan-Clearwater Valleys will provide many forms of recreation, but some recreation users will want to make trips into a wilderness area. Most of the dude ranch guests that seek this type of recreation will probably go into the Bob Marshall Wilderness Area as will others who have adequate time and facilities. The Mission Mountains Primitive Area will provide the same experience for the people who do not have

enough time, money, and equipment for extensive trips, but still would like to take short trips into such an area.

The following recommendations have been developed from the gathered information from recreational users and the management practices of the lands adjoining to the Mission Mountains Primitive Area. They may benefit the land managers in the development of their lands according to their management goals, yet maintaining the primitive area in its natural condition as a wilderness.

1. Each land manager should develop extensive management programs. Each management program should be distributed to the other land managers. With the management practices and operations of each land manager available, there can be better cooperation and harmony of land management practices and land usage.

2. The Forest Service and the Northern Pacific should negotiate for the tracts of Northern Pacific lands inside the primitive area. The Forest Service should lease or buy the land at the end of the Glacier Creek road from the Northern Pacific for development of rustic recreational camping facilities for recreational users.

3. Because there are no natural barriers to form the eastern boundary, the land ownership is mixed, and private logging operations continue adjacent to the boundary, a protection buffer zone probably would not be established. The Forest Service and the Northern Pacific should make some agreement to the establishment of summer home sites on Northern Pacific land. This agreement should be done so that the construction of summer houses will not be too close to the primitive area boundary.

4. The Forest Service should continue its program of establishing recreational facilities at the end of access roads. The minimum facilities should be toilets, fireplaces, trash containers, and registration boxes. These facilities should be mainly for the protection of the land. The locations of such recreational areas should be in conjunction with proper recreational facility establishment and be constructed of rustic materials. Care should be taken so that there will not be conflict between the public use of these areas and possible leaseholders of summer home sites on private lands. There should be signs on all access routes to designate the boundary of the primitive area to the user.

5. Additional trails should be constructed through the primitive area to help reduce the concentrated use of certain areas. The trails should be of all-purpose construction with adequate distribution of information signs. The major network of trails should branch from the proposed major 50-mile trunk trail to other points of attraction.

6. Better recreational facilities should be established at Crystal Lake, Glacier Lake, and Upper and Lower Cold Lakes to reduce user damage in these areas. Other recreational facilities (simple campgrounds) should be constructed in the primitive area, as concentrated use develops in other areas.

7. Access roads should be maintained and improved as needed.

8. As new access roads are developed, camping facilities of a rustic nature should be established at the end of the roads and trails should be constructed to the main all-purpose trail.

9. A traveling wilderness guard should be established by the

Forest Service to patrol and maintain the primitive area. Litter and trash in the primitive area should be removed and the users should be encouraged to burn all burnable trash and pack out non-burnable waste. A recreation guard should also maintain the recreational grounds at the end of access roads.

10. The use of horses should be eliminated in the higher elevations of the primitive area, especially in the southern portion, so as to reduce horse damage. Horse use in the rest of the primitive area should be limited if not also eliminated. If horses are used, the users should be required to supply the animals with supplemental feed to reduce forage use and damage.

11. All logging operations next to the primitive area should be conducted so as to do as little damage to the land as possible. All past, present, and future logging operations should be reseeded as soon as possible to develop new growth in the area and bring it back to its natural condition.

12. Wildlife and watershed aspects of the primitive area will need more extensive study to determine their compatibility with the recreational use. Special interest should be taken in hunting pressure and the effect of people on the grizzly bear population in the area.

13. Study of the wilderness recreational user should continue, so as to gain a broader understanding and more accurately determine his characteristics, activities, use locations, and his understanding of the uses of wilderness. More information is needed to determine the use in the primitive area from the western side.

REFERE

REFERENCES

1. Adams, Lowell. 1943. Report on the wildlife of the Flathead Indian Reservation, wildlife on Indian lands. Fish and Wildlife Serv., Dep. of the Interior, Washington, D.C.
2. Alden, W. C. 1953. Physiography and glacial geology of western Montana and adjacent areas. Geol. Surv. Prof. Paper 231. U.S. Government Printing Office, Washington, D.C.
3. Ayers, H. B. 1900. The Lewis and Clarke [sic.] Forest Reserve, Montana. U.S. Government Printing Office, Washington, D.C.
4. Bergman, Sharon, and J. F. McAlear. 1962. The fabulous Flathead. Treasure State Publishing Co., Polson, Mont.
5. Bultena, G. L., and M. J. Traves. 1961. Changing wilderness images and forestry policy. J. Forest. 59(3):167-171.
6. Burch, W. R., Jr. 1964. Two concepts for guiding recreation management decisions. J. Forest. 62(10):707-712.
7. Complete text of the Wilderness Act. 1964. Living Wilderness 86:31-35 (Spring-Summer).
8. Conrad, R. M. 1964. Recreational use and the "renewable" resources, Swan River State Forest, Montana. Master's Thesis, Mont. State Univ., Missoula, Mont.
9. Dana, S. T. 1956. Forest and range policy. McGraw-Hill Book Co., Inc., New York.
10. Flathead Lake first visited by white men about 1810 is belief of noted historian. Great Falls Tribune. November 14, 1926.
11. Florian, Rev. Martin. 1959. The story of St. Mary's Mission, Stevensville, Mont.
12. Forbis, Richard. The Flathead apostasy: an interpretation. Mont. Mag. of Hist. 1(4).
13. Frissell, S. S., and D. P. Duncan. 1965. Campsite preference and deterioration in the Quetico-Superior canoe country. J. Forest. 63(4):257-259.
14. Hausman, L. A. 1944. The illustrated encyclopedia of American birds. Halcyon House, New York.

15. Holmes, O. W. (ed.) James A. Garfield's diary of a trip to Montana in 1872. Sources of Northwest Hist. No. 21. State Univ. of Mont., Missoula. (Winter, 1934-35).
16. House wilderness hearings. 1962. Living Wilderness 80:14-18 (Spring-Summer).
17. Leopold, Aldo. 1921. The wilderness and its place in forest recreation policy. J. Forest. 19(7):718-721.
18. Little, E. L., Jr. 1953. Check list of native and naturalized trees of the United States. U.S. Government Printing Office, Washington, D.C.
19. Livermore, N. B., Jr. 1938. Roads running wild. Amer. Forest. 44(4):153-155.
20. Love, L. C. 1964. Summer recreational use of selected national forest campgrounds in the central Rocky Mountains. U.S. Forest Serv. Res. Paper RM-5.
21. Lucas, R. C. 1964. Wilderness perception and use: the example of the Boundary Waters Canoe Area. Natur. Resources J. 3(3): 394-411.
22. Merriam, L. C., Jr. 1963. A land use study of the Bob Marshall Wilderness Area of Montana. Forest and Cons. Exp. Stat. Bull. 26. School of Forest., Mont. State Univ., Missoula.
23. _____, Kay Luding and R. B. Ammons. 1965. Glacier Park chalet visits, an introduction to wilderness experience. Forest and Cons. Exp. Stat. Res. Note 2. School of Forest., Mont. State Univ., Missoula.
24. Miller, G. S., and R. Kellogg. 1955. List of North American recent mammals. U. S. Nation. Mus. Bull. 205. U. S. Government Printing Office, Washington, D.C.
25. Murie, Adolph. 1936. Letter to editor. J. Forest. 34(6):641-643.
26. Olsen, C. J. 1941. Glimpses of Bob Marshall afield. Living Wilderness 6(6):10-11.
27. Outdoor Recreation Resources Review Commission. 1962. Wilderness and recreation. ORRRC Rep. No. 23. Washington, D.C.
28. Personal correspondence with Bud Cheff, Cheff Ranch, Charlo, Mont. April 6, 1965.
29. Personal correspondence with Dick Hickey, Diamond L Bar Ranch, Lindbergh Lake, Mont. April 8, 1965.

30. Personal interview with James Patterson, Northern Pacific Railway Company District Forester, Seeley Lake, Mont. May 14, 1965.
31. Personal interview with Robert Dusenbury, Range Conservationist, Flathead Indian Agency. April 7, 1965.
32. Personal interview with V. K. Meeker, Forester, Flathead Indian Agency. April 7, 1965.
33. Reid, L. M. 1963. Outdoor recreation preferences, a nationwide study of user desires. Mich. State Univ., East Lansing.
34. Schrenkeisen, Ray. 1963. Field book of fresh-water fishes of North America. G. P. Putnam's Sons, New York.
35. Sedlacek, B. G. 1965. A report on the multiple use management plan, Condon Ranger District, Flathead National Forest. (Rough draft).
36. Shoemaker, T. 1923. Trail's end and beyond. Amer. Forest. 29 (352):218-228.
37. Stockstad, D. 1959. The mysterious Missions. Mont. Sports Outd. 1(2):17-31.
38. Stokes, W. L. 1960. Essentials of earth history; an introduction to historical geology. Prentice-Hall, Inc., Englewood Cliffs, N.J.
39. Stone, A. L. 1913. Following old trails. Morton John Elrod, Missoula, Mont.
40. The types of wilderness recognized by the Wilderness Society. 1935. Living Wilderness 1(1):2.
41. Udall, S. L. 1962. Wilderness. Living Wilderness 80:3-7 (Spring-Summer).
42. Underhill, R. L. M., and Miriam E. Underhill. 1950. Climbs in the Montana Rockies, the Mission Range. Appalachia (December).
43. U. S. Department of Agriculture. 1962. Recreation management. Forest Serv. Man. 2300. U. S. Forest Serv., Washington, D.C.
44. _____. 1964. The principal laws relating to the establishment and administration of the national forests and to other Forest Service activities. Washington, D.C.
45. _____. 1960. Timber management plan, Swan Working Circle, Flathead National Forest. Condon, Mont.

46. _____. 1964. U.S. Forest Service Region One files on Mission Mountains Primitive Area. Missoula, Mont.
47. U. S. Department of Commerce. 1964. Statistical abstracts of the United States. 85th ed. Bureau of the Census. U. S. Government Printing Office, Washington, D.C.
48. U. S. Department of the Interior. 1963. A back country management plan for Sequoia and Kings Canyon National Parks. National Park Service, Washington, D.C.
49. _____. 1963. U. S. Indian population (1962) and land (1963). Bureau of Indian Affairs, Washington, D.C.
50. U. S. Statutes at Large. March 1933 to June 1934.
51. U. S. Department of the Interior. 1930. Working plan of the grazing resources and activities of the Flathead Indian Reservation, Montana. (Carbon copy, December 13).
52. Wagar, J. A. 1963. Campgrounds for many tastes. U.S. Forest Serv. Res. Paper IMT-6.
53. Wenger, W. D. 1964. A test of unmanned registration stations on wilderness trails: factors influencing effectiveness. U.S. Forest Serv. Res. Paper PNW-16.
54. Whitford, H. N. 1905. The forest of the Flathead Valley, Montana. Botan. Gaz. 39 (April).
55. Wilderness and recreation, a report on resources, values, and problems. 1962. Outd. Recreat. Resources Rev. Comm. Study Rep. No. 3. U. S. Government Printing Office, Washington, D.C.
56. Zimmerman, W., Jr. 1940. Wilderness areas on Indian lands. Living Wilderness 5(5):9.

APPENDIX

WILDERNESS STUDY QUESTIONNAIRE - 1964

Montana State University
Forest and Conservation Experiment Station
Wilderness Study Questionnaire - 1964

All information to be tallied by interviewer. Date _____
 Interviewer _____ Location _____ Type of Party _____
 (Horse, Backpack, _____) Guide _____ Horses _____
 Mules _____ Hiking _____ Equipment (Hiking shoes, etc.) _____

Group characteristics: M _____ F _____ Age _____
 M _____ F _____ Age _____

Name _____ Sex: M F
 Marital Status: _____

Address _____

1. How long will you be on this trip: (Wilderness Portion) (PROBE on rest of trip in park or area.) Expect to come here again? When?
 2. What will your route be in this area? (Entering point and travel objectives.)
 3. How did you happen to come to the wilderness (Glacier - back country)? (PROBE on source of information, basis for decision, when made.)
 Been here before? _____ When? _____ Other similar places? _____
 (Glacier only - Ever heard of Bob Marshall or Mission Mountain Areas?)
 4. What does the word wilderness mean to you? (PROBE on distance from road.) In your opinion, where does the wilderness begin?
 How is a national park different from a wilderness?
- 4a. Of the following list, which things are important for wilderness in your opinion?
- | | |
|---|--|
| <input type="checkbox"/> 100,000 acre size (about 10 x 15 miles)
<input type="checkbox"/> Free of roads
<input type="checkbox"/> Motor boats
<input type="checkbox"/> Motels
<input type="checkbox"/> Few people
<input type="checkbox"/> Motor scooters | <input type="checkbox"/> Guided party
<input type="checkbox"/> Supply center
<input type="checkbox"/> Timber cutting
<input type="checkbox"/> Horses
<input type="checkbox"/> Staying out overnight
<input type="checkbox"/> Chain saws
<input type="checkbox"/> Airplanes (helicopters) |
|---|--|

5. Do you subscribe to: Newsweek Time Living Wilderness
 Life Look Sierra Club Bulletin New York Times
 National Parks Magazine
- 5a. Do you belong to: American Automobile Ass'n. Sierra Club
 Wilderness Society National Press Club Appalachian
Mountain Club National Parks Association Seattle Mountain-
eers Other outdoor organizations (list)
6. What do you especially like about hiking (or horseback riding)?
(Ask according to mode of travel. Then ask: How do you feel about
horseback riding (or hiking)?)
7. Which of the activities listed on this card will you engage in dur-
ing this trip in the wilderness or back country? (Give respondent
card A)
- | | |
|--|---|
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Primitive Camping |
| <input type="checkbox"/> Hunting (not Glacier) | <input type="checkbox"/> Horseback Riding |
| <input type="checkbox"/> Hiking | <input type="checkbox"/> Boating |
| <input type="checkbox"/> Mountain Climbing | <input type="checkbox"/> Skiing |
| <input type="checkbox"/> Swimming | <input type="checkbox"/> Nature or Wildlife Study |
| <input type="checkbox"/> Motor Scooter Riding | <input type="checkbox"/> Photography |
| <input type="checkbox"/> Rock Climbing | <input type="checkbox"/> Sketching or Painting |
8. How would you feel if you came back next year, and discovered that
you could make the trip in here very easily and comfortably in some
type of motor vehicle?
9. What have you especially liked so far about this trip to the wilder-
ness (back country)?
10. What have you especially disliked about this trip? (PROBE and ask:)
What are your feelings about my interviewing you?

11. How has the trip to this wilderness (back country) been different from what you expected?
12. How would you feel if, at tonight's camp, you found another party sitting around watching television?
13. If you could have anyone else you know along on this trip, who would you like to have? Why?
14. In providing for users of this area which of the following changes do you think ought to be considered?
- Wider trails Simple campgrounds (with tables, stoves, hitchracks, outhouses) Informational signs Concessions for users (chalets or hiker camps with supplies and/or lodging accomodations) Telephones Shelters Primitive roads
 Anything else? (Specify)
15. May I ask your age? _____ Your occupation (Specify carefully. Ask women for husband's occupation) _____
 Amount of education completed _____
16. Please look at this card and indicate which category comes closest to representing your total annual family income? Give respondent card B.
- Under 18 (not on card)
 A under \$5,000
 B \$5,001 to 7,999
 C \$8,000 to 9,999
 D \$10,000 to 14,999
 E \$15,000 to 19,999
 F \$20,000 and over