1965

A survey of the users of the Bob Marshall Wilderness Area Montana in 1964

William Bradt
The University of Montana

A SURVEY OF THE USERS OF THE BOB MARSHALL WILDERNESS AREA, MONTANA, IN 1964

by

William C. Bradt

B. S. F., Montana State University, 1963

Presented in partial fulfillment of the requirements for the degree of

Master of Forestry

MONTANA STATE UNIVERSITY

1965

Approved by:

Chairman, Board of Examiners

Dean, Graduate School

October 13, 1965

Date

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

ACKNOWLEDGEMENTS

Special thanks are extended to my thesis advisor, Dr. L. C. Merriam, Jr., who offered valuable criticism during all phases of this study and who was instrumental in securing the McIntire-Stennis grant that made it possible.

Other members of the graduate committee, Dr. Robert B. Ammons, Dr. W. Leslie Pengelly, and Professor Robert W. Steele, made critical readings of both the thesis and the study plan. They too deserve thanks.

Appreciation is also expressed to Lemuel A. Garrison, Regional Director of the Midwest Region, U. S. National Park Service, and Elizabeth Hannum of the Forestry School at Montana State University, whose discussions helped to widen the scope of some concepts related to the wilderness experience.

Without the cooperation of Forest Supervisors Joseph Pomajevich and George Roskie and their staffs, the gathering of the basic data would have been considerably more difficult. Appreciation is similarly extended to District Rangers Jack Dollan, E. J. Callantine, V. L. Lindsey, Richard Strong, and their staffs.

I wish to express indebtedness to U. S. Forest Service officials John Hall and Edward Slusher, who provided valuable concepts on some aspects of wilderness management.

It is also a pleasure to acknowledge the courtesies of many of the outfitters in the area and the individuals who were interviewed for this study. They gave willingly of their time, often under trying conditions.

William C. Bradt

Missoula, Montana
March 20, 1965

TABLE OF CONTENTS

LIST OF TABLES

Table | Page

Table | Page

CHAPTER I

INTRODUCTION

This study acknowledges a continually increasing use of wilderness[1] lands for recreational purposes. It assumes that the values of wilderness recreation will remain important, and therefore wilderness areas will be preserved. Consequently, wildland managers will be faced with the problem of maintaining a wilderness environment under increasing recreational use.

At what point does increasing use diminish the quality of the users' wilderness experience? When does the quantity of use begin to destroy wilderness values? To answer these questions, more must be known about what constitutes a wilderness experience, and how this varies, if at all, among different user groups.

The Bob Marshall Wilderness Area of Montana was chosen for investigation with the following objectives:

1. To determine through user analysis some of the basic reasons for, and components of, wilderness recreation in the Bob Marshall Wilderness Area in 1964.

2. To record the characteristics of the users of this wilderness area.

---

[1]A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammeled by man, and where man himself is a visitor who does not remain. . . . (31, p. 1).

3. To use these data together with personal notes and experience to outline some possible wilderness management approaches.

Nature of the Problem

As the American society becomes more complex, as living becomes more urbanized, and as the level of education is raised, more and more people are turning to a wilderness environment for therapeutic and recreational reasons. This demand for wilderness (or isolation) recreation is further intensified by an expanding population, increasing leisure time, greater mobility, and more disposable income. For a number of reasons, then, wilderness use is increasing and can be expected to do so in the future. The Outdoor Recreation Resources Review Commission's 1962 report on wilderness estimated a 380 percent increase in man-days use during the 1946-1959 period (5, p. 124).

While the present study was being conducted the Wilderness Act establishing a National Wilderness Preservation System was passed by the 88th Congress. Much of the reasoning behind this legislation (Public Law 88-577) is included in section 2 (a):

> In order to assure that an increasing population, accompanied by expanding settlement and growing mechanization, does not occupy and modify all areas within the United States and its possessions, leaving no lands designated for preservation and protection in their natural condition, it is hereby declared to be a policy of Congress to secure for the American people of present and future generations the benefits of an enduring resource of wilderness. . . . (31, p. 1).

By bringing future decisions on designated wilderness areas before Congress, this Act should help to develop public understanding of wilderness-preservation needs and insure that these decisions will be made in accordance with public interest. Before the Wilderness Act was passed, decisions on national forest wilderness, such as the Bob Marshall area, had rested with the Secretary of Agriculture.

The Act also states that:

> The /wilderness/ area shall continue to be managed by the Department and agency having jurisdiction thereover immediately before its inclusion in the National Wilderness Preservation System. . . . (31, p. 1).

Most wilderness areas had previously been managed by the United States Forest Service under Regulation U-1 of the Department of Agriculture, which reads:

> . . . there shall be no roads or other provision for motorized transportation, no commercial timber cutting, and no occupancy under special use permit for hotels, stores, resorts, summer homes, organization camps, hunting and fishing lodges, or similar uses. . . . (29, p. 2321).

Section (b) of this Regulation states:

> Grazing of domestic livestock, development of water-storage projects which do not involve road construction, and improvements necessary for the protection of the forest may be permitted subject to such restrictions as the Chief /of the Forest Service/ deems desirable. Within such designated wildernesses when the use is for other than administrative needs and emergencies, the landing of airplanes and the use of motorboats are prohibited. . . . (29, p. 2321).

It is recognized that much wilderness recreation is also provided for by the backcountry areas in national parks and by unclassified wilderness lands in both public and

As road development on unclassified wilderness land continues, more wilderness recreationists will be concentrated in the designated wilderness and backcountry areas.

Concurrent with the increasing demand for wilderness is an increasing demand for other uses of wildlands. The value of some of these other uses, such as timber or forage production, can be measured economically. Other uses such as watershed, wildlife production, and the various forms of mass recreation can be only partially measured with economic analyses. The benefits of wilderness recreation remain among the most difficult to measure economically, and although some attempts have been made, they have been conducted from the standpoint of "opportunities foregone."

Fortunately, political processes in the American society make up for deficiencies in the economic system. A group with a special interest (a pressure group) can effect legislation even though it cannot measure its values economically. It is through pressure group action that the unquantifiable values of wilderness are measured.

In the history of pressure group action in the United States, wilderness values have been important enough to warrant the formal reservation of many wilderness areas even though in some cases it was economically questionable to do so. Many other areas have been left in a wild state mainly because development has not been economically feasible. The National Wilderness Preservation System mentioned

earlier also resulted from pressure group action.

Much has been written about the unquantifiable values that have brought about the present wilderness legislation. Sigurd F. Olson expresses one of the more philosophic values:

> We are trying to bridge the gap between the old racial wisdom, our old primeval consciousness, the old verities, and the strange, conflicting ideologies and beliefs of the new era of technology. . . .
>
> It is here that wilderness will play its greatest role, offering this age a familiar base for explorations of the soul and the universe itself. By affording opportunities for contemplation of beauty and naturalness as well as further understanding of the mysteries of life in an ecologically stable environment, it will inculcate reverence and love and show a way to a humanism in which man becomes at last an understanding and appreciative partner with nature in the long evolution of mind and spirit. . . . (20, p. 25).

In a study of the Bob Marshall Wilderness, Merriam shows how wilderness values may vary with different people:

> To the recreational wilderness user, it is a challenge to physical ability, an oasis from the tensions of society, or a portrait of undisturbed nature. To the philosophical user it is an idea, a vestige of the frontier, a place for contemplation and a natural state of being. To the scientist, wilderness is a possible control area for scientific inquiry, and to some who never see it, wilderness may represent a part of America's cultural heritage (18, p. 4).

Also of importance when the intangible values of wilderness are weighed in political action are Bob Marshall's words as he once described what wilderness meant to him:

> It is the song of the hermit thrush at twilight and the lapping of the waves against the shoreline and the melody of the wind in

> the trees. It is the unique odor of balsams and of freshly turned humus and of mist rising from a mountain meadow. It is the feel of spruce needles under foot and sunshine on your face and wind blowing through your hair. It is all these at the same time, blended into a unity that can only be appreciated with leisure and which is ruined by artificiality (17, p. 24).

Supreme Court Justice William O. Douglas sees wildlands as valuable for perpetuating a healthy national spirit:

> If throughout time the youth of the nation accept the challenge the mountains offer, they will keep alive in our people the spirit of adventure. That spirit is a measure of the vitality of both men and nations. A people who climb the ridges and sleep under the stars in high mountain meadows, who enter the forest and scale the peaks, who explore glaciers and walk ridges buried deep in snow --these people will give their country some of the indomitable spirit of the mountains (9, p. 328).

The present study, as stated previously, assumes that these and other wilderness values that contributed to the reservation of wilderness areas in the United States will remain important, and that wilderness will continue to be a part of the spectrum of land use.

Study Approach

This study is one of a series of investigations being conducted at Montana State University under the direction of Dr. L. C. Merriam, Jr. Many guidelines for the 1964 phase of these investigations were established by Dr. Merriam's work in the Bob Marshall Wilderness in 1960 and in Glacier National Park in 1963. By using a standardized questionnaire, the 1964 study compares the user groups in three areas in

western Montana: the Bob Marshall Wilderness Area, the backcountry of Glacier National Park, and the Mission Mountains Primitive Area.

The present study is concerned with the application of this questionnaire in the Bob Marshall Wilderness Area, and with the resulting information. In addition, a post-trip questionnaire was mailed to each recreationist interviewed in this study area. Consequently, answers received from the interview made during the respondent's trip could be compared with those given after the trip. Most of the questions asked in both questionnaires were unstructured to provide the interviewee with freedom to express his own ideas.

CHAPTER II

BACKGROUND DATA ON THE BOB MARSHALL WILDERNESS AREA

Description of the Area

The Bob Marshall Wilderness Area contains 950,000 acres of spectacular mountain ranges separated by broad glaciated valleys. This wilderness lies astride the Continental Divide in western Montana and comprises what were previously the Sun River, Pentagon, and South Fork Primitive Areas. Its location and size relative to the State of Montana are shown on Map one in Appendix D. The Bob Marshall Wilderness is national forest land about 60 air miles from its northernmost to its southernmost boundary and 40 miles from east to west. There are about 38 trail entrances to this wilderness. Many of these are on mountain passes and are from four to more than 25 miles from the nearest roadhead. The land between the roadheads and the wilderness boundary is usually wild in character. Therefore, in the Outdoor Recreation Resources Review Commission's study report on wilderness, the area is taken to include 1,029,520 acres of effective wilderness land.

The portion of the Bob Marshall (710,000 acres) lying west of the Continental Divide is drained by the South and Middle Forks of the Flathead River, which is a part of the Columbia River watershed. This portion is located in

the Flathead National Forest. The eastern portion (240,000 acres) is drained by the Sun River, a part of the Missouri River watershed, and is located in the Lewis and Clark National Forest.

Elevations range from less than 4,000 feet at the north boundary on the South Fork River to 9,253 feet on the summit of Swan Peak in the Swan Range. Temperatures range from summer highs of 100 degrees F. to winter lows of -50 degrees F. Frost may hamper vegetative growth at any time during the growing season. Average annual precipitation is about 21 inches west of the Continental Divide and about 15 inches in the rain shadow to the east.

Vegetation and Ecology

A variety of site conditions and timber types provide most recreationists in the Bob Marshall Wilderness with a changing scene. The high alpine basins along the crest of the Swan Range are either above timberline or sparsely forested with alpine larch, sub-alpine fir, limber pine, or whitebark pine. Most of the secondary drainages support either a Douglas-fir - western larch type, Engelmann spruce - Douglas-fir type, or a subclimax of lodgepole pine, depending on the site conditions and fire history. Other trees found in the area are grand fir and western white pine.

Shrub associates of the Douglas-fir - western larch type and the Engelmann spruce - Douglas-fir type are Rocky

Mountain maple, Scouler's willow, red-osier dogwood, alder-leaved buckthorn, Saskatoon serviceberry, chokecherry, dwarf juniper, and Rocky Mountain juniper. Other associated plants are beargrass, blue jointgrass, and butterweed (18, p. 9).

The main valley of the South Fork River contains savannah stands of ponderosa pine, as well as open meadows where Idaho fescue, rough fescue, blue-bunch wheatgrass, slender wheatgrass, California brome, mountain timothy, and junegrass predominate. Kinnikinnick, shrubby cinquefoil, bog birch, big sagebrush, and needlegrass are also present (18, p. 9). Douglas-fir - western larch stands and the subclimax of lodgepole pine are found along the South Fork valley. Small groups of aspen and black cottonwood are present along the valley bottoms.

Expansive meadows characterize much of the North Fork of the Sun River Valley in the eastern section of the wilderness, but because of existing fire suppression policies lodgepole pine and aspen are invading. Grasses frequently found here are Idaho fescue, needlegrass, wheatgrasses, and other Agropyron species.

The scientific names of the plants mentioned in this section can be found in references 1, 11, and 14.

Merriam estimates that over 35 percent of the wilderness was burned by several large fires between 1889 and 1934 (18, p. 8). Pengelly shows that the increase in the elk population between 1926 and 1938 was encouraged in

part by the seral shrub stages which followed these burns and provided ample forage. The gradual decrease in elk numbers since 1940 similarly parallels the passing of these shrub stages into timber stages (22, pp. 56-57).

Steele feels that much of the enjoyment of traveling through this area is the change of scenery that one experiences, including large openings created by the old burns: "They afford feed for elk and a chance for the traveler to view the surrounding mountain peaks easily." Steele also describes the change in several forest types due to fire protection (26, pp. 21-23):

1) The invasion of grasslands along the North Fork of the Sun River by lodgepole pine and aspen.

2) An increase in the heavy Engelmann spruce - sub-alpine fir stands that have developed along many of the creek bottoms and up the side hills on the better sites.

3) A decrease in the open ponderosa pine type with the encroachment of Douglas-fir, larch, and lodgepole pine. The open ponderosa pine type apparently used to be quite extensive along the South Fork River between Danaher and Blackbear.

Steele summarizes the effect of type change due to fire protection as follows:

> . . . Generally, the change in the forest type resulting from complete protection from fire tends to make the area more uniformly covered with timber, with smaller natural openings.

> Fire protection has been practiced here such a relatively short time compared to the years involved in the evolution of a forest type that it is difficult to predict just exactly what the area would look like under future centuries of such protection. The climax forest is not immune to openings, though the openings are smaller. . . . (26, p. 23).

Geology and Soils

During the Proterozoic era, this area along with the rest of the Rocky Mountain region was a lowland, and as sediments were deposited it sank beneath marine waters. The sediments were eventually compressed to form the sandstones, limestones, and shales of the Beltian series. These rocks form the bulk of the Swan Range and are well exposed on Monture, Goat, and Cardinal Mountains (8, p. 9).

The Beltian rocks were elevated, then eroded, and again the area was reduced to lowlands and inland seas. Paleozoic sediments were deposited on the Beltian red quartzites and argillites. With pressure from overlying sediments, the Paleozoic rocks that were formed consisted of a great series of limestones which form most of the white and buff-gray cliffs in the Swan, Flathead, and Lewis and Clark mountain ranges (8, p. 9).

At the end of the Mesozoic era these sedimentary rocks were folded and elevated. The ancient Beltian rocks were shoved over the younger Mesozoic rocks during the early part of the Cenozoic era, forming the famous Lewis overthrust. These rocks overlap as much as

12 miles in Glacier National Park and about nine or 10 miles in the Sun River section of the wilderness area (8, p. 16).

During the Cenozoic era weathering by rain cut valleys into this uplifted mass and much of the present drainage pattern was established (8, p. 17).

At the end of the Cenozoic era the climate changed from sub-tropical to frigid, snow fell, alpine glaciers formed, and the Pleistocene or glacial period began. Glacial erosion formed the magnificent cirques, the cliffs of the Chinese Wall, and the rugged peaks in the Bob Marshall. The present glaciers in Glacier National Park and in this wilderness are but dying remnants of what were once vast ice sheets that nearly buried the mountains (8, p. 18).

Soils in the glaciated valley bottoms of the South Fork and Sun River are deep, well drained, and composed of the parent materials mentioned earlier. Along the secondary drainages and in the high basins they are usually shallow.

Fish and Wildlife

The condition of the elk herd has been mentioned earlier. Other big game animals commonly found are the mule deer and black bear. Also present, but not often seen, are white-tailed deer, bighorn sheep, moose, mountain goat, grizzly bear, and predators such as the wolf, coyote, wolverine, cougar, lynx, and bobcat.

Furbearers such as otter, fisher, marten, mink, weasel,

beaver, and muskrat are present.

Small animals populating this area include the badger, porcupine, varying hare, chipmunk, pika, golden-mantled marmot, hoary marmot, striped skunk, tree squirrels, ground squirrels, and several species of mice (27, p. 20).

Cutthroat and rainbow trout are commonly found in the streams and lakes. Runs of cutthroat and Dolly Varden, or bull trout, are usually of particular interest to fishermen in the Bob Marshall. Eastern brook trout have been planted in some streams and September runs of Rocky Mountain whitefish are an annual occurrence (27, p. 21).

Waterfowl, three species of grouse, various predatory birds, and many small passerines also inhabit the wilderness and are often of special interest to wilderness users, as are the abundant wildflowers. A guide to the Bob Marshall Wilderness Area published by the U. S. Forest Service lists 74 species of birds and 142 species of wildflowers that the visitor is likely to see (27, pp. 23-30).

The scientific names of the mammals, birds, and fish mentioned in this section can be found in references 32, 12, and 13.

Existing Wilderness Management

The Bob Marshall Wilderness Area is managed by the U. S. Forest Service under four ranger districts: the Big Prairie and Spotted Bear on the Flathead National Forest, and the Sun River and Teton on the Lewis and Clark National

Forest. Big Prairie is the only wholly wilderness district, and the ranger station is located within the wilderness area. The station consists of several dwellings with running water, corrals, barns, and an airstrip.

Many administrative cabins and airstrips are scattered throughout the wilderness, and numerous helispots have been located on various mountain tops and in some of the large clearings. An extensive network of trails follows almost every major drainage, and most of the administrative cabins in the Flathead Forest are connected to the ranger stations at Big Prairie and Spotted Bear by telephone.

Work crews in the area are primarily concerned with trail maintenance and construction or with telephone line maintenance. These crews may occupy temporary tent camps or may stay at the administrative dwellings. They are usually supplied by pack animals. Crews are occasionally used in fire suppression, fence construction, general maintenance work, or cleanup of camping areas. More recently, facilities for the users have been constructed to protect the vegetation at the heavily used areas and to help disperse use.

There is a noticeable difference in the amount of attention given to the wilderness user in the two national forests. The Flathead National Forest provides several wilderness camps that include a hitch rack, a corral, an outside toilet, and occasionally a rack for tent poles or a

drift fence. Previous to a recent plan to educate users to burn or pack out all garbage, covered garbage pits were also constructed at these wilderness camps. According to one of the district rangers, none of these user facilities have been constructed in the Lewis and Clark National Forest portion of the wilderness. Distance and directional signs are more numerous on the Flathead National Forest portion, and two map-type signs have been erected in the heavy use areas there.

Other Forest Service activities in both forests include range management, aerial fire detection, fire suppression, and wildlife management in cooperation with the Montana Fish and Game Department. Six lookouts of a formerly extensive network are manned during the fire season. Recently, a recreation guard was employed whose primary responsibilities are visitor contact, visitor education, and campground cleanup. Future plans include the employment of more of these recreation guards.

CHAPTER III

LITERATURE REVIEW

General Information

The literature presented in this chapter will be concerned with the findings of studies directed to identify the users' concepts of wilderness and with available publications on wilderness management. This review will not include the applicable procedural aspects of studies in the field of outdoor recreation. A complete review of this material would not be practical here. Outstanding procedural studies have been made by Clawson (6), Dana (7), Reid (23), and Wagar (30), to mention a few.

An important dimension of the planning process in wildland management is the consideration of the recreationists' definition of the resource system (4, p. 710). The first section of this chapter will be concerned with studies that help to describe the wilderness users' perception of the wilderness resource.

Another thought that should not be overlooked is what Burch describes as the "trained incapacity" of resource managers:

> Administrators tend to define their problems in terms of efficient operation and organizational goals. The clients often define their problems

> in personal terms. Studies . . . have documented that what is perceived as "good" for administrators may not achieve stated organizational goals nor aid clients (4, p. 710).

A study by Lucas on the wilderness perception supports this finding:

> The visitors . . . differed markedly in their views of the resource, both among themselves and with the resource managers. They differed on all three counts: importance of wilderness, area of wilderness, and essential qualities of wilderness. . . . (16, p. 402).

The ideas presented by Burch and supported by Lucas should be kept in mind as the literature on both the wilderness experience and wilderness management is reviewed.

The Wilderness Experience

Lucas concludes that all resources are defined by human perception:

> The importance of resource perception is particularly obvious for recreational, scenic, and amenity resources because of the internal, personal, and subjective way such resources are used. The perception of wilderness resources is even more obviously necessary for understanding or action because of the subjective aspect (16, p. 409).

In spite of this, Lucas finds that considerable order can be imposed on these subjects.

A study by sociologists Bultena and Taves (2) categorized five different wilderness images. Not all of these images existed for all of the vacationers interviewed, and some reported more than others, yet almost all held their wilderness experience as potentially rewarding in at least one or more of these categories:

1. Wilderness as a locale for sport and play. These individuals saw their more typical role of spectator being transformed by the wilderness into that of participant.

2. Wilderness as fascination. Respondents saw their trip as a form of exploration, an opportunity to gain new experiences and realizations seldom found in what they considered a less natural or artificial setting of the city.

3. Wilderness as sanctuary. A vacation in the Quetico-Superior was seen as providing an opportunity to leave an impersonal city, the monotony of work, and an "other directed" environment far behind, both mentally and physically. Intimate spontaneities of the campground were seen as replacing dull routines and the conformity of daily life.

4. Wilderness as heritage. A trip to the wilderness was seen by some respondents as providing an occasion to pass on much of the nation's frontier history to their offspring, and to personally relive the glamorous experiences of early fur traders, pioneers, and explorers.

5. Wilderness as personal gratification. Some respondents felt that they first began to realize their full capabilities in a natural setting. A few denoted an emotional catharsis, with a psychological culmination revitalizing them for a return to the emotional pressures surrounding their everyday lives. For others, the experience apparently provided a status symbol (2, pp. 167-168).

Bultena and Taves concluded that:

> Vacationers are much more perceptive to the concrete elements of the area, such as its lakes and its opportunities for fishing, than they are of more abstract qualities, such as its "medicinal character" and potentialities for escaping pressing cares and problems. However, when these more abstract qualities of a wilderness experience were suggested to the respondents, they rated many of them as important reasons for their visiting the area (2, p. 168).

Bultena and Taves also found in an analysis of response patterns that many vacationers indicate no conflict or inconsistency between their image of the Quetico-Superior as wilderness and their desire for convenience or

improvements.

> They compartmentalize the two belief patterns and repress contradictions. . . . Incompatible elements are either not perceived or a rationalization of some kind is created to account for the incompatibility. Through this process a self-consistency is maintained (2, p. 170).

The Outdoor Recreation Resources Review Commission (O.R.R.R.C.) in Study Report #3 states that:

> Previous studies and the literature suggest that the appeals of the wilderness are not the same for everybody. On the basis of responses to structured questions on appeal and qualitative comments, five dimensions of motivation for wanting to be in the wilderness were identified (5, p. 145).

They are:

1. "Exit-civilization", which is similar to the sanctuary wilderness image described by Bultena and Taves.

2. "Aesthetic-religious /which/ gives inspiration and renewal to enable people to take their place in life."

3. "Health /which/ psychologically or physically is the primary motivation for some."

4. "Sociability /or/ a desire to enjoy what one loves best with family or friends."

5. "Pioneer Spirit /or/ a place where you can prove to yourself that you can get by without the everyday conveniences of home" (5, p. 145).

The two strongest motivations for wilderness use were found to be a wish to escape from the routines and crowds of daily life and a desire to enjoy the beauties of nature. Health, sociability, and pioneer spirit were not considered

major reasons for taking a wilderness trip (5, p. 151).

The O.R.R.R.C. study also found that although different wilderness areas attract different kinds of people, they differ little with respect to their more basic appeal. The important function of wilderness as a means to relieve the tensions and anxieties of modern life came through most strongly in this analysis. Although little of this effect was manifestly acknowledged, the inference was that "wilderness contributes to the mental health of those who use it" (5, p. 151).

With greater experience, it was found, the sociability appeal tends to lose its strength and is replaced by a heightened excitement about the challenge of wilderness (5, p. 151). In Snyder's words:

> . . . the wilderness is thus preserved basically for family initiated trips, where a primitive environment will offer a degree of challenge to their own resources. I believe this experience is one of the basic reasons for a wilderness area (25, p. 52).

The challenge aspect is also recognized by Robert Cushman Murphy, curator emeritus of the American Museum of Natural History. In response to the construction of roads in certain wild areas, he asks, "Is there no virtue in cherishing something that has to be won by purposeful desire and a little effort?" (21, p. 14).

Snyder states that "few people" or "solitude" is a part of the wilderness image that is often taken for granted by wilderness users (25, p. 50). The freedom brought about

by solitude is another aspect of the wilderness experience, and one which the National Park Service feels is important:

> Oldtime use of wilderness was completely free of restrictions. The tradition of personal freedom in wilderness dies hard, and one of the foremost endeavors of the National Park Service is to respect and preserve the personal freedom of the wilderness user. . . . (19, p. 9).

Some general information on the wilderness user brought out by the O.R.R.R.C. study shows that length of stay in the wilderness increases with age, income, wilderness experience, and distance traveled to the area. "As stay lengthens, and as age and income increase, mode of travel in the wilderness becomes less rudimentary" (5, p. 145). "Wilderness vacations are inexpensive, however. In all income brackets up to $15,000, about half of the wilderness vacationers report a cost of less than $3 per day" (5, p. 145).

Almost every wilderness vacationer enjoys his experience, although some frequent complaints are "littered or rundown campsites, difficulty in finding isolation from other parties, and very large parties camping or traveling together" (5, p. 145).

The interests of users in the High Sierra Wilderness Area, as noted by Snyder, are primarily camping, fishing, photography, and nature study. Hiking and solitude are next in importance (25, p. 59). In the Bob Marshall Wilderness Area the Forest Service estimates that big game hunting, fishing, hiking, and riding were the most popular

activities in 1964. Small game hunting, boating, camping, and picnicking are also included in this estimate (24), as is general enjoyment.

In conclusion, the O.R.R.R.C. study points out that "many of the appeals of the wilderness are subtle, and available data do not permit full development of their distinctions" (5, p. 159). Burch adds another complexity to this. His discussion of the collective aspects of recreational behavior indicates that the appeals of wilderness are influenced by the characteristics of the group with which one travels (4, p. 712).

Wilderness Management

U. S. Forest Service estimates show increasing use of the Bob Marshall Wilderness Area. Although the network of trails in this wilderness can help to disperse use, and although the stable low-elevation vegetation can support substantial use, guidelines are needed. The Service is presently conducting an inclusive study of wilderness management, publication of which will aid land managers to a more complete understanding of the subject from the administrator's point of view.

At the present time only two inclusive publications on wilderness management *per se* are available. Both are concerned with the High Sierra region in California, where wilderness and backcountry use is much more intensive than

in the Bob Marshall and other wilderness areas in Montana. Other publications that deal with wilderness management in general will also be reviewed in this section.

Management Concepts

The results of the Lucas study on wilderness perception in the Boundary Waters Canoe Area has implications for the management of the resource. "The implications all suggest a more flexible concept of 'the wilderness' by the resource managers, both in area and in content" (16, p. 409).

Snyder summarizes the control of continually increasing use as follows:

> The High Sierra Wilderness Area receives a steadily increasing use. . . . More intensive use necessitates a corresponding increase in management efforts, rules and regulations, access trail standards, and camping and sanitation facilities. These are all encroachments on the idealistic wilderness concept of "naturalness" . . , but are requirements if unlimited numbers of people are to be allowed to enter the area, and if soil, vegetation, wildlife, water, and human health and safety are to be protected to the maximum extent (25, p. 55).

Predictions for the High Sierra Wilderness Area indicate a use rate in 1985 of five times what it was in 1960. This, according to Snyder,

> would have to be accompanied by a corresponding increase in management. . . . I believe such use can be handled when the time comes and the resource protected, though the people may have a managed wilderness experience that those of us now using the area would not accept (25, p. 21).

Lucas sees a similar problem in the Boundary Waters Canoe Area but arrives at a different solution:

> The study implies that a decision must be made between limiting the numbers using a wilderness and letting the wilderness as defined by the visitors vanish from overuse. This disappearance has already taken place in part of the Canoe Country for the more sensitive types of users, and use trends suggest that the wilderness will retreat farther in the future for all types of visitors if use is unlimited (16, p. 411).

Giving this trend of increasing use even further thought, Merriam concludes:

> As development approaches the Wilderness boundaries, use will increase and the characteristics which now endear the Wilderness to present generations will be altered. Since the nature of society also changes with advancing technology and expanding population, these alterations may seem slight in comparison with outside civilization (18, p. 111).

Another alternative solution to the overuse problem is a management policy that restricts overnight camps inside the wilderness area. This is impractical for large areas such as the Bob Marshall, where without aircraft only a small portion is available for day use and where staying out overnight was found to be a large part of the wilderness experience. However, this solution may be practical in controlling use of small semi-wilderness areas or small "pristine" zones within a wilderness.

Practiced on a small scale, the overnight restriction would result in heavy use at access points on the periphery of the day use areas. On a large scale it leads to the "townsite" theory of development favored by the National Park Service (10, p. 3). The Forest Service prefers more dispersion of use in wilderness areas (24).

Determination of the carrying capacity of wilderness land is an important goal of the National Park Service:

> As human use of wilderness ranges begins to approach the saturation point, management has the responsibility of identifying basic factors that limit the carrying capacity of each area, and of tailoring the respective management programs to conform to these natural limitations (19, p. 8).

The attitude of the National Park Service is that public convenience is not in itself justification for developments such as bridges or fences in the backcountry (19, p. 34). Snyder notes, however, that increasing human use of the wilderness brings a corresponding increase in sanitation problems:

> There seems to be no alternative other than to meet the problem of sanitation and camp cleanliness with artificial structures. This means a compromise of the idealistic natural areas and therefore, such artificial structures should be kept to a minimum (25, p. 29).

These two concepts correspond with some general findings of the O.R.R.R.C. study:

> A majority of wilderness users oppose the utilization of natural resources, extensive control and management of wildlife or vegetation, and the addition of almost all "conveniences" to wilderness areas (5, p. 162).

The above is contradictory to the findings of Bultena and Taves presented on page 19 of the present study.

Merriam describes two of the major conflicts confronting wilderness managers:

> The Forest Service, in its administration of the Wilderness, faces a difficult situation.

> There is great disparity between the intensive management approaches on non-wilderness land, geared to integrated commercial resource use, and the custodial aspects of a preservation area demanding a special sort of non-utilitarian attention. Most Forest Service personnel are not oriented by training or temperament to handle both types of management, and yet this is what the situation requires. This circumstance is further complicated by the mandate that the Service attend upon the demands of many types of user groups--groups whose understanding of each other is limited and whose powers in Congress are strong (18, p. 112).

Distribution and Control of Use

According to Snyder, the planned distribution of people and stock is a necessity in the near future. For the present, he states, there are a number of things that can be done to accomplish some dispersement of recreationists.

> A few of these acts are: personal contact with the user, obliteration of camps in overcrowded areas, construction of improved camps in desirable locations, packer use plans and cooperative efforts, and the construction of adequate access into little used areas. Stock control facilities can be constructed or removed according to the forage available and its degree of proper utilization. Adequate signing and publicizing of available areas for use can also help (25, p. 21).

Snyder presents several recommendations for management of the High Sierra Wilderness Area. Some of these, he suggests, may be applicable in other wilderness areas.

> a) Continue to study the human capacity of the area. Some things to consider are: the desirable standards of spacing, human effects on soil and vegetation, the future demands on the area, and changing standards of the degree of solitude needed for a wilderness experience.

b) Continue to study the forage limitation versus recreation stock use. . . .
c) A cooperative Forest Service-County study of wilderness water contamination.
d) Prepare a user pamphlet to promote knowledge of particular drainages, and an awareness of problems with the desired public action to minimize them.
e) Disperse both human and stock use throughout the area as evenly as resources permit through personal contact and by appropriate signing and improvements.
f) Encourage users to keep the wilderness clean and pack out cans, bottles, and other unburnable debris. . . .
g) Discourage mass use. Organized groups of more than 25 people are inappropriate in a wilderness area. . . .
h) Relocate trails around fragile meadow areas. Promote access to good areas lateral to main thoroughfare trails. . . .
i) Hold back invading lodgepole pine from meadows disturbed by earlier management practices.
j) Provide seasonal patrolmen to give public service and promote desired management efforts (25, p. 57).

In addition to these, the National Park Service employs other backcountry management techniques. Some of the important practices are as follows:

a) When the invasion of brush and trees on meadows is the result of unnatural conditions, these invaders are cleared mechanically. The water table, if similarly lowered, is restored as much as possible with brush dams. . . .
b) The owners of pack and saddle stock supply this stock with supplemental forage in critical areas by packing it in. . . .
c) The use of gas stoves is encouraged where firewood is scarce. . . .
d) A chain of shelters is not considered because it would attract a different category of poorly equipped users. . . .
e) New trail construction that would only spread congestion to unmodified wilderness is not considered. . . .
f) In some areas stock use of trails is prohibited in the spring until the ground dries sufficiently for their use. . . .

> g) Signs seek to avoid the arbitrary setting up of destination points through over-emphasis of site names and mileages to popular campsites that are already overused.
> h) Because of their distasteful noise, chainsaws are restricted for administrative use only. . . .
> i) Helicopter landings in the park are restricted to administrative use, and because of the noise low elevation flights are discouraged. . . .
> j) Permanent administrative dwellings are becoming less essential and their construction is discouraged. . . .
> k) Publicity is discouraged. Interpretation and guidebooks to promote greater enjoyment and appreciation of the wilderness are encouraged. . . .
> l) Rotation systems of fish stocking and the opening and closing of various waters to fishing are employed to help rotate use (19, pp. 16-46).

In a socio-economic study of the Bob Marshall Wilderness area Merriam states that fees for wilderness use "seem realistic and probably are justified to forego utilitarian development" (18, p. 111). He further concludes that:

> The range of management alternative stretches from gradual, piecemeal, full development of the Wilderness under group pressure to complete withdrawal of primitive administration to preserve true wilderness conditions. Somewhere between these extremes may lie a point of optimum management appealing to wilderness enthusiasts and users and acceptable to other groups (18, p. 112).

Management Problems in the Bob Marshall Wilderness

Most recreational use of the Bob Marshall Wilderness Area begins in July when snow on the high passes has melted enough to permit passage of saddle stock. The season of use ends in November when fresh snow again blocks the passes.

(At the present time, ski-mountaineering during the winter months constitutes only a minute portion of the total use of this wilderness area.)

Most passes open to stock travel at about the same time in the spring, and trails must be cleared of fallen trees to permit the passage of stock. This creates a management problem of clearing many trails at about the same time.

With fire protection forage plants in the Bob Marshall have become less abundant. Consequently, the elk herd has become smaller. According to Pengelly, habitat manipulation would be necessary to restore the elk population in the South Fork area to its former prominence. He concludes that:

> The area has already been set aside as a unique area because of its wilderness features. If managing elk habitat would mean destroying the sanctity of wilderness, perhaps a policy of non-management would prove to be the best management. Vast acreages of mountainous country exist outside wilderness boundaries and elk habitat can and is being developed there (22, p. 58).

Steele feels that the open grasslands are a strong asset for the eastern part of the Bob Marshall. He suggests prescribed burning as a possible way of keeping tree seedlings out of these grasslands and thereby preserving them (26, p. 21). He states that, "Indians and perhaps early homesteaders burned this range occasionally and in this manner tended to keep tree reproduction out of the

grasslands" (26, p. 21). Assuming grass to be a natural condition, Steele's thinking parallels the National Park Service policy of mechanically removing invading trees when the invasion is the result of unnatural overuse. With time, the present policy of complete fire protection in the Bob Marshall Wilderness Area can create unnatural conditions.

The Bureau of Reclamation is presently planning to construct a dam on the Sun River just outside the Bob Marshall boundary. The reservoir behind this dam will flood some of the grasslands in the eastern section of the wilderness area, resulting in partial destruction of one of the unique qualities of the Bob Marshall.

Previous sections of this paper outline the scope of the present study, describe the Bob Marshall Wilderness, and present some concepts on the wilderness experience and wilderness management. Subsequent sections will deal specifically with the present study and will include the sampling procedure, the findings, and conclusions on wilderness management as related to the users' expectations and desires.

CHAPTER IV

SAMPLING PROCEDURE

Method of Investigation

Personal interviews composed largely of unstructured questions were used to obtain the basic data for this study. The wilderness user was thereby free to conceive his own answer to the question. A standardized system of probing was directed to obtain a more inclusive answer. The nature of most probes is included in Appendix A together with the specific questions that were asked. When an answer seemed inconclusive, a standard probe was to ask the interviewee "What do you mean by that?" or to reflect the key words of his first response back to him in question form.

A post-trip questionnaire also consisting primarily of unstructured questions was mailed to each interviewee, giving him a chance to evaluate his entire wilderness trip. Both questionnaires attempt to bring out the user's perception of wilderness and his wilderness experience. They also bring out some general characteristics of the user and his views on artificial facilities within a wilderness. The specific questions and the sequence in which they were asked are presented in Appendix A.

Field Procedure

To obtain a sample of wilderness users, five trips of about two weeks' duration each were made into the Bob Marshall Wilderness Area between June 21 and September 19, 1964. Provisions were backpacked and the author usually traveled alone. About 550 miles of trail were covered. Occasionally, during inclement weather, Forest Service administrative dwellings were used. The itinerary that the interviewer used is included in Appendix C.

Following this predetermined route, an attempt was made to interview a sample of people from each party encountered. A few parties could not be sampled because of conflicting itineraries; however, no one refused to be interviewed for personal reasons. The interviewer's route led through heavy use areas, fringe areas, and remote sections of the wilderness in order to sample users in all types of areas. Reasons for use may vary with length of stay; therefore it was important to include users in the fringe areas as well as those farther back in the wilderness. During the course of the summer all parts of the Bob Marshall Wilderness Area were covered excepting the northeast section, which was closed to stock travel until fall because of flood damage. Map 2 in Appendix D shows the location of each interview and the interviewer's routes of travel.

In small family groups the leader of the party was

usually interviewed; however, to keep a representative sex composition within the sample some females, who were not leaders, were selected. In large parties an attempt was made to interview one person in each five, but because an interview took about 40 minutes to complete it was often impossible to obtain this ratio.

Interviewees from the larger parties were selected mechanically to avoid oversampling the more sociable people. This selection was made by choosing for interview the first person sighted on the right as the interviewer entered the area where a large party was camped. When this respondent had completed the interview he was asked, "What other member of your party do you think has ideas different from your own and would make a good interviewee?" The person so recommended was then chosen for interview. This process was continued until the desired number of interviews was obtained from the party. To obtain a cross section of wilderness users, an effort was made to sample a wide variety of parties rather than a large number of people from a few parties.

A running tally was kept on the age and sex composition of all the wilderness users seen, and a special effort was made to keep corresponding proportions among people selected for interview. A similar attempt was made to keep a representative ratio by mode of travel and type of party.

An interviewee's response to an open-end question may

vary with the time of day at which he is interviewed. This study includes four interviews taken in the morning while the respondents were eating breakfast, 26 interviews taken during the day, and six interviews taken in the evening after the respondents had finished dinner.

Other criteria for selecting this sample were that the interviewee be at least 13 years of age and within the wilderness area for recreational purposes. The sample included 36 people, as many as could possibly be interviewed within the above limitations.

The approach used when encountering potential interviewees was only informally standardized because each situation was different. Merriam (18) noted the motivational differences between the summer recreationists and the fall hunters in this wilderness area. The present study includes one person primarily interested in hunting.

Several Forest Service employees were similarly selected for interview and asked the same questions as those asked the recreationists. This group included two forest rangers, one junior forester, and three subprofessional employees. These interviews were kept separate from the rest and are not analyzed in detail, although a general analysis is presented in Chapter VI. A detailed analysis of the wilderness recreationists' responses to the questions is presented in the following chapter.

Weaknesses of the Study

No probability sample of wilderness users was developed for this study. Consequently, there is no statistical assurance that the data collected are representative of the total population of recreationists who used the Bob Marshall Wilderness Area during the summer of 1964. Many of the known sources of possible bias were considered before the data were collected, however, and it is felt that the results of this study are meaningful.

A study plan, completed in the spring of 1964, considered many of the factors involved in obtaining a probability sample of a mobile population of recreationists in a large wilderness area. It was concluded that the interviewer's time would be of more value if it were spent probing deeper in an unhurried interview than in selecting a representative sample of wilderness users. This study probably undersampled users from the guided parties.

Several sources of possible bias that could not be accounted for in the sampling procedure are recognized. One is the difference in the ability of people to verbalize their thoughts. This did not seem to influence any response substantially. However, respondents often say what they think is agreeable to the interviewer or to other members of their party, and this may have had some effect. Responses to some of the questions indicate

that a few users were not interviewed within a wilderness as they perceive it. All respondents were interviewed within the Bob Marshall Wilderness boundary, but for some this country is not wilderness in character due to the excessive human activity at popular campsites.

CHAPTER V

PRESENTATION OF THE DATA

General Information

Following the sampling procedure described previously, 33 parties were sampled and 36 interviews were obtained. General information from these is presented in this section, as well as responses to questions on wilderness experience and wilderness management. The post-trip questionnaire was mailed to all 36 interviewees and 28 (78 percent) were returned.

The 33 parties sampled comprised 137 individual users. United States Forest Service Officers estimated that 6,700 individual visits were made to the Bob Marshall Wilderness in 1964, and if this estimate is correct two percent of the users were included in this study and about 0.5 percent of the users were interviewed.

The sample was divided into four groups by mode of travel: backpackers, horse travel, horse with guide, and one-day hikers.

The backpacking group includes users who hiked carrying all provisions in backpacks and two Boy Scout parties who carried all provisions except food on their backs. Food for the Boy Scouts was packed on horses and

mules.

Parties traveling by horse with no guide usually owned their own stock, but also included in this group are two parties who rented stock and hired an outfitter to bring their camping gear and provisions to a "spot camp" and then return later to pack them out.

Guided parties had meals, tents, horses, and guide services provided for them by a private outfitter. These parties traveled by horse and had their equipment transported for them on packstock.

The group of one-day hikers traveled by foot but carried no heavy packs. They had easy access to the wilderness boundary and traveled in the actual wilderness less than one mile during the trip on which they were interviewed. Two of these parties flew to an airstrip adjacent to the Wilderness, two entered the wilderness where its boundary is close to a roadhead, and one was staying at a nearby dude ranch. The one-day group was included in the study because it is composed of short-term wilderness users who may contribute a substantial portion of the total wilderness use. No one-day users were observed traveling by horse.

One party was encountered that backpacked rubber rafts to the headwaters of the South Fork River, floated it to Blackbear Creek, portaged around a gorge, and floated on to the roadhead at Spotted Bear Ranger Station. Because of the amount of backpacking involved, this unique party

was included in the backpacking group.

The proportion of interviewees in each group was as representative as possible of all the users observed during the summer.

The following results include a higher proportion of backpackers than does the study made by Merriam (18) mentioned earlier in this report. Six percent of the Bob Marshall users interviewed for Merriam's study in 1960 were backpackers. Thirty-three percent of the users interviewed for the present study were backpackers. A sampling procedure similar to Merriam's was used, which indicates an increase in backpacking in the Bob Marshall Wilderness Area from 1960 to 1964. The proportions of other groups included in the sample are presented in Table 1.

TABLE 1.--Proportions of subgroups from a sample of Bob Marshall Wilderness users, summer 1964.

	No. interviews taken	% of sample (N=36)
Backpackers	12	33
Horse travel	16	45
Horse with Guide	3	8
One-day Hikers	5	14
Total	36	100%

Representative age and sex compositions were similarly attempted. The resulting sample included three women averaging 54 years of age and 33 men averaging 38 years of age. The average age of all 36 interviewees was 40 years.

Table 2 shows the sex composition in each subgroup. Table 3 shows that most of the backpackers were in the youngest age group and also gives the average size of each group. Guided parties in this wilderness usually include 20 to 30 recreationists. Eight interviews with people from these large parties were not tallied for this presentation because their responses were written. Consequently, the average size of guided parties presented in Table 3 is exceptionally low. Most backpacking parties were composed of two to four people, but the average size here is high because of the two large Boy Scout parties included in this group. These two parties also substantially lowered the average age for all males interviewed.

TABLE 2.--Sex composition of subgroups from a sample of Bob Marshall Wilderness users, summer 1964.

SEX	Backpack #	Horse #	Guide #	Day Use #	Total #	Total % (N=36)
Female	0	2	1	0	3	9
Male	12	14	2	5	33	91

TABLE 3.--Age and party size of subgroups from a sample of Bob Marshall Wilderness users, summer 1964.

AGE	Backpack #	Backpack %(N=12)	Horse #	Horse %(N=16)	Guide #	Guide %(N=3)	Day Use #	Day Use %(N=5)	TOTAL #	TOTAL %(N=36)
Under 30	9	75	5	31	1	33	2	40	17	47
30-40	1	8	4	26	1	33	2	40	8	22
Over 40	2	17	7	43	1	33	1	20	11	31
TOTAL	12	100	16	100	3	100	5	100	36	100
# Parties Sampled	9		16		3		5		33	---
Average Party Size	8.1		2.7		3.3		2.2		5.3	---

Tables 4 and 5 show that the wilderness users included in this sample rank high in education and income. A large proportion held college degrees. The interviewees were disproportionately drawn from the higher income brackets mainly because of the high earnings of users in the guided parties. It should be noted that the two lowest income brackets (A and B) are well represented and that income should not be considered a limiting factor in wilderness use. A comparison is made here with the average national income in 1963.

Table 6 indicates the occupations of the wilderness users sampled.

TABLE 4. Income by subgroups from a sample of Bob Marshall Wilderness users, summer 1964.

FAMILY INCOME(Dollars)	Backpack #	Backpack %(N=12)	Horse #	Horse %(N=16)	Guide #	Guide %(N=3)	Day Use #	Day Use %(N=5)	TOTAL #	TOTAL %(N=36)	Adjusted Percent* %(N=30)	Nat'l Ave.** %
Less 18 yrs. old	6	50							6	17	---	
A) Less 5,000	3	25	2	13					5	14	16.7	36.2
B) 5,000-7,999	2	17	7	42			3	60	12	34	40.0	30.4
C) 8,000-9,999			4	26			1	20	5	14	16.7	13.4
D)10,000-14,999	1	8	2	13					3	9	10.0	14.5
E)15,000-19,999			1	6	1	33	1	20	3	9	10.0	5.4
F)20,000 plus					2	67			2	6	6.6	
TOTAL	12	100	16	100	3	100	5	100	36	100	100.0	100.0

* Adjusted to include only the interviewees with a family income.

** Current Population Reports, Consumer Income, Bureau of the Census, June 12, 1964. Total for whites and nonwhites (2, p. 2).

TABLE 5.--Education by subgroups from a sample of Bob Marshall Wilderness users, summer 1964

PRESENT EDUCATION	Backpack #	%(N=12)	Horse #	%(N=16)	Guided #	%(N=3)	Day Use #	%(N=5)	TOTAL #	%(N=36)
In High School	7	59					1	20	8	22
High School Diploma	1	8	5	31	1	33	3	60	10	28
Some College	2	17	6	37					8	22
College Diploma	1	8	3	19			1	20	5	14
Advanced Work	1	8	2	13					3	8
Advanced Degree					2	67			2	6
TOTAL	12	100	16	100	3	100	5	100	36	100

TABLE 6.--Occupations of the Bob Marshall Wilderness users interviewed, summer 1964

OCCUPATION	No. of Interviewees	% of Total (N=36)
Business	13	36
Secondary School Student	6	17
College Student	3	8
Retired	3	8
Labor	3	8
Education	2	6
Agriculture	2	6
Public Service	2	6
Engineering	1	3
Military	1	3
TOTAL	36	100

Over half of the people interviewed were from Montana. None of the users in the guided parties sampled was a Montana resident (Table 7).

TABLE 7.--Residences of the Bob Marshall Wilderness users interviewed, summer 1965.

RESIDENCE	Backpack #	Backpack %(N=12)	Horse #	Horse %(N=16)	Guided #	Guided %(N=3)	Day Use #	Day Use %(N=5)	TOTAL #	TOTAL %N=36)
Montana	6	50	13	81			4	80	23	64
Washington	3	25							3	8
California			2	13	1	33			3	8
New York					1	33			1	3
Arizona	1	8							1	3
Delaware	1	8							1	3
Kentucky							1	20	1	3
Oregon	1	8							1	3
Pennsylvania			1	6					1	3
Wash. D. C.					1	33			1	3
TOTAL	12	100	16	100	3	100	5	100	36	100

The average lengths of stay presented in Table 8 correspond roughly to United States Forest Service estimates of 8.3 days for the Flathead National Forest portion of the wilderness and 5.5 days for the Lewis and Clark portion. The durations of most trips for the people included in this sample were between seven and fourteen days.

Question one on the post-trip questionnaire asked: Did you stay in the Bob Marshall Wilderness as long as you had intended when I met you? If not, why? All interviewees but one indicated that they had.

TABLE 8.--Length of stay by subgroups from a sample of Bob Marshall Wilderness users, summer 1964.

LENGTH OF STAY (DAYS)	Backpack #	Backpack %(N=12)	Horse #	Horse %(N=16)	Guided #	Guided %(N=3)	Day Use #	Day Use %(N=5)	TOTAL #	TOTAL %(N=36)
1							5	100	5	14
3			1	6					1	3
5			1	6					1	3
6	1	8							1	3
7	1	8	5	31					6	17
8	2	17	3	19	1	33			6	17
9	1	8							1	3
10	4	33	1	6					5	14
11	1	8							1	3
12					1	33			1	3
14	2	17	4	25					6	17
25					1	33			1	3
30			1	6					1	3
AVERAGE	9.8 da.		10.2 da.		15.0 da.		(less 1 da.)		9.7 da.	

Table 9 shows the location of each interview. Almost all were conducted at the interviewee's camp, and because of the nature of the sampling

procedure (going where the people were) this list gives some indication of the areas that are most heavily used. It is biased, however, by the amount of time that the interviewer spent in each area. Salmon Forks, Salmon Lake, Shirttail Park, Little Salmon Park, and Tango probably receive proportionally more use than is indicated here.

TABLE 9.--Locations of interviews with the Bob Marshall Wilderness users sampled, summer 1964.

LOCATION	No. of Interviews	% of Total (N=36)
Little Salmon River	5	14
Big Prairie	4	11
Meadow Creek	3	8
Pretty Prairie	3	8
Salmon Lake	2	6
Salmon Forks	2	6
White River Park	2	6
Indian Point	2	6
Basin Creek	2	6
Gordon Pass	2	6
Little Salmon Park	1	3
Black Bear	1	3
Big Slide	1	3
Chinese Wall (Moose Creek)	1	3
Tango	1	3
Holland Lake Campground	1	3
Young's Creek trail near Hahn Cabin	1	3
Klicks Resort	1	3
TOTAL	36	100

Loop trips are apparently more popular than entrance and return over the same route. The Gordon Pass-Big Prairie-Salmon Lake-Pendant Pass loop and the Benchmark-Hoadley Pass-Big Prairie-White River Pass-Benchmark loop probably receive the greatest use. Table 10 shows some of the other more popular routes of travel for people included in this sample.

TABLE 10.--Routes of the Bob Marshall Wilderness users sampled, summer 1964.

ROUTE	# Parties on Route	% of Total (N=33 Parties)
Gordon-Big Prairie-Salmon Lake-Pendant Pass	5	15
Benchmark-(Hoadley or Stadler Pass)-Basin-Big Prairie-White River Pass-Benchmark	4	12
Spotted Bear-Big Prairie-Spotted Bear	3	9
Benchmark-Pretty Prairie-Benchmark	3	9
Holland Lake-Salmon Lake-Holland Lake	2	6
Monture-Big Prairie-Salmon Lake and return	2	6
Others	14	43
TOTAL	33	100

Table 11 indicates that most users stay entirely on the Lewis and Clark or the Flathead National Forest portions of

the wilderness; however, a substantial number of parties traveled on both sides of the Continental Divide.

TABLE 11.--Portions of the wilderness visited by the Bob Marshall Wilderness users interviewed, summer 1964.

PORTION OF WILDERNESS USED	Number of Respondents	Percent of Total
West Side of Continental Divide	22	62
East Side of Continental Divide	5	14
Both sides of Continental Divide	9	25
TOTAL	36	100

The Wilderness Experience

This section includes responses to the questions that were asked principally to identify the wilderness experience. Unstructured questions were asked to obtain this information in the users' words, and many parts of the wilderness experience were so described. The experience for each user is probably a unique combination of many parts. The combination that makes up the total experience for one user for one particular trip probably depends largely on his motives for making the trip, his value standards, and his concept of wilderness as conditioned by previous experiences.

An open-end question was asked: What does the word "wilderness" mean to you? Responses were lengthy but could be summarized by using one or two of the respondent's words. To show how these answers were summarized, the raw data from this question (#4) are given in Appendix B. To compare these findings with the O.R.R.R.C. results, the present definitions were then categorized into five motivations for wilderness use as described in Study Report #3 (5) and mentioned earlier in this paper.

Table 12 summarizes the answers obtained in this study and indicates the value judgments that were made to categorize them by the motivations (Exit-Civilization, Aesthetic-Religious, Pioneer Spirit, Health, and Sociability) used in the O.R.R.R.C. report. As mentioned in the conclusions, this list of motivations is probably not complete.

It should be noted that in the O.R.R.R.C. study a preconceived list of reasons for wilderness use was offered, which both limited the interviewee's response and provided him with possible answers. This could account for some of the differences presented in Table 14.

TABLE 12.--Meaning of wilderness to the Bob Marshall Wilderness users interviewed, summer 1964.

WILDERNESS MEANING	MOTIVATION CATEGORY *	(N=12) Backpack #	%	(N=16) Horse #	%	(N=3) Guided #	%	(N=5) Day Use #	%	(N=36) TOTAL #	%
Unspoiled natural environment	AR	4	24	7	44	3	100	3	60	17	48
Few people, unpopulated	EC	7	58	5	31	1	33	1	20	14	39
No motorized transportation	EC	2	17	1	6			2	40	5	14
No roads	EC	2	17					1	20	3	8
Uncivilized	EC			3	19					3	8
Wild, primitive area	PS			2	13			1	20	3	8
Isolated, remote	EC			1	6			2	20	3	8
Away from cares of everyday life	EC			3	19					3	8
Vast area, unrestricted space	EC	2	17							2	6
Primeval forest	AR	1	8	1	6					2	6
Wildlife	AR			1	6	1	33			2	6
Difficult access	PS	1	8							1	3

*EC - Exit-Civilization PS - Pioneer Spirit S - Sociability
AR - Aesthetic-Religious H - Health

Table 12.--Continued

WILDERNESS MEANING	MOTIVATION CATEGORY	(N=12) Backpack #	%	(N=16) Horse #	%	(N=3) Guided #	%	(N=5) Day Use #	%	(N=36) TOTAL #	%
Peacefulness	AR			1	6					1	3
Aesthetic value	AR			1	6					1	3
Spiritual value, God	AR			1	6					1	3
Scenery	AR	1	8							1	3
Good place to hunt and fish	PS							1	20	1	3
Only foot access	PS	1	8							1	3
No trails	PS	1	8							1	3
Must take precautions	PS			1	6					1	3
Mountains	AR			1	6					1	3
Lack of multiple use	--			1	6					1	3
Not found here	--	1	8	1	6	1	33			3	8
Can't say	--			1	6					1	3

(more than one response/interviewee)

Several different answers from this open-end question can be categorized under the same basic motivation and in some cases cause response frequences of over 100 percent.

Another unstructured question was: What have you especially liked so far about this wilderness trip? Table 13 summarizes the answers to this question and indicates the

value judgments that were made to categorize these answers for comparison with the O.R.R.R.C. study. Table 14 summarizes these comparisons.

TABLE 13.--Interviewees' likes about Bob Marshall Wilderness trip, summer 1964.

THINGS LIKED ABOUT WILDERNESS	MOTIVATION CATEGORY	No. of Responses	Percent of Total (N=36)
Scenery, seeing the country	AR	10	28
Getting away from daily routine and relaxing	EC	5	14
Everything about the trip	--	4	11
Taste of the water, clear water	H	4	11
Fishing	--	3	8
Going to new places	PS	2	6
The weather	H	2	6
Just being here	EC	2	6
Seeing wildlife	AR	2	6
Companionship of friends	S	2	6
Staying in camp and resting	H	2	6
Horseback riding	PS	1	3
Smells	AR	1	3
Setting up camp	PS	1	3

TABLE 13--Continued.

THINGS LIKED ABOUT WILDERNESS	MOTIVATION CATEGORY	No. of Responses	Percent of Total (N=36)
Getting back to nature	AR	1	3
No civilized interference	EC	1	3
Living outdoors	PS	1	3
Breadth and size	AR	1	3
It's a personal, intimate experience	AR	1	3
Feel free to do as I wish	EC	1	3
Calmness, no noise	EC	1	3
The woodsy people	S	1	3
The natural state of the wilderness area	AR	1	3
Being in country other people have not seen	PS	1	3
The variety of flora	AR	1	3
Ruggedness of the country	AR	1	3
Fresh air	H	1	3

(More than one response/interviewee)

TABLE 14.--Summary of motivation categories, Bob Marshall Wilderness study, summer 1964.

MOTIVATION	Wilderness Meaning #	Wilderness Meaning %(N=36)	Things Liked About Wilderness #	Things Liked About Wilderness %(N=36)	O.R.R.R.C. Findings %(N=122)*
Exit-Civilization	33	92	10	28	81
Aesthetic-Religious	24	67	26	72	62
Pioneer Spirit	10	28	8	22	37
Health			2	6	33
Sociability			1	3	21

*Average for three study areas: Boundary Waters Canoe Area, High Sierra Wilderness Area, Mount Marcy Primitive Area.

Table 15 shows responses to the question: If you could have anyone else you know along on this trip, who would you like to have? Why? Apparently, for most, more is gained when the wilderness is shared with others who have similar interests. Two interviewees would have preferred to have no one else, which can be attributed in these cases to an Exit-Civilization motive. The structure of the question may have influenced the responses by directing them in a positive way.

TABLE 15.--Interviewees' desires for other companions on Bob Marshall Wilderness trip, summer 1964.

OTHERS DESIRED TO HAVE ON TRIP, REASON	No. Responses	Percent of Total (N=36)
No one else	2	6
Close friends who would enjoy the trip	9	25
Friends for companionship	5	14
Father for companionship	4	11
Female for companionship	3	8
Someone with same interests	2	6
Family	2	6
Wife	2	6
Someone who hasn't seen the area	2	6
Someone reliable to do his share of the work	2	6
Fishing partner	1	3
A guide to good fishing	1	3
A government official or congressman to impress him with wilderness values	1	3
TOTAL	36	100

Table 16 presents the responses to the question: In your opinion, where does the wilderness begin? Answers here have some bearing on the wilderness experience and also contain some wilderness management implications related to the

TABLE 16.--Beginning of wilderness for the Bob Marshall Wilderness users interviewed, summer 1964

WILDERNESS BEGINNING	(N=12) Backpack #	%	(N=16) Horse #	%	(N=3) Guided #	%	(N=5) Day Use #	%	(N=36) TOTAL #	%
At the roadhead	1	8	5	31	1	33	2	40	9	25
Several miles from the roadhead	3	25	3	19					6	17
Where civilization is left behind	4	33	1	6					5	14
Back where there are no roads	3	25			1	33			4	11
Where there is no mechanized transportation			2	13	1	33			3	8
At the wilderness boundary			1	6			1	20	2	6
On the first mountain pass away from the roadhead	1	8	1	6					2	6
One mile from the roadhead			1	6					1	3
Off the trail and away from civilization			1	6					1	3
It's a mental proposition			1	6					1	3
With the mountains							1	20	1	3
Can't say							1	20	1	3
TOTAL									36	100

effective size of undeveloped areas. For some respondents the wilderness begins at the end of the road, but for most

it begins several miles farther along, after this aspect of civilization is left well behind. Answers to this question were too diversified to draw isolines of wilderness beginning for each group as was done by Lucas (16) in the Boundary Waters Canoe Area.

Five (14 percent) of the people interviewed were members of active wilderness-preservation groups and subscribed to their publications (Table 17).

TABLE 17.--Interviewees' affiliations with active wilderness preservation groups, Bob Marshall Wilderness study, summer 1964.

MEMBER OF	Respondents #	SUBSCRIBE TO:	Respondents #
Wilderness Society	5	Living Wilderness	5
Sierra Club	3	Sierra Club Bulletin	3
National Parks Association	2	National Parks Magazine	3
Montana Wilderness Association	2	----------	
TOTAL*	13		11

*Composed of responses from five interviewees with several memberships each.

Regardless of their mode of travel, most users enjoyed both hiking and horseback riding and could see advantages to both means of transportation, although some respondents disliked the type of transportation that they were using. Table 18 shows the responses to the question: What do you especially like about hiking (or horseback riding, depending on mode of travel)? After answering this, the respondent was asked: How do you feel about horseback riding (or hiking)? This question brought out many descriptions of parts of the wilderness experience; the original answers to it (#6) are presented in Appendix B.

TABLE 18.--Interviewees' feelings about hiking and horseback riding, Bob Marshall Wilderness study, summer 1964

FEELING	(N=12) Backpack		(N=16) Horse		(N=2) Guided		(N=4) Day Use		(N=34)* TOTAL	
	#	%	#	%	#	%	#	%	#	%
Like hiking and horses	10	83	10	62	2	100	3	75	25	74
Like horses, dislike hiking	1	8	3	19			1	25	5	15
Like hiking, dislike horses			3	19					3	9
Dislike hiking and horses	1	8							1	3

*Two interviewees did not completely answer this question.

The intensity of the emotions involved in a wilderness experience may depend largely on the conditioning

of the individual through previous wilderness experiences or wilderness trips; the two are not necessarily synonymous. When asked in the post-trip questionnaire, "How many wilderness trips like this have you taken?", no respondents indicated that they had taken no other trips; 10 had taken one to three other trips; four had taken three to 10; and 14 had taken more than 10 other wilderness trips.

Difficult access is perhaps one of the most important criteria for the wilderness experience. The modes of travel required to penetrate wild country contribute greatly to general enjoyment and the pioneer spirit. Important here is the feeling of accomplishment in doing something that requires self discipline and effort. This probably enhances the self image, but is not equivalent to the "status symbol" motive as described by Bultena and Taves (2).

If our social and economic institutions are demanding less self discipline and effort to secure a physically satisfying mode of living, and if the national and individual spirit as described by Douglas (9) is to be perpetuated, this challenging component of the wilderness experience will become increasingly important.

Another aspect of difficult access that may be important is the feeling that other parties, if encountered, will also be in harmony with the wilderness environment.

With the above in mind, the survey questionnaire asked: 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? All but one respondent expressed strong belief that this would completely eliminate the wilderness atmosphere and most said that they would not come back under these conditions.

Other types of artificiality brought a similar but less intense reaction. Considering the possibilities of portable television, a question was worded: How would you feel if at tonight's camp you found another party sitting around watching television? Twenty-four of the 36 interviewees indicated that this would subtract from the wilderness feeling. The other 12 did not view this as being out of harmony with their concept of wilderness and often compared it to carrying radios or electric shavers.

As mentioned earlier, the individual's concept of wilderness depends largely on the conditions prevailing during his introduction to it. What is wilderness to us today may not have been wilderness to our pioneer ancestors. The Bob Marshall Wilderness Area is a good example of this, with a trail in every major drainage.

Wilderness Management

Due to the variety of unquantifiable values and the array of emotions that it involves, "wilderness" is perhaps the most subjective term that a wildland manager may have to deal with. The information presented in this section should elucidate some of this subjectivity by bringing out many of the wilderness concepts, interests, expectations, and dissatisfactions of the users who were interviewed.

The management implications of much of this information are self explanatory. Those that are not will be discussed in more detail in a subsequent chapter.

A structured question asked: Of the following list, which things are important for wilderness in your opinion? The list included:

100,000 acre size (about 10 by 15 miles)
Free of roads
Motor boats
Motels
Few people
Motor scooters
Guided party
Supply center
Timber cutting
Horses
Staying out overnight
Chain saws
Airplanes (helicopters)

Before the Wilderness Bill was passed and while this study was being conducted, one of the criteria for a wilderness area was that it be 100,000 acres (about 10 by 15 miles) or larger in size. When asked if this size was

important for wilderness, most responses were that it should be much larger.

Replies to the question, Are "few people" important for wilderness in your opinion?, were usually that wilderness is to be enjoyed by the people, but difficult access (not restrictions) should limit the number of people using it.

Answers to the same question asking about airplanes or helicopters were usually "No, except for fires and emergenices." The use of aircraft apparently was not consistent with these respondents' concepts of wilderness, although half of them would condone aircraft in the wilderness when used for fire detection, fire suppression, or emergencies. The latter response indicates concern over the detrimental effects of fire. This study did not direct questions to bring out further information on the users' knowledge of the role of fire in wilderness, such as the ecological aspects of fire suppression or controlled burning. The qualifications to the above three sections of question #4a are presented in Appendix B.

About three fourths of the people interviewed felt that a guided party was important. Although many of these respondents didn't travel in a guided party themselves, they felt it was important for other people who needed or preferred a guide.

Questions asking about motor boats, motels, motor scooters, and timber cutting were included to break up possible response patterns. Table 19 summarizes the answers to this question.

TABLE 19.--Items that the Bob Marshall Wilderness users interviewed feel is important for wilderness, summer 1964.

IMPORTANT FOR WILDERNESS	(N=12) Backpack		(N=16) Horse		(N=3) Guided		(N=5) Day Use		(N=36) TOTAL	
	#	%	#	%	#	%	#	%	#	%
Free of roads	12	100	16	100	3	100	4	80	35	97
Staying out overnight	10	64	16	100	3	100	5	100	34	94
Horses	10	64	15	94	3	100	5	100	33	92
100,000-acre size or larger	10	83	14	88	3	100	4	80	31	86
Few people	12	100	11	69	2	67	3	60	28	78
Guided party	10	64	9	56	3	100	5	100	27	75
Aircraft for administrative use only	3	25	8	50	3	100	2	40	16	44
Chain saws for administrative use and to clear trails	2	17	5	31	1	33			8	22
Supply center	3	25					1	20	4	11
Aircraft, unlimited use			2	13	1	33			3	8
Chainsaws, unlimited use									-	-
Motor boats									-	-
Motels									-	-
Motor scooters									-	-
Timber cutting									-	-

Another structured question asked: Which of the activities listed on this card will you engage in during this trip in the wilderness? Following a list of many of the common

activities, a category at the end (Anything else? Specify.) provided for additions.

Answers to this question are limited to the physical activities of wilderness recreation. The question did not bring out the clusters of values and emotions that are implied in each. Data are presented in Table 20.

A question on the post-trip questionnaire asked: Did you engage in the activities you had intended to on this trip? If not, why? Twenty-four respondents (86 percent) indicated that they had. Of the four who had not, three did not fish as much as expected because of high water or bad weather and one did not see as much wildlife as expected.

An unstructured question on the post-trip questionnaire asked: What kind of activities do you think the Bob Marshall Wilderness is best suited for? Here again most responses were of a physical nature (Table 21).

When asked, What have you especially disliked about this trip?, most replied that they had no dislikes. Three thought that there were too many people and two disliked the low flying helicopters which were used extensively during the summer of 1964 to supply crews repairing flood damage. These and other dislikes are summarized in Table 22.

TABLE 20.--Activities that the interviewees engaged in during their Bob Marshall Wilderness trip, summer 1964.

ACTIVITY	(N=12) Backpack #	%	(N=16) Horse #	%	(N=3) Guided #	%	(N=5) Day Use #	%	(N=36) TOTAL #	%
Fishing	11	92	16	100	3	100	5	100	35	97
Primitive camping	12	100	16	100	2	67			30	83
Hiking	12	100	10	64	3	100	4	80	29	81
Photography	8	67	13	81	3	100	2	40	26	72
Horseback riding	3	25	16	100	3	100	1	20	23	64
Nature or wildlife study	5	42	10	64	3	100	2	40	20	56
Swimming	8	67	5	31	1	33			14	39
Mountain climbing	7	58	5	31	1	33			13	36
*Just enjoying myself	1	8	1	6			1	20	3	8
Boating	1	8	1	6					2	6
Hunting	1	8	1	6					2	6
Sketching or painting			1	6	1	33			2	6
*Geology					2	67			2	6
*Sight seeing	1	8	1	6					2	6
Rock climbing			1	6					1	3
*Write about trip					1	33			1	3
*Working for outfitter			1	6					1	3

*From "Anything else? Specify."

TABLE 21.--Activities that the interviewees feel the Bob Marshall Wilderness is best suited for, summer 1964.

ACTIVITY	Number Respondents	Percent of Total (N=28)
Fishing	18	64
Hunting	12	43
Camping	12	43
Hiking and backpacking	10	36
Horseback riding and pack trips	9	32
Photography	8	29
Nature study and appreciation	5	18
Mountain climbing	3	11
Relaxation away from everyday life	3	11
Biological study	2	7
Just what it now supplies	1	4
Training Boy Scouts	1	4
Absorbing peace	1	4
Outdoor entertainment of all sorts	1	4
Reservation of nature in balance	1	4
Maintaining the hardship element	1	4

(more than one response/interviewee)

TABLE 22.--Interviewees' dislikes about their Bob Marshall Wilderness trip, summer 1964.

DISLIKES	Number of Respondents	Percent of Total (N=36)
Nothing	11	31
Bad weather, rain, snow	5	14
(Manageable)		
Too many people	3	8
Low flying helicopters	2	6
Garbage lying around campsite	2	6
Lack of information on trail conditions	1	3
No secondary trails	1	3
Poor trails	1	3
Would like to see more wildlife	1	3
Swaying bridge at Salmon Forks	1	3
Couldn't rent horses from outfitter	1	3
(Can be planned around by user)		
Mosquitoes and flies	2	6
Heavy packs	1	3
Long daily hikes	1	3
Climbing over the passes	1	3
Short of food	1	3
Carrying too much food	1	3
Poor boots	1	3

(More than one response/interviewee)

A similar question asked: How has this trip to the wilderness been different from what you expected? The flood damage was mentioned here most frequently. Differences are presented in Table 23.

TABLE 23.--Interviewees' expectations of their Bob Marshall Wilderness trip, summer 1964

TRIP EXPECTATIONS	Number of Respondents	Percent of Total (N=36)
Trip as expected	13	36
Trip different: (Reasons)	(23)	(64)
Flood damage	4	11
Fishing not as good as expected	3	8
Expected to see more game	2	6
Weather worse than expected	2	6
More snow " "	1	3
Better trails " "	1	3
More personal and intimate " "	1	3
More people " "	1	3
Easier " "	1	3
Haven't gone as far in " "	1	3
Did not expect to see pack trains	1	3
You interviewing me	1	3
Surprised fish were biting in high water	1	3
Difficulties with equipment	1	3
Didn't expect to see this type of country	1	3
Getting on wrong trail, no signs where needed	1	3
TOTAL	36	100

A structured question on the survey questionnaire asked: In providing for users of this area which of the following changes do you think ought to be considered? Then listed:

Wider trails

Simple campgrounds (with tables, stoves, hitchracks, outhouses)

Informational signs

Concessions for users (chalets or hiker camps with supplies or lodging accommodations)

Telephones

Shelters

Primitive roads

Anything else? Specify.

Eighty-one percent of the respondents, including almost all of the people traveling in the Lewis and Clark National Forest portion of the wilderness, indicated a desire for more and better informational or directional signs. A few expressed resentment toward the map-type signs placed in two of the heavy use areas in the Big Prairie District.

Of the 53 percent who condoned the use of telephones, most restricted it to administrative use. Most thought the "iron phones" presently in use were desirable to have for emergencies. In the future, communications within the Bob Marshall Wilderness Area will probably be completely by

radio.

It is interesting to note that none of the respondents was concerned enough to mention the telephone lines that parallel many of the trails. These lines have been present in the Bob Marshall for many years. Apparently the users interviewed accept this form of artificiality as not being incompatible with their concept of wilderness.

Several respondents expressed a strong desire to leave the wilderness as it is (undeveloped), stating that if wilderness is going to be valuable as wilderness the user should adapt himself to deal with the realities of nature--rather than mold it to fit his needs.

In contrast to the above, several respondents were in favor of simple three-sided shelters. It should be noted that this was in response to a structured portion of the question while the preceding opinion came from the unstructured (anything else?) item. The relative significance of answers to these two different types of query should be studied. Responses to this particular question are presented in Table 24.

The post-trip questionnaire asked a similar question, which was unstructured: How could existing facilities (trails, bridges, campgrounds, etc.) in the Bob Marshall

Wilderness be changed to be consistent with wilderness as you would like it? Here the most frequent response was in keeping with the "leave it as it is" concept. The second most frequent was for more campgrounds. All responses are presented in Table 25.

TABLE 24.--Management changes recommended by the Bob Marshall Wilderness users interviewed, summer 1964.

RECOMMENDED CHANGE	(N=12) Backpack #	%	(N=16) Horse #	%	(N=3) Guided #	%	(N=5) Day Use #	%	(N=36) TOTAL #	%
Informational signs	12	100	9	56	3	100	5	100	29	81
Telephones	6	50	9	56	1	33	3	60	19	53
Simple campgrounds	3	25	6	38	1	33	3	60	13	36
Wider trails			5	31	1	33	2	40	8	22
Shelters	3	25	3	19					6	17
*Leave wilderness as it is	3	25	1	6			1	20	5	14
*Educate users on wilderness behavior	1	8			1	33			2	6
Concessions for users							1	20	1	3
Primitive roads					1	33			1	3
*First aid provisions					1	33			1	3
*Maintain side trails			1	6					1	3
*Increase goat herd			1	6					1	3
*Increase elk herd			1	6					1	3
*Provide maps			1	6					1	3
*Airstrips for easy access					1	33			1	3

(more than one response/interviewee)

*From "Anything else? Specify."

TABLE 25.--Facilities consistent with wilderness for the Bob Marshall Wilderness users interviewed, summer 1964.

CHANGE IN FACILITIES	Number of Respondents	Percent of Total (N=28)
No change, leave it as it is	11	39
More simple campgrounds	5	18
More and better maintained secondary trails	4	14
More and better distance and directional signs	4	14
Clean up trash at campgrounds	3	11
Improve existing trails	3	11
Up to date maps made available	2	7
More protective administration	2	7
More foot bridges	1	4
Less maintenance of main trails	1	4
Keep trails open (early user)	1	4
More passing trails on steep sidehills	1	4
More signs denoting names of streams	1	4
Supply center	1	4

(more than one response/interviewee)

Many respondents wanted better available information on the changing wilderness conditions and more informative maps. In some backcountry areas in California where use is intense, this type of information is purposely not distributed to the public because it is a form of advertising that would further intensify use.

A question asked in this study, How did you happen to

come to the wilderness?, brought a variety of answers. Because of the large proportion of local users included in the sample, most respondents had known about the area for most of their lives. The sources of information are presented in Table 26.

TABLE 26.--Interviewees' sources of information on the Bob Marshall Wilderness Area, summer 1964.

SOURCE	Number of Respondents	Percent of Total (N=36)
Raised locally, have known about it for a long time	15	42
Came along on scout trip	6	17
Publications	5	13
Heard from an associate	5	13
U. S. Forest Service official	2	6
Previous pack trip	1	3
U.S.F.S. Bull. PA 585*	1	3
Using wilderness as a study area	1	3
TOTAL	36	100

*U. S. Forest Service bulletin PA 585, Backpacking in the National Forest Wilderness (28) apparently did not have a great effect on the amount of use this year.

A high frequency of "No" responses came in answer to the question, "Have you ever been here before?," as indicated in Table 27.

TABLE 27.--Number of previous trips that the users interviewed have taken into the Bob Marshall Wilderness Area.

NUMBER OF PREVIOUS TRIPS	Number of Respondents	Percent of Total (N=36)
None	11	31
Yes, 1-2 other trips	9	25
Yes, several other trips	8	22
Yes, steadily for many years	8	22
TOTAL	36	100

When asked if they had been in other similar places, many respondents had not as indicated in Table 28.

TABLE 28.--Previous trips taken by Wilderness users interviewed, summer 1964.

PREVIOUS TRIPS	Number of Respondents	Percent of Total (N=36)
None	13	36
Yes, other wilderness areas	7	20
Yes, other wilderness-like areas	13	36
Yes, back country of Glacier Park	3	8
TOTAL	36	100

TABLE 29.--Interviewees' reasons for future wilderness trips, Bob Marshall Wilderness study, summer 1964.

PLANS FOR FUTURE WILDERNESS TRIPS		Number of Respondents	Percent of Total (N=28)
A) In the Bob Marshall Wilderness:			
Yes:	No reason	3	11
	Enjoy it and like the country	10	36
	To see more of it	5	18
	To find solitude and peace	5	18
	Fishing and hunting	3	11
	It's close to home	3	11
	Enjoy being away from civilized areas	1	4
	Like unspoiled country	1	4
	Respect our guide's competence	1	4
No:	Like more scenic areas	1	4
B) In other wilderness areas:			
Yes:	No reason	9	32
	Enjoy wilderness trips	5	18
	To see different areas	3	11
	Escape hectic populated areas	2	7
	To hunt and fish	2	7
	To restore health and do some thinking	1	4
	To be on own in natural surroundings	1	4
No:	Too far away	3	11
	No reason	3	11

(more than one response/interviewee)

An open-end question in the post-trip questionnaire probed deeper into these responses by asking: Do you plan to take other wilderness trips? In the Bob Marshall Wilderness? Why? In other wilderness areas? Why? All answers to this question seemed important enough to present in Table 29.

Following this same line, a question on the post-trip questionnaire was worded: In general, what do you think about the number of people using the Bob Marshall Wilderness? Too many? About right? Would be O.K. with more people? This information may be biased by the time of year the interviewee made his trip; the use rate in the Bob Marshall varies from month to month.

TABLE 30.--Interviewees' opinions on the number of people using the Bob Marshall Wilderness Area, summer 1964.

OPINION (Number of People)	Number of Responses	Percent of Total (N=28)
About right	15	54
Would be O.K. with more people	5	18
Too many	3	11
More people who are nature conscious	3	11
Don't have any idea	3	11
TOTAL	28	100

When asked, Do you expect to come here again? When?, most respondents expected to return within the next year. Table 31 shows these responses.

TABLE 31.--Interviewees' plans for future trips into the Bob Marshall Wilderness Area.

FUTURE PLANS	Number of Respondents	Percent of Total (N=36)
None	2	6
Yes, again this season	9	25
Yes, next year	15	42
Yes, in 2-5 years	4	11
Don't know	6	17
TOTAL	36	100

To record dissatisfactions, a question on the post-trip questionnaire asked: Were you satisfied with this wilderness trip into the Bob Marshall? If not, why? Table 32 shows that most people were satisfied with this wilderness as it was when they made the trip.

To provide an outlet for interviewees who may have had a hostile attitude toward being interviewed, the survey questionnaire asked: What are your feelings about my interviewing you? Table 33 shows these responses.

The final question on the post-trip questionnaire asked: Briefly, what do you think about this questionnaire? Responses to this question are summarized in Table 34.

TABLE 32.--Interviewees' dissatisfactions with their Bob Marshall Wilderness trip, summer 1964.

SATISFIED	Number of Respondents	Percent of Total (N=28)
Yes:	20	72
Yes: Discounting the trash at the campsites		
Except trail information could have been better		
Except for low flying helicopters	4	14
Except the number of horses/party should be limited		
No: Too many people going by our camp at Salmon Lake.		
Some places are too popular, flood damage	4	14
Our troop hiked too far		
Unhappy about low elk population.		
TOTAL	28	100

TABLE 33.--Interviewees' feelings about being interviewed, Bob Marshall Wilderness study, summer 1964.

FEELINGS	Number of Respondents	Percent (N=36)
Acquiescent: fine, O.K., no objection	14	39
Pleasurable, interesting, good idea	11	31
Glad to be of help, glad something is being done	10	27
Crazy as hell	1	33
TOTAL	36	100

TABLE 34.--Interviewees' thoughts about post-trip questionnaire, Bob Marshall Wilderness study, summer 1964.

INTERVIEWEES' THOUGHTS	Number of Respondents	Percent of Total (N=28)
Good idea, all right, didn't mind	10	36
Glad to see some interest in wilderness	5	18
Glad to help you	2	7
Hope you get some worthwhile information from it	2	7
It's good to know what the average person thinks	1	4
There should be more questionnaires in other wilderness areas	1	4
It should give ideas on wilderness preservation	1	4
I feel my time was worthwhile	1	4
If it serves any useful purpose, I'm all for it	1	4
The questions seem concise and pointed	1	4
It's good but you ought to be more inquisitive about satisfaction and motivation	1	4

TABLE 34.--Continued

INTERVIEWEES' THOUGHTS	Number of Respondents	Percent of Total (N=28)
It's nice to let someone know your feelings	1	4
Fine, if it will be put to use	1	4
It covers the subject very well	1	4
Poor, although I have not the knowledge to make it any better	1	4
(more than one response/interviewee)		

CHAPTER VI

SUMMARY AND CONCLUSIONS

In this chapter findings will be summarized and related to applicable wilderness management approaches. Suggestions for future studies of wilderness use will also be presented.

Summary

General information gained through an analysis of the users of the Bob Marshall Wilderness Area indicates that in 1964:

1) There was an apparent increase in backpacking in this wilderness.

2) Use was concentrated in the valley bottoms, and loop trips returning to the point of departure were most common. The Holland Lake-Gordon Creek-Big Prairie-Salmon Lake-Pendant Pass-Holland Lake loop and the Benchmark-Hoadley Pass-Basin-Camp Creek Pass-Benchmark loop were the most frequently used routes.

3) About half of the users sampled were from out of state. Most Montana residents traveled in small unguided parties. The group of users sampled was above the national average in income. About one third of the interviewees were business people. The average length of

stay was nine days and most respondents were not affiliated with active wilderness preservation groups.

4) Most of the users sampled had experienced many previous wilderness trips and intended to take more in the future. Many enjoyed seeing different wilderness areas, and all but one responded favorably to the interview.

5) The user's wilderness concepts may have depended largely on the conditions that existed during his first introduction to it. Long-time users of the Bob Marshall Wilderness often felt that the increase in use subtracted from the wilderness qualities; people first coming into the area under heavier use conditions found it very much "like wilderness ought to be."

The following may delineate some of the important facets of wilderness recreation:

1) The most popular activities of the users sampled were:

a. fishing and hunting
b. primitive camping
c. hiking
d. photography
e. horseback riding
f. nature and wildlife study
g. swimming
h. mountain climbing
i. relaxation

2) The attractions of wilderness, other than physical activities, mentioned most frequently by the users sampled were:

a. an unspoiled natural environment
b. few people
c. no motorized transportation and away from roads
d. scenery
e. difficult access
f. getting away from the daily routine and relaxing
g. the taste of clear water
h. companionship
i. staying out overnight
j. horses
k. solitude and peace
l. the vastness of the area

3) Difficult access and few people are important criteria for wilderness, but difficult access (not restrictions) should limit the number of people.

4) About three fourths of the people sampled enjoyed and saw advantages in both hiking and horseback riding.

5) The wilderness experience can be broken down into many component parts but the experience for one user for one particular trip apparently depends for the most part on:

a. his motivations for making the trip
b. his concept of wilderness as conditioned by previous experiences
c. his value standards
d. his knowledge of the area, including its ecology, geology, and history
e. the scope of his interests and imagination
f. the characteristics of the group with which he travels

If a typical user for the summer of 1964 can be described from these data, he would be 30 to 40 years of age, male, and traveling by horse with his family or a small group of close friends. He would be a college graduate with an $8,000 annual income and would be primarily interested in fishing and relaxing away from the cares of everyday life. He would enjoy the pioneer aspects of the wilderness and the companionship of his friends. This wilderness trip would be one of many that he has taken or plans to take.

The responses of a few interviewees were difficult to classify under any of the motivational categories described in the O.R.R.R.C. report (5) or in the Bultena and Taves study (2). Such responses included positive self-improvement as well as philosophic and intellectual motives wherein wilderness provides the freedom for unrestricted thought directed to finding one's place in

relation to nature and the universe. The latter could be classified as the positive counterpart of "exit-civilization," but it seems specialized enough to be separated as an "aesthetic-philosophic" category.

Aesthetic-philosophic differs from aesthetic-religious in that it involves thought and reason, whereas aesthetic-religious involves feelings and emotion. As the scope of human knowledge widens, perhaps more of the aesthetic-religious motivations could be included under aesthetic-philosophic. One response to the question, What does the word wilderness mean to you?," was "I came from the gutter up through wilderness, and I don't belong to any church." It is difficult to classify this remark under any of the motivational categories presented in the literature review. Judged along with other answers of the same interviewee, it appears to establish a primarily aesthetic-philosophic motivation.

Important findings that can be related to wilderness management are:

1) About two thirds of the interviewees found the trip different than expected. Many felt a need for current information on trails and other changing wilderness conditions such as the amount of water in the streams and rivers and the quality of the fishing.

2) When interviewees were asked how existing facilities could be changed to be consistent with wilderness

as they would like it, the most frequent response was, "leave the wilderness as it is."

3) Things most frequently disliked about the trip were bad weather, too many people, low flying helicopters, garbage at campsites, and mosquitoes.

4) Many interviewees felt that noisy chainsaws and aircraft should be limited to essential administrative use only.

5) Of the numerous management facilities suggested, many interviewees were in favor of telephones, simple campgrounds, and more informational signs.

6) Some interviewees thought that wilderness users should be educated on proper use of the wilderness.

7) The group of Forest Service employees interviewed generally preferred more wild and isolated areas for wilderness than did the recreationists. One reason for this may be that the forest workers become well acquainted with semi-wild areas in their everyday jobs and consequently conceive wilderness as relatively more primeval. This supports the findings of Lucas (16) in regard to the difference in wilderness perception between managers and recreationists.

By using the data brought out in the present study, some differences among the four groups that were separated by mode of travel can be identified.

Respondents in both the guided and unguided horse parties were usually older and had more education and income than respondents in the backpacking or day-use parties. The two groups of horse users also included the highest proportions of female respondents. The backpacking and guided horse parties included the highest proportions of nonresidents.

No differences among the four groups could be found by comparing party size (Table 3), length of stay (Table 8), wilderness meaning (Table 12), wilderness beginning (Table 16), items important for wilderness (Table 19), or recommended changes (Table 24).

Answers to the 16 questions that were asked in each interview have provided much general information about the wilderness users who were sampled (study objective two) and indicate many of these users' interests in the Bob Marshall Wilderness. The wide scope of the questionnaire did not facilitate an intensive investigation of the basic reasons for wilderness

recreation (study objective one) although many of the components of wilderness recreation were identified. A few well directed questions followed by more intensive probing probably would have better met the first objective. As mentioned earlier, the applicability of the study results is limited because no probability sample was taken.

Perhaps the strongest section of this paper will follow in the conclusions where the interests of the users sampled are connected with wilderness management approaches (study objective three).

Conclusions

In the early 1940s Leopold saw the inconsistency between mass use and wilderness qualities. He asks a

question pertinent to the material to be presented in this section:

> If forestry and recreation engineering are entitled to professional status, has not our employer, the public, a right to demand of us some degree of skill and resourcefulness in preserving the quality of wild areas despite mass use? (15, p. 24).

Management Approaches

With the following management approaches the wilderness qualities that exist today in the Bob Marshall Wilderness Area might be conserved for perhaps another generation despite increasing use. Future generations will use the land as they see fit. If wilderness recreation is one of these uses, the number of wilderness users may have to be limited to preserve it.

Wilderness is an important part of the American culture--important enough so that some people agree it should be preserved as long as we can afford the space. Others feel that if we can't afford space for wilderness, our civilization is worthless. It is hoped that the following suggestions will help to prolong wilderness conditions in the study area:

Zoning

As pointed out previously, wilderness management decisions involve the weighing of many elusive values. Three subzones within the Bob Marshall Wilderness Area would make these decisions less complicated for the

wilderness manager and would insure that most of the diverse interests of the wilderness users here would be considered.

Heavy use zone.--Most use of the Bob Marshall Wilderness is concentrated at certain destination points or target areas. These may be at natural scenic areas, at established camping areas where there is good water and horse feed, at popular campsites a distance of one day's travel from the roadhead, or where fishing is especially good. Methods of dispersing such concentrations will be suggested, but these areas will probably continue to receive heavy use.

A zone along the valley bottoms in the major drainages should be managed to support heavy use. Facilities there should provide adequate sanitation, protect the resource, and help to disperse use by attracting recreationists away from overused sites.

"Freedom" was found to be an important part of the wilderness experience; dispersion of use should therefore be done through positive management approaches, such as salting with minimal facilities. Elaborate facilities or restrictive policy that limits the amount or location of use reduces the users' freedom.

The type of wilderness camp presently in use on the Flathead National Forest portion of the Bob Marshall and described previously fills these requirements adequately. However, facilities to disperse use lead to the

establishment of other target areas. A rotation of wilderness camps would vary the locations of target areas and thus protect the resource from overuse.

There is a dual standard in the mode of living of wilderness workers and most recreationists in the Bob Marshall. Whether this situation has any effect on the users' wilderness experience should be studied. The results of this study do not indicate any particular user reaction to present administrative facilities, but construction of additional dwellings should perhaps be prohibited until the need for them is clearly established.

Pristine zone.--The wilderness values of solitude and remoteness would be maintained in this zone, which would include the high alpine basins and other areas where there are few if any trails and where access is difficult.

The pristine portion of the wilderness would be zoned for no development, and perhaps the high lakes would not be stocked with fish if it would mean concentration of use. This zone would also provide some of the last remaining habitat for the grizzly bear (24), whose presence is one of the rare features of the Bob Marshall Wilderness Area. A generous portion of the wilderness zoned in this manner would allow future generations a range of choices with regard to management policy.

Wild zone.--Once the heavy use and pristine zones

have been determined, the remaining portion of the wilderness would probably be larger than either of the other two zones. This wild zone could best be managed to disperse the total use of the Bob Marshall Wilderness Area.

Dispersal could easily be accomplished by reopening many of the abandoned lookout trails and fire patrol trails on the ridges. Construction of some secondary stock trails and hiking trails would also be needed. Scenery and points of interest would be more important considerations than rapid transportation in constructing new trails. Artificial facilities should be installed only where needed for sanitation in the wild zone.

Most important, the user should be made aware that these new trails are open. This could best be done by emphasizing them on maps and signs.

Present use and management in the Bob Marshall Wilderness Area have followed a pattern similar to the zoning system described, but in the future, with heavier use, a more clearly established policy will be needed to conserve wilderness resources and at the same time satisfy the various requirements of users in the Bob Marshall.

Education

Much can be done to educate the user to respect wilderness, to recognize its fragility, and to care for it. An effective means of orientation in the Bob Marshall is the personal contact of wilderness recreation guards.

In the High Sierra region the efforts of these employees are supplemented with signs and with printed leaflets distributed to the user at trailheads and by private outfitters.

Some of the practices of Boy Scout groups are not compatible with maintaining wilderness conditions under heavy use. The earlier freedoms of erecting temporary lean-tos, making bough beds, and generally living off the land should now be restricted. Scout leaders are generally receptive to forest management policies and could cooperate by altering their own.

Wilderness recreation guards are now being trained to develop a wilderness conscience. This form of agency education should be extended to include all employees working in wilderness areas.

For several years after World War II forest management in the United States consisted mainly of road construction and timber harvest in undeveloped drainages. This limited function did little to impress agency personnel with the importance of wilderness. The growing demand for outdoor and wilderness recreation, however, has made it impossible for administrators to ignore this aspect of forest utilization. Many of the younger land managers who did not go through the immediate post-war era are more aware of the values of wilderness recreation and the importance of proper wilderness management.

Mechanized Equipment

Forest Service trail crews have not been able to open enough trails by the time they begin to receive use in the spring. As a result, some trails have been opened by private outfitters and some are used before being cleared by detouring stock around the larger fallen trees. Excessive detouring of stock in this manner results in unsightly ground scars that often cause accelerated erosion.

Regulation U-1 restricts private use of all mechanized equipment in wilderness areas, including motor scooters, power generators, and the power saws employed by private outfitters to open trails.

The problem of adequate trail maintenance can be solved by increasing the manpower of Forest Service crews in spring when the bulk of the work must be done. Allowing private use of power saws in the early spring when very few wilderness recreationists would be disturbed by their noise could also eliminate some of the difficulty.

The Forest Service recognizes the possibility of using crosscut saws for trail maintenance work. The relative efficiency of either crosscut or power saws depends largely on the skill of the crews using them. Here again it seems most practical to restrict the use of power saws to before July 1, when recreational use usually begins.

Low flying aircraft, as well as the drone of high-flying jets were in conflict with many interviewees' concepts of wilderness. In regard to the former, an effort

should be made to limit administrative use of aircraft as much as possible to before July 1, and later in the season to maintain a flying elevation sufficient to keep aircraft out of most users' wilderness environment.

Administrative use of other power equipment, such as generators, tractors, or small bulldozers, is antipathetic to wilderness values and should be restricted or, when possible, eliminated.

Miscellaneous

The open meadows in the Bob Marshall are important from a recreational standpoint as they afford the user a chance to view the surrounding mountains and provide forage. In most cases, an invasion of tree species would have to be held back to preserve these meadows. The disadvantages of prescribed burning as suggested by Steele (26) should be weighed against the costs of mechanical removal of invading trees before a decision is made. Prescribed burning seems practical for removing invading tree seedlings less than two feet high.

Two-way traffic on some of the narrow trails on steep hillsides often presents a safety hazard when two pack strings meet. Two one-way trails would provide for safe passing at these locations and have been suggested by several interviewees and Forest Service officials.

Elaborate trails systems offering easy access can, however, adversely affect some of the wilderness qualities

that depend on difficult access. The present trail conditions in the Bob Marshall seem to be an ideal balance between the wide well-graded trail that provides for safety and the rough trail that maintains difficult access.

There is indication that even slight developments in a wilderness area can have a striking effect on the more subtle parts of some respondents' wilderness experience. In this light, user facilities and other developments in a wilderness area, such as bridges, fences, and administrative dwellings, should not be considered until a real need for them is established.

Conceivably, in future years, wild forested lands in continental United States will be either multiple-use tree farms, scenic parks, or wilderness recreation areas. Social and biological research together with proper management will be needed if wilderness is to be preserved.

Suggestions for Future Studies

With a growing need for more intensive wilderness management, there should be further investigations of the users' wilderness experience and requirements. Visitor contact is probably the most effective way to gather relevant information.

Investigators employing personal interviews should consider asking only a few questions, then using a standardized system of probing to obtain conclusive answers. If

a questionnaire is used, it too should be standardized and pretested. The forester's training in this field is limited, and cooperation with capable sociologists and psychologists will be needed to develop useful questions and to conduct investigations.

It is difficult for an interviewer to write down an entire conversation, and bias can be introduced when he personally decides what parts of a response are important enough to record. To overcome this possible bias, investigators could use a standardized shorthand or develop one of their own. Portable tape recorders probably would antagonize many wilderness users. Once a complete interview is obtained, the relevant parts of it can be separated out in an impersonal way.

Personal interviews with wilderness users probably stand less chance of overlooking certain types of recreationists than do unmanned registration stations or mailed questionnaires. Personal interviews also seem more effective for obtaining detailed answers.

There are many difficulties involved in obtaining a representative sample of a transient and mobile population of wilderness users. Care should be taken to include a proportionate number of users in the remote sections of the wilderness. These users may only seldom take the major trails, and their interests may differ markedly from users in the heavy use areas. When determining the sample size,

all possible interests of wilderness users should be considered.

Some conditions not mentioned in the text that could influence a user's response to a personal interview are the season of year, weather conditions, party characteristics, and location of interview, as well as the interviewer's personality, appearance, approach, and attitude.

The present study infers that there are many subtle feelings (for nature, life, the earth, or the universe) included in a wilderness experience in addition to the more tangible values of recreation. These emotions are probably developed through intimate and extended experiences with wilderness, and may be supplemented by learning about the ecology or history of the wilderness area. The neat classifications of these more subtle feelings presented in this and other studies probably involve personal value judgments.

LITERATURE CITED

1) Blackburn, Benjamin. Trees and Shrubs in Eastern North America. Oxford University Press. New York, 1956. 358 pp.

2) Bultena, Gordon L. and Taves, Marion J. Changing Wilderness Images and Forestry Policy. Journal of Forestry, Vol. 59, pp. 167-171.

3) Bureau of the Census. Current Population Reports, Consumer Income, Series P-60, #42. U. S. Government Printing Office, June 12, 1964. 4 pp.

4) Burch, William R. Two Concepts for Guiding Recreation Management Decisions. Journal of Forestry, Vol. 62, pp. 707-712. October 1964.

5) California University, Wildland Research Center. Wilderness and Recreation. Outdoor Recreation Resources Review Commission Report #3. U. S. Government Printing Office. Washington D. C., 1962. 325 pp.

6) Clawson, Marion. Methods of Measuring the Demand for and the Value of Outdoor Recreation. Resources for the Future, Washington D. C., 1959. 36 pp. (Reprint #10)

7) Dana, S. T. Research in Forest Recreation. U. S. Government Printing Office. Washington D. C., 1957. 39 pp.

8) Diess, Charles. Geology of the Bob Marshall Wilderness. In: Guide to the Bob Marshall Wilderness. U. S. Forest Service, Missoula, 1958. 36 pp.

9) Douglas, William O. Of Men and Mountains. Harper Brothers. New York, 1950. 338 pp.

10) Garrison, Lemuel A. Managing Human Use of Parks. Parks and Recreation Magazine. American Institute of Park Executives. January, 1964. (Multilithed reprint, 4 pp.)

11) Grass, Yearbook of Agriculture. U. S. Government Printing Office. Washington D. C., 1948. 892 pp.

12) Hausman, L. A. The Illustrated Encyclopedia of American Birds. Halcyon House. New York, 1944. 782 pp.

13) Jordan, David S. American Food and Game Fishes. Doubleday, Doran and Co. New York, 1937. 237 pp.

14) Kirkwood, J. E. Northern Rocky Mountain Trees and Shrubs. Stanford University Press. California, 1930. 403 pp.

15) Leopold, Aldo. Wilderness Values. Living Wilderness Magazine. Vol. 7,#7, March 1942. pp. 24-25.

16) Lucas, Robert C. Wilderness Perception and Use: the Example of the Boundary Waters Canoe Area. Natural Resources Journal, Vol. 3, #3. January, 1964. pp. 394-411.

17) Marshall, Robert. by C. J. Olsen. Glimpses of Bob Marshall Afield. Living Wilderness, Vol. 6, #6. July, 1941. pp. 10-11.

18) Merriam, L. C. Jr. A Land Use Study of the Bob Marshall Wilderness Area of Montana. Montana Forest and Range Experiment Station Bulletin #26. Missoula, Montana, 1963. 190 pp.

19) National Park Service. A Back Country Management Plan for Sequoia and Kings Canyon National Parks. U. S. Department of the Interior, National Park Service. Washington D. C., 1963. 106 pp.

20) Olson, Sigurd. The Spiritual Aspects of Wilderness. from Wilderness, America's Living Heritage. Ed. by David Brower. Vail-Ballou Press Inc. San Francisco, 1961. pp. 16-26.

21) Pengelly, W. L. The Art of Social Conservation. Naturalist, Vol. 14, #3. Minnesota Natural History Society. Minneapolis, January, 1964. pp. 4-15.

22) Pengelly, W. L. Elk Population Problems in the Bob Marshall Wilderness Area. Cooperative Wildlife Research Unit. Montana State University, 1960. 60 pp. (Multilithed)

23) Reid, Leslie M. Outdoor Recreation Preferences. Michigan State University, 1963. 288 pp.

24) Slusher, Edward, 1965. Personal correspondence.

25) Snyder, Arnold P. Wilderness Area Management. U. S. Forest Service, Region 5. San Francisco, 1960. 63 pp.

26) Steele, Robert. The Role of Forest Fire in the Bob Marshall Wilderness Area. Montana State University, 1960. 32 pp. (Multilithed)

27) Swan, K. D. Fauna and Flora of the Bob Marshall Wilderness Area. in Guide to the Bob Marshall Wilderness. U. S. Forest Service. Missoula, Montana, 1958. 36 pp.

28) U. S. Forest Service. Backpacking in the National Forest Wilderness. U. S. Government Printing Office. Washington D. C., 1963. 31 pp.

29) U. S. Forest Service. U-1 Regulation. Forest Service Manual, Title 2300. Washington D. C., 1958. pp. 2321-2322.

30) Wagar, J. Alan. Estimating Numbers of Campers on Unsupervised Campgrounds. U. S. Forest Service Research Paper, NE-18, 1964. 7 pp.

31) Wilderness Act. Public Law 88-577, 88th Congress, S. 4. Washington D. C., 1964. 7 pp.

32) Wright, Philip L. Checklist of the Recent Mammals of Montana. Proceedings of the Montana Academy of Science, 1951, Vol. 10, pp. 47-50.

APPENDIX A

SURVEY AND POST-TRIP QUESTIONNAIRES

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

All information to be tallied by interviewer. Date_____
Location_____Type of Party (Horse, Back-pack, _____) 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?

___100,000 acre size (about 10 x 15 miles)
___Free of roads
___Motor boats
___Motels
___Few people
___Motor scooters
___Guided party
___Supply center
___Timber cutting
___Horses
___Staying out overnight
___Chain saws
___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 Mountaineers ___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 during this trip in the wilderness or back country? (Give respondent card A)

___Fishing
___Hunting (not Glacier)
___Hiking
___Mountain Climbing
___Swimming
___Motor Scooter Riding
___Rock Climbing
___Primitive Camping
___Horseback Riding
___Boating
___Skiing
___Nature or Wildlife Study
___Photography
___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 wilderness (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 accommodations) ___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

Forestry School
Montana State University
Wilderness Users Study, 1964
Post-Trip Questionnaire

1) Did you stay in the Bob Marshall Wilderness as long as you had intended when I met you?
If not, why?

2) Did you engage in the outdoor activities you had intended to on this trip? If not, why?

3) How could existing facilities (trails, fences, bridges, campgrounds, etc.) in the Bob Marshall Wilderness be changed to be consistent with wilderness as you would like it?

4) Were you satisfied with this wilderness trip into the "Bob Marshall"? If not, why?

5) What kind of activities do you think the Bob Marshall Wilderness is best suited for?

6) Do you plan to take other wilderness trips?

In the Bob Marshall _____, why?

In other wilderness areas _____, why?

7) About how many wilderness trips like this have you taken?

8) In general, what do you think about the number of people using the Bob Marshall Wilderness?

Too many? ____. About right? ____. Would be o.k. with more people ____.

9) Briefly, what do you think about this questionnaire?

(Thanks very much, Bill Bradt)

APPENDIX B

ANSWERS TO QUESTIONS #4, 6, AND 4a.

4. What does the word wilderness mean to you? In your opinion, where does the wilderness begin?

F:JWM:7/15 (Sex:Initials:Date of interview)

Uncontaminated by man--and you don't find it here. It's not with a large group.

Where there is no mechanized transportation. It is uncivilized country.

F:GTC:7/19

Well it is wild, no civilization and just as it was--the Bob Marshall with trails and bridges is not really wilderness. They say wilderness is for all to enjoy, but this wilderness is only used by those who have enough gumption or money to get here; the average person could not possibly take advantage of something like this. Garden clubs and groups like that get all excited about saving these areas for all to use, but all of us couldn't come here.

Although we weren't at the boundary, it was even more wild at North Fork Falls than at White River Flats, which is more like ranch country.

F:JM:8/19

A place off the beaten path where there's not too many people and nature still holds its own.

About 15 miles from Monture Ranger Station coming this way, because the country is just about as rugged on that side as on this side.

M:LRM:6/27

To get away from cares, trials and tribulations of everyday life.

When I leave the highway, it's a challenge to get away and do something different like our ancestors. The Swan Valley was wilderness before highway was put in.

M:DC:7/14

Back where there are no roads.

Seeing the country and everything.

M:DRT:7/14

Unchanged. In the original state.

At Holland Lake.

M:JB:7/15

Things you wouldn't see on the outside. Uninhabited, take precautions. It's an intriguing word.

On the pass.

M:BP:7/15

Uninhabited, unspoiled.

It begins when you leave logging areas. When you've got a road, you've got a logging area.

M:TS:7/23

Do not need many signs--average person knows little about area or wilderness.

Wild country, couldn't get through. Not too many people. Rugged. Effort to enjoy it, must <u>struggle</u>.

Starts somewhat at Benchmark--but really at West Fork River. Don't really feel it until get to higher country.

M:TP:7/24

To keep this son of a gun this way. It's a place a guy can get the hell away from it all.

At Benchmark.

M:AH:7/26

Getting into areas in which a lot of natural laws are operating by themselves. Anyplace where there are no roads and someone has to make an effort to get in. It's related to the effort you have to make.

M:GF:7/27

Unspoiled country--peacefulness--what land was like years ago--the way flora and fauna was in past.

Begins right out of Monture--very beautiful area--wildlife.

M:DN:7/27

Basically untouched by any of our--airplanes, motor boats--subsist off land--miles and miles without seeing man or his signs--forest primeval.

Some miles from Benchmark--used to no trails. Free of restrictions.

M:SK:7/29

I look for minimum number of people and unspoiled country. I like to get out in the mountains, there's a great amount of aesthetic value.

It has to be off on a trail no special distance, but away from civilization, period. I've been 2 miles back in California, but didn't see people so it was wilderness to me.

M:SS:8/2

I've been in Montana all my life and when you get back into wilderness areas, you're not supposed to be using motorized vehicles.

I can't say. I've been flying over these mountains for years and I could probably better say if I were forced down in the middle of it.

M:BS:8/2

I wouldn't call this a wilderness, this is pretty well knocked out with trails, etc.

Uncontaminated--the first place we come to that leaves civilization completely behind.

M:JC:8/2

Way back, no people, no roads. A good place to hunt and fish.

Three-fourths mile south of here. The minute I get in here.

M:WW:8/9

It's something like isolation, independence or something; however, I usually come with someone else.

It begins, as far as I'm concerned, just this side of the Benchmark Ranger Station.

M:DE:8/9

Primitive areas untouched by civilization.

Back at Benchmark.

M:RLS:8/10

It is the original outdoor nature.

With the mountains.

M:BF:8/12

That's a good question.

Where the roads end.

M:TK:8/16

Lack of multiple-use, nature fakers.

At Upper Holland Lake.

M:FM:8/17

A remote area where you can see the natural way virgin woods is, undisturbed by man--no commercial things.

At Blackbear.

M:GK:8/17

Unpopulated.

Where you leave civilization.

M:RN:8/17

A vast area that not many people have come into or see, a big area.

When you start getting away from civilized land.

M:RB:8/17

A place that's kept free from people.

At Condon--when we went over the pass.

M:WCR:8/18

Non-metropolitan; metropolitan means hustle, bustle, and rush. This trip is a complete change from our normal way of life. It's nice to get back to the bathtub and easychair, but we don't want the conveniences of home. I consider (1) sanitation, (2) fire prevention, and (3) safety to sum up the need of the people that like this kind of life. Signs and trails are adequate.

Where the automobile can't go, assuming scooters are barred.

M:MRW:8/18

The use of the wilderness is picking up (have to get off the trail more for other parties; more airplanes). In spite of this, the wilderness has a great aesthetic value proven to me and proven by increased use by the public. We should keep it like God made it for aesthetic value.

It's a mental proposition--some days it starts a long ways away from home--some days it starts right in my back yard (I live on the edge of town)--sometimes in a farmer's back yard while pheasant hunting and not in a remote spot at all. Sometimes I get back here and don't even want companions. I'm a better man when I get back to town. To me it's a matter of survival--wilderness may teach us how to get along with fellow man and teach us things we may not know about. We're not getting along well today and the story is here if anyone wants to read it.

Life in this age of fast moving development makes people feel they are more important although actually they are becoming less important. The wilderness makes better people--I came from the gutter up through wilderness and I don't belong to any church.

M:BSW:8/18

You see more stuff as it really is. In the park every thing is cleaned up and out here you come to a camp and it's just like it really is.

M:DH:8/18

A place where there isn't any transportation besides your feet or horses.

Where the roads quit and you can't get in except on foot.

M:DS:8/20

Wilderness is just the way it was put on this earth and without the wildlife you don't have wilderness--it takes trees, fish, game, etc.

It should include more country (Woods Cr. Hogsback to Twin Buttes and the Lincoln Backcountry; one mile from the road).

M:CT:8/20

Find nobody practically (keep vehicles out).

Where vehicle travel is stopped.

M:RFR:8/22

A primitive area, undeveloped and in a natural setting. A place you can't take motorized vehicles into.

At the Benchmark Ranger Station. The scenery really doesn't change much between there and here.

M:JD:9/8

Someplace where you don't see too many people and no powered transportation.

Shaffer is wilderness; just in from Monture.

M:HM:9/14

The natural state of the world before anyone got in to screw it up.

When you get away from people, houses and roads.

M:BF:9/17

A primitive natural environment.

Right out of Holland Lake, between here (Upper Holland) and Holland Lake is more primitive than the interior of many wilderness areas.

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) ?)

F:JWM:7/15

I think it's getting away from people--I have to see a lot of people. Maybe you understand, there's something much more important than you are. The bigness. It's a soul-satisfying experience for me. The experience of seeing game is all fun. It is seeing things that belong in the wilderness. I enjoy fishing and enjoy releasing them--they're beautiful. I illustrate photos and write about my trips.

There should be some supervision of hikers to see what kinds of camps they leave.

F:GTC:7/19

I like horses, and although I like hiking, horses are faster; and I can't do well hiking. I like having the horses for companionship, too.

I like hiking, but it would be pretty hard for me to do something like you're doing.

F:JM:8/19

It's a mode of transportation. I feel it's a good way to travel if you can stand it. It's the only way to come around some of those ledges.

M:LRM:6/27

Nothing. I like hiking.

M:DC:7/14

There's always something to see around the next bend.

Sometimes it's O.K. if you're going a long way.

M:DRT:7/14

It's quiet, and you can cover a lot of ground; it's refreshing and you can carry supplies with you.

It's alright, but most people don't have enough time for hiking. You can see more area by horseback.

M:JB:7/15

Nothing other than bringing in provisions.

I would like to hike; I could see and hear more.

M:BP:7/15

I don't like hiking, but I like the camping.

I think it's fine.

M:TS:7/23

Don't really like to walk, but like next view around turn; flower photography, changing scene.

Don't care much about horseback riding except in case of necessity.

M:TP:7/24

I don't especially care about it back here; they're for transportation only. You can see much more country by horseback.

It's O.K., you're alone and you can get away from the hubbub; when I get back here, I forget everything that exists.

M:AH:7/26

It's a combination of two things: a safe and convenient way of moving around, and psychologically it is the same way that the wilderness was originally penetrated. Wilderness is more than a love of nature, it is a stake in the origin of the country. We wanted the kids to come out here. I'll admit that most of their interest in the wilderness is as they see it--fish, wild flowers, wildlife, etc. There is also a value of wilderness for those who never see it. It is a part of the American character.

(did not ask)

M:GF:7/27

Can get into areas can't get in otherwise. Enjoy working with horses.

Also like backpacking and the exercise.

M:DM:7/27

Chance to see country, freedom, completely own boss.

Fun way to travel--but have never done it.

M:SK:7/29

It's a novelty for us.

I enjoy hiking, it's a freeness, you're not going anywhere and it's slow enough to see things. You can stop when you want to.

M:SS:8/2

I just enjoy getting up here and away from populous areas; these other guys like to fish, but I like to come here and look around and see the scenery.

(did not ask.)

M:BS:8/2

The country and atmosphere.

It's all right if you have them.

M:JC:8/2

Looking at the scenery and smelling the mountain air. The rest at the end of the trip.

I like it, except for the one I have at home; it's the easiest way to travel.

M:WW:8/9

The fishing is best where it isn't accessible by car; and being out like this is a hobby anyway, like camping.

I like it, I used to be around them when I was younger.

M:DE:8/9

It feels so good when I quit.

I wouldn't do it; we even ride horses fishing.

M:RLS:8/10

I don't like to hike much; I like the scenery, the trees and flowers; I like to see animals, we see sheep, deer, and bear here occasionally.

(did not ask)

M:BF:8/12

That's a hard question, I've been on them practically all my life.

It's all right--you can't get very far, though.

M:TK:8/16

It's faster and you can carry more gear.

It's fine if you have the time and you're an experienced camper; you can get more places.

M:FM:8/17

Nothing; it's a way to get in.

The only way I like to hike is for hunting or to look at scenery; I like to ride.

M:GK:8/17

The country if you had time to see it. But we've been pushing pretty hard. There should be more paths around here so we can get out and see things.

It sounds like a good idea, it's easier.

M:RN:8/17

The country that I saw.

I think it's O.K. as long as there isn't too many.

M:RB:8/17

The wilderness part of it, where there isn't any road and kind of frontier like, and no people especially.

It's pretty good. You can stay in longer if you have them and it's a lot more enjoyable.

M:WCR:8/18

The scenery.

Hiking is all right if you like it, but I don't like to hike.

M:MRW:8/18

It gives you a chance to see while you're traveling, and the companionship of the horses.

I feel it's real good--that's how I went in to Anaconda Pintlar and took hikers in to the Chinese Wall. It's a good way to see it if you have the time and energy. I carried 33 pounds into Anaconda Pintler despite a heart attack and doctor's orders not to do it.

M:BSW:8/18

There's a lot to see that you can't see in the park; it's interesting to see how the flood worked.

It's O.K.

M:DH:8/18

Just seeing the country.

M:DS:8/20

I like packing, getting outdoors, camping, getting out on trails, and seeing the country. That's about the only thing we use our horses for.

I still like to hike.

M:CT:8/20

You have time to see where you're going and relax a little bit.

I like to hike, too--especially out in the hills.

M:RFR:8/22

I like the scenery.

It's fine, I'd just as soon go by horse than walk.

M:JD:9/8

We don't see too many people. Seeing the country, but people is the main thing. There is plenty of beautiful country in Yellowstone, but it's ruined by too many people.

M:HM:9/14

You can pack more grub and go farther.

I like it, it's a big thing, you can get at the country the natural way; and you don't have to worry about logs in the trail.

M:BF:9/17

It's the only way to see the country and do what you want to do.

I'd rather ride than walk.

4a. Of the following list, which things are important for wilderness in your opinion?

A) 100,000-acre size, about 10 x 15 miles

F:JWM:7/15

Yes; I would say more because the fringes are always encroached upon.

F:GTC:7/19

Yes; but that's kind of small.

F:JM:8/19

Yes; at least that or there wouldn't be much wilderness to them; you could walk across in a day.

M:LRM:6/27

Yes; but that's not very big for a wilderness.

M:DC:7/14

Yes.

M:DRT:7/14

Yes.

M:JB:7/15

Yes.

M:BP:7/15

No; size doesn't have anything to do with it; the Missions are still wilderness.

M:TS:7/23

Yes.

M:TP:7/24

No.

M:AH:7/26

I think it ought to be considerably larger.

M:GF:7/27

Yes.

M:DN:7/27

Too small.

M:SK:7/29

Yes; at least.

M:SS:8/2

Yes.

M:BS:8/2

That's too small.

M:JC:8/2

I don't think that's big enough.

M:WW:8/9

It should be larger than that.

M:DE:8/9

Yes.

M:RLS:8/10

That's conservative; I don't know too much about the vast areas.

M:BF:8/12

It should be bigger.

M:TK:8/16

No; bigger if pure wilderness; it can be made more useful to everybody by opening more side trails.

M:FM:8/17

Yes.

M:GK:8/17

Yes; but bigger.

M:RN:8/17

Yes; it should be bigger.

M:RB:8/17

Yes.

M:WCR:8/18

M:MRW:8/18

No; back East there (are) areas only a mile wide along a river; wilderness is needed badly back East--we should take whatever we can get.

M:BSW:8/18

Yes.

M:DH:8/18

Yes.

M:DS:8/20

That's too small; this land back here is only good for recreation . . . it should be bigger because we can't go back to wilderness; therefore we should set it aside now or it will be gone forever; we can "develop" later if need be.

M:CT:8/20

That's not very much.

M:RFR:8/22

No; size doesn't determine it, it depends on what's in there; scenic country major criteria.

M:JD:9/8

It should be more by drainage, like the South Fork.

M:HM:9/14

Yes.

M:BF:9/17

Yes; size is important; 100,000 acres may be too big in some country and not big enough in other country.

B) Few people

F:JWM:7/15

Yes; I don't want to see anybody, but I wouldn't mind if they treated it the same way I do--treat it with respect, don't take too many fish, don't cut boughs, leave a clean camp; we should educate the people on how to treat beautiful country; how can we make people think; I'd be willing not to be able to come back here each year if I thought it would save the wilderness.

F:GTC:7/19

Yes; this may be in contradiction to all I've said, but it doesn't bother me.

F:JM:8/19

Yes; that has its advantages.

M:LRM:6/27

It is to be enjoyed by people.

M:DC:7/14

Yes.

M:DRT:7/14

No.

M:JB:7/15

Yes.

M:BP:7/15

Yes; make it tough so only a few people can get it.

M:TS:7/23

Yes.

M:TP:7/24

Yes.

M:AH:7/26

Yes.

M:GF:7/27

Yes, in general.

M:DN:7/27

Yes.

M:SK:7/29

Yes.

M:SS:8/2

Yes.

M:BS:8/2

Anyone should be able to use it that wants to, but there is usually few people; you have to work a little bit to get into it.

M:JC:8/2

No; have to have a few of them.

M:WW:8/9

No.

M:DE:8/9

No.

M:RLS:8/10

I enjoy it more in a small group, especially if you hike; but the wilderness should be kept as wilderness; it's nice to meet other parties, it gives you a feeling of fellowship.

M:BF:8/12

It don't make any difference how many come back here as long as they work to get back here, if they take care of themselves, and take care of the place.

M:TK:8/17

More, to be consistent with what I've said before.

M:FM:8/17

Yes.

M:GK:8/17

A good idea, but you can't stop people from coming in here.

M:RN:8/17

Yes.

M:RB:8/17

Yes.

M:WCR:8/18

Yes; maybe we're selfish because we don't want metropolitan life; that's the reason we go back here.

M:MRW:8/18

Yes; it shows that you're not just an old hermit and other people enjoy this also.

M:BSW:8/18

Yes; usually few people come, it's just the ambitious ones that try.

M:DH:8/18

Yes.

M:DS:8/20

Yes; as few as possible that's the reason we came back here, to be by ourselves.

M:CT:8/20

Yes.

M:RFR:8/22

Yes; as it's set up it's for the people to enjoy and see; I'm not an isolationist.

M:JD:9/8

Yes; the fewer the better, although there should be some; you should have to work to get here.

M:HM:9/14

You can't hold it against them; it's O.K. if they're neat and don't mess the area up.

M:BF:9/17

Yes, it's important.

C) Airplanes (helicopters)

F:JWM:7/15

No; only for extreme emergency.

F:GTC:7/19

No.

F:JM:8/19

No; there would be too many people.

M:LRM:6/27

Yes.

M:DC:7/14

No.

M:DRT:7/14

Yes; for emergencies only.

M:JB:7/15

No.

M:BP:7/15

No.

M:TS:7/23

No; only U.S.F.S.

M:TP:7/24

Yes.

M:AH:7/26

Yes.

M:GF:7/27

No.

M:DN:7/27

No.

M:SK:7/29

Only for rescue work.

M:SS:8/2

For emergency.

M:BS:8/2

Only emergencies, unless I owned an airplane.

M:JC:8/2

Yes.

M:WW:8/9

Just in emergencies.

M:DE:8/9

No; keep those helicopters out of here.

M:RLS:8/10

Yes; they're essential on occasion for emergencies.

M:BF:8/12

No.

M:TK:8/16

Yes.

M:FM:8/17

Yes; if used in the right way, you have to have them for fires, etc.

M:GK:8/17

No.

M:RN:8/17

No.

M:RB:8/17

No.

M:WCR:8/18

All right; they're all right at the disposal of people in emergency, but you should pay for that;

it shouldn't be furnished or someone would get a belly ache and ask for a free ride out.

M:MRW:8/18

Yes; for emergency use and administrative personnel only.

M:BSW:8/18

Just the U.S.F.S. because they know how to use them right.

M:DH:8/18

Only for rescue work.

M:DS:8/20

No; for emergencies only.

M:CT:8/20

No; I hate to hear them go over; sometimes it makes you think there's more of the crazy, screwy world.

M:RFR:8/22

No; that's commercializing it again.

M:JD:9/8

Just for emergency and Forest Service use.

M:HM:9/14

There shouldn't be any within sight; I don't even like to see them fly overhead.

M:BF:9/17

Not for the users, but some are needed for administration; low-flying aircraft are not in keeping with my idea of wilderness, and I would prefer not to have them.

APPENDIX C

INTERVIEWER'S ITINERARY

Trip #1

June	21	To Upper Holland Lake
	22	To Big Salmon Lake
	23	To Blackbear
	24	Searched for recreationists in Blackbear area
	25	Searched for recreationists in Blackbear area
	26	To Mid Creek
	27	To Blackbear (conducted one interview)
	28	To Big Prairie Ranger Station
	29	To Basin Creek
	30	Searched for recreationists in Basin Creek area
July	1	To Hahn Creek
	2	Searched for recreationists in Hahn Creek area
	3	To Jenny cabin
	4	Out over Pyramid Pass

Trip #2

July	13	To Upper Holland Lake
	14	To Big Salmon Lake (conducted two interviews)
	15	To Little Salmon Park (conducted seven interviews)
	16	To Salmon Forks
	17	Waited for recreationists to pass Salmon Forks
	18	To South Fork of White River
	19	To Needle Falls (obtained one interview)
	20	To Brushy Park
	21	To base of Chinese Wall at Moose Creek via Larch Hill Pass
	22	To Indian Point
	23	Searched for recreationists in Indian Point Area
	24	Conducted one interview near Indian Point
	25	To South Fork of White River
	26	To Big Prairie Ranger Station (conducted one interview)
	27	To Murphy Flats (conducted three interviews)
	28	To Shaw Cabin
	29	Out over Gordon Pass to Holland Lake

Trip #3

July	31	To Spotted Bear
Aug.	1	To Meadow Creek
	2	Conducted three interviews north of Meadow Creek

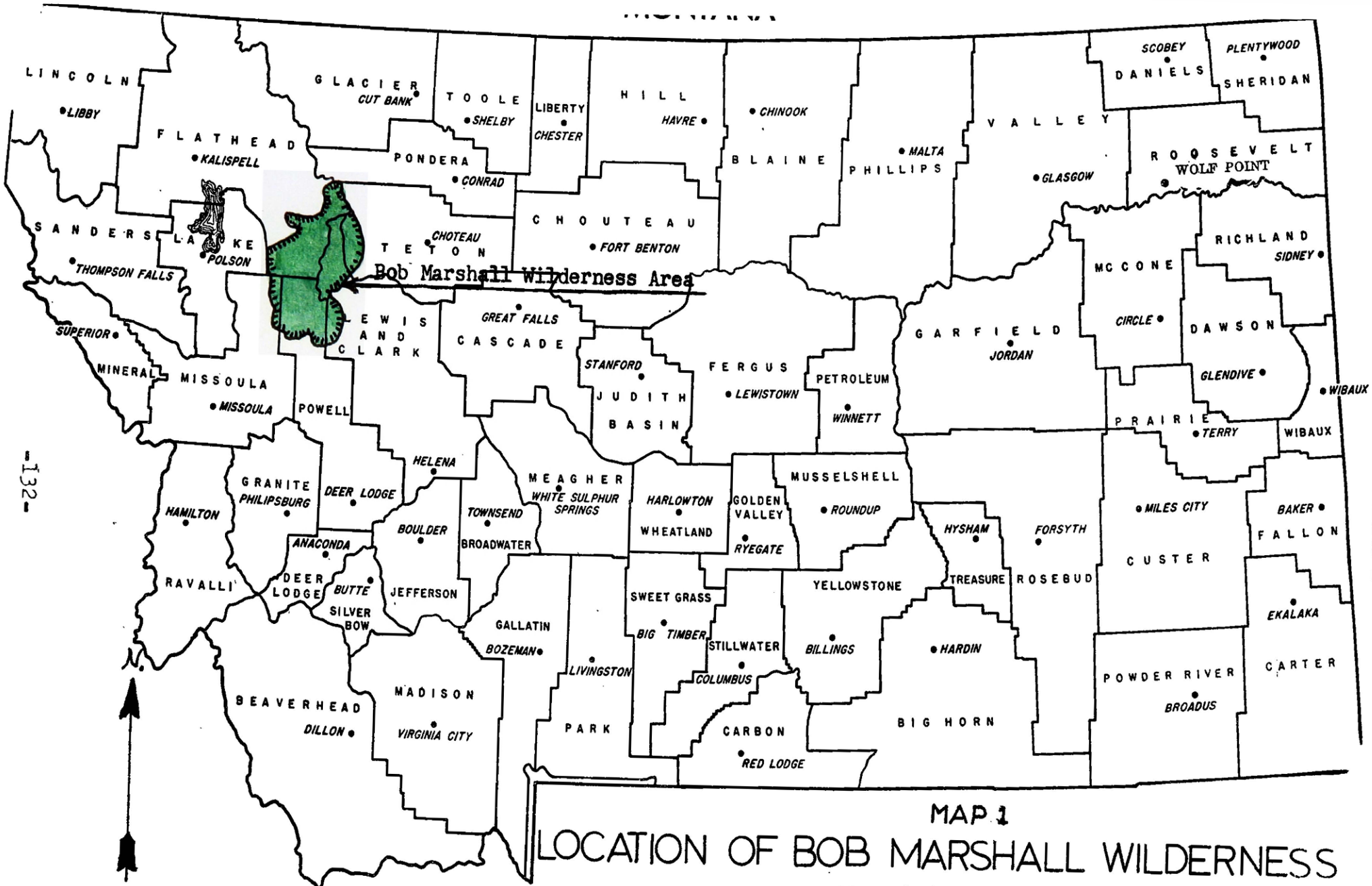
Aug. 3 Out to Spotted Bear

Trip #4

Aug. 9 To Pretty Prairie (conducted two interviews)
10 To Moose Creek (conducted one interview)
11 To head of Moose Creek at Chinese Wall
12 To Needle Falls via Cliff Creek (conducted one interview)
13 Looked for recreationists near Needle Falls
14 To South Fork of White River
15 To Salmon Forks
16 To head of Big Salmon Lake (conducted one interview)
17 To Little Salmon Park (conducted four interviews)
18 To White River Flats (conducted five interviews)
19 To Basin Creek (conducted one interview)
20 Conducted two interviews near Basin Creek
21 To Indian Point
22 Out to Benchmark (conducted one interview)

Trip #5

Sept. 3 To Upper Holland Lake
4 To Salmon Forks
5 To Little Salmon River (conducted one interview)
6 Looked for recreationists near Salmon Forks
7 To Big Prairie Ranger Station
8 To Hahn Creek (conducted one interview)
9 Searched for recreationists near Hahn Creek
10 To Shaw Cabin via Cardinal Peak
11 Looked for recreationists at Shirttail Park
12 To Koestler and George Lake via Swan ridge
13 To Feline Creek and Lena Lake
14 To Gordon Pass and Koestler Lake (conducted one interview)
15 Looked for recreationists near Koestler and Doctor Lakes
16 To Ptarmigan Peak and Shaw Cabin
17 Out to Holland Lake (conducted one interview



MAP 1

LOCATION OF BOB MARSHALL WILDERNESS IN MONTANA

No. 1052 — County Outline Map
STATE PUBLISHING COMPANY
Helena
3 100 Pads - QQ - WQ

LEGEND

BOB MARSHALL WILDERNESS AREA

COUNTY LINE

5/30/65
William C. Brabt