ABSTRACT

A STUDY OF THE DIRECT USERS OF THE GALLATIN NATIONAL FOREST
U.S. FOREST SERVICE, REGION 1, BOZEMAN, MONTANA

by Richard Thomas Marks

This report is a study of the direct users of the Gallatin National Forest, U. S. Forest Service, Region 1, Bozeman, Montana. It is based on the study of five major user groups: forage, timber, water, recreation, and wildlife. A user for the purpose of this study is defined as an individual, group, or association who had made use of goods or services provided from the Gallatin National Forest.

The objectives of this study were (1) to determine the population of users, individuals, and groups under the multiple-use program of a national forest: (Gallatin National Forest), (2) to determine the policy of the forest administrators in meeting the use demands for various user groups in conformance with the over-all multiple-use policy and the Multiple-Use -- Sustained Yield Act of June 12, 1960, and (3) to determine the national forest users' attitudes toward the policies of the Forest Service in administering the Multiple-Use -- Sustained Yield Act.

The study area selected for this study is the Gallatin National Forest, Region 1, United States Forest Service. The area includes intermingled private, state, and other publicly owned lands. The largest other owner of private land within the boundaries of the Gallatin National Forest is the Northern Pacific Railroad Company.

Forty-six detailed interviews were conducted in the summer and fall of 1965.

The average age for persons interviewed is 45-54, and, with the exception of the wildlife user group, the individual age groups are in proportion to years of use on the Gallatin National Forest. The average income for all five user groups is in the $5,000-9,999 bracket.

Only the timber and wildlife groups felt strongly that they were not treated equitably in relation to other users. Twenty percent of the timber group and 33 percent of the wildlife group indicate they are not treated equitably.

The timber, recreation, and wildlife groups all felt strongly that intermingled private land is a problem in the administering of the multiple-use program. The forage group felt that intermingled private ownership was not a problem, but this user group also owns considerable land within the Gallatin National Forest boundary.

All groups except forage felt that more publicity is needed on the multiple-use management program; for example, the 25 percent return to the counties of gross receipts from all sources.

In some of the basic areas of knowledge the author feels the various users should have a better understanding of administration purposes and objectives of the Gallatin National Forest.

The preferred choice of definition of multiple-use management by the five major user groups is this: "the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people, as a definition of multiple-use management."

A fair to good degree of access to the Gallatin Forest was indicated by the five user groups. Some concern was expressed by the forage group regarding pressures from other users and future grazing regulations.

Satisfactions and dissatisfactions with multiple-use management program brought out strong reactions from each of the five user groups. The forage group called for a range improvement program, better supervision of hunting camps, increased payment for use by other user groups. The timber group was concerned with increasing the size and number of recreation areas, length of time to develop a timber sale, cost and maintenance of forest roads. Within the water user group neither the municipalities nor the irrigation districts had a response to this question. The dude ranch and resort group was especially concerned with the high preferences given to the logging program and poor logging practices. Concern was expressed about the maintenance of quality in recreation areas and the improvement of well-traveled roads.

All of the groups had praise for various facets of the multiple-use management program, which ranged from satisfaction with clear cutting of timber in large blocks, which results in increased grazing for livestock and wildlife, to satisfaction with the $7.00 recreation fee.

The image of the professional forester held by the various users of the forest is highly variable, with the recreation and wildlife group selecting the broadest assortment of terms.

The survey results offer adjustment opportunities in the over-all Forest Service policy for administrating the national forests.

The results indicate that much can be learned in regard to the attitudes of users of a national forest by personal interview. The opportunity is also present for building these responses into multiple-use management decisions correlated with the wants and desires of the public.

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by

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FOREWORD

This report is based on the study of five major user groups: forage, timber, water, recreation and wildlife. A user for the purpose of this study is defined as an individual, group or association who had made use of goods or services provided from the Gallatin National Forest.

Detailed interviews were conducted in the summer and fall of 1965 to determine the nature of the attitudes and concepts held by the many individual users and user groups in regard to multiple-use management of a national forest.

The investigation was made possible by fellowships from the Farm Foundation of America and Life Members of the Great Falls Garden Clubs, Great Falls, Montana.

The Gallatin National Forest, Region One, constitutes a logical entity because of its complexity and diversity of uses covering all five major uses of a national forest.

ACKNOWLEDGEMENT

Research requires advice, guidance, and assistance from a variety of resources. The persons, groups, and agencies named below, and numerous others, have contributed to this project and the author takes this opportunity to offer his humble thanks.

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CHAPTER I

INTRODUCTION

The U. S. Forest Service has been confronted with the problem of reconciling different user groups and their conflicting viewpoints since the establishment of the Forest Service in 1905.

This study is an evaluation of attitudes of the direct users of a National Forest.

Several authors have written about the problem of single, multiple, and dominant users of a National Forest (Ottoson, 1963). Others have written about the Federal Lands, their use and management (Clawson and Held, 1957). Also, the U. S. Congress enacted the Multiple-Use -- Sustained Yield Act of 1960 which calls for the deliberate management of our national forests for multiple-use benefits of the five major-use areas: timber, water, recreation, forage, and wildlife.

In light of this new legislation it is obvious that forest resource managers will be confronted with new pressures and demands from the various user groups for their fair share of a particular multiple use.

Therefore, an analysis of the attitudes and concepts of the individuals and groups that are affected by Forest Service multiple-use management decisions, and the part these users play in the formation of policy and land use decisions, should be important to public land managers.

While a study of this nature spread over the entire Rocky Mountain region would be desirable, practical considerations of time and funds limited the study to a single National Forest.

The Gallatin National Forest takes its name from the Gallatin River which was named by Lewis and Clark in honor of Albert Gallatin, Secretary of the Treasury at the time of the Lewis and Clark Expedition. In 1899 an 80,000-acre tract of land, about ten miles south of Bozeman, Montana, county seat of Gallatin County, was set aside at the Gallatin Forest Reserve. In 1907, Congress changed the name to Gallatin National Forest. In 1945, the Absaroka Forest to the East was consolidated with the Gallatin. The present area includes 1,700,166 acres. The area includes intermingled private, state, and other publicly owned lands. The largest other owner of private land within the boundaries of the Gallatin National Forest is the Northern Pacific Railroad Company. See Appendix 2.

The Forest Service manages the forest resources and protects them from fire, insect damage, and disease. During the forest fire season, the hot, late months of summer, look-out towers are manned and fire guards are on patrol. Outbreaks of timber-killing insects and diseases are controlled by logging and the use of insecticides. This same protection is afforded to private lands within the forest through cooperative agreements with the landowners.

Twenty-five percent of the forest's gross earnings from timber sales, grazing fees, land rentals, and water power is returned to the State for distribution to counties having national forest land. This money is used to help maintain public schools and roads. Another ten per cent of gross receipts is used for construction and maintenance of forest roads and trails. Sixty-five per cent remains in the Federal Treasury.

The Gallatin National Forest, Region One, constitutes a logical entity because of its complexity and diversity of uses covering all five major multiple uses of a National Forest as documented in appendices 9 and 10.

Objectives

What attitudes and concepts the users of a National Forest have towards the multiple-use management program are virtually unknown from a scientific standpoint. This study was undertaken in recognition of the need to determine quantitatively and qualitatively the nature of the attitudes and concepts held by the many individual users and user groups in regard to multiple-use management of a national forest. The three specific objectives of this study are:

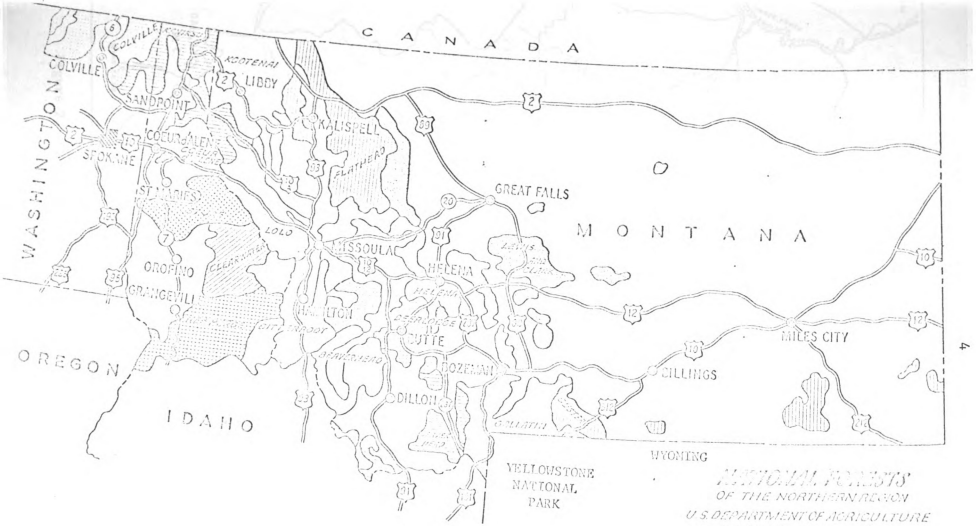
1. To determine the population of users, individuals, and groups under the multiple-use program of the Gallatin National Forest.

2. To determine the policy of the forest administrators in meeting the use demands for various user groups in conformance with the over-all multiple-use policy of the Multiple-Use -- Sustained Yield Act of June 12, 1960.

3. To determine the national forest users' attitudes toward the policies of the Forest Service in administering the Multiple-Use -- Sustained Yield Act and the implications for adjustments of this program on the Gallatin National Forest.

Study Area

The national forest selected for this study is the Gallatin National Forest. The Gallatin National Forest is located in the main drainage headwaters of the Yellowstone, Gallatin, and Shields Rivers. The northern boundary of Yellowstone National Park constitutes the southern boundary for the Gallatin National Forest (Figures 1 and 2).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GREAT FALLS
WASHINGTON
LOLO
MISSOULA
MONTANA
HELENA
ORofino
CLEARWATER
GRANGEVILLE
BUTTE
MILES CITY
BILLINGS
OREGON
BOZEMAN
DILLON
IDAHO
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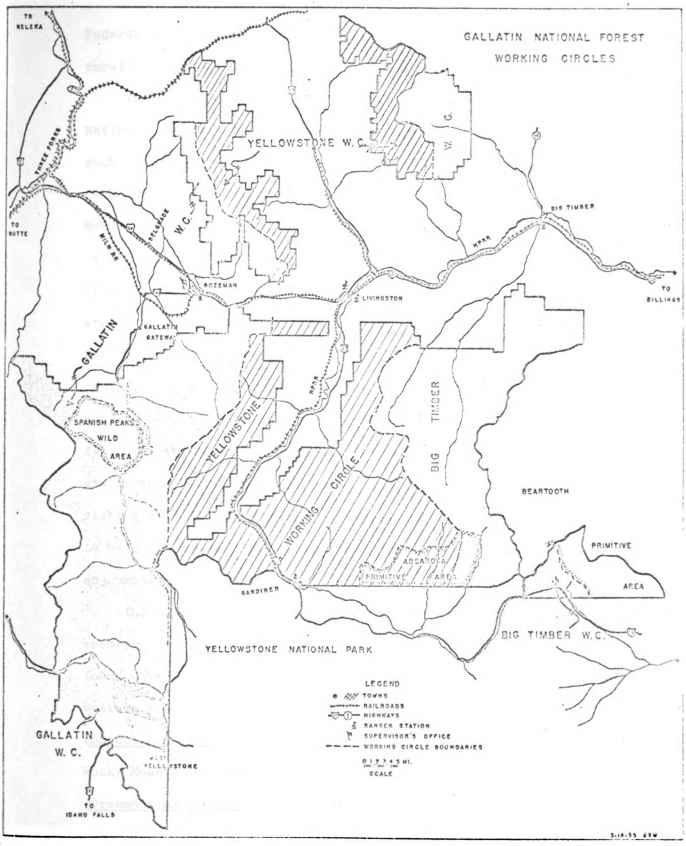

Figure 2. Gallatin National Forest Working Circles.

Federal Treasury, according to U. S. Department of Agriculture Agricultural Handbook No. 20, revised July, 1964.

There is a wide range of recreation opportunity in the Gallatin National Forest. There is much of interest for the botanist, the rock collector, the paleontologist, the photographer, the sports enthusiast, as well as the sight-seer. Of special interest is the Madison River Canyon Earthquake Area near Ennis and West Yellowstone where the 1959 quake caused a huge slide and left other spectacular features in the canyon. There are three primitive areas: the Spanish Peaks, the Beartooth and the Absaroka, which are rough, wild and unspoiled. There are dude ranches, resorts, cabin camps, and improved campgrounds for the vacationer. For the ski enthusiast, Bridger Ski Bowl, twenty miles north of Bozeman, is one of the best ski areas in the country. Appendix 9 shows that visits to Gallatin National Forest totaled 2,895,500 in 1964, consisting of 1,482,700 man-days. Purposes of the visits, grouped under 14 headings, show that the vast majority of visitations were for general enjoyment and sightseeing.

The entire area of the Gallatin National Forest is big game country. Here, too, is some of the finest trout fishing to be found anywhere. The forest is the home for elk (Cervus canandensis), western mule deer (Odocoileus hemionus), white-tailed deer (Odocoileus virginianus), pronghorn antelope (Antilocapra americana), Rocky Mountain Bighorn Sheep (Ovis canadensis), and mountain goats (Oreamnos americanus). Brown bear (Ursus middendoriffi) and some

grizzly bear (Ursus horribilis) also make their homes in the Gallatin. Upland game birds include the ruffed grouse (Bonasa umbellus), and the larger blue grouse (Dendragapus obscurus); and ducks and geese can be found in great numbers on Hebgen Lake.

Timber from the Gallatin benefits local residents as well as industries many miles away. The annual harvest is planned so that it does not exceed the growth of young timber. Lodgepole pine, Pinus contorta, is the principal commercial species; Douglas fir, Pseudotsuga menziesii, is second. Pulpwood, sawtimber, power poles, houselogs, and fence posts and poles are the major timber products harvested.

Defoliating insects and bark beetles are present throughout the timbered areas and must be kept under control. Dwarf-mistletoe, Arceuthobium americanum, is present in almost all of the lodgepole pine, Pinus contorta, stands.

The number one natural resource in the West is water; without it, farms, ranches, industries, and towns would virtually disappear. The water supply for the Gallatin Valley comes almost entirely from the forest.

Another major use of the Gallatin National Forest is grazing of domestic livestock. Each summer large numbers of sheep and cattle are fattened on the lush mountain range land of the Forest. Only a portion of the yearly growth of forage may be grazed safely each year; the part that is left provides winter range for wild game and insures the well-being of the range. In appendix 10, some insight is gained

into the diversity of provisions made for grazing on the Forest alone. A system of grazing permits is used, but is complicated by the intermingled private ownership.

National forests have had the longest record of constructive land management, and the concept of multiple land use has been applied to them rather fully. Operation Multiple Use is designed to produce the most for the many; to produce recreation, wood, water, forage, and wildlife in keeping with the potentials and limitations of the land and the social and economic human needs.

Procedure

For the purpose of this study a user is defined as an individual, group, or association making use of goods or services provided from the Gallatin National Forest. Five major user groups are recognized: forage, timber, water, recreation, and wildlife. Within these five major user groups are sub-groups which by nature of their use of the Gallatin National Forest fit categorically into one of the five user groups.

Forty-six detailed interviews with users of the Gallatin National Forest were conducted in the summer and fall of 1965 as allocated in Table 1.

Four questionnaires were discarded because of the incomplete answers. All of these were within the forage user group. In the water user group, the author interviewed officials of all three of the municipalities which obtain their water from the Gallatin National Forest. The author also reduced the sample of water irrigation districts

to three from the actual population of six, feeling that this size of sample was adequate. Two of the winter sports areas were eliminated because one had been inoperative, and the other ski area was not established on the Gallatin National Forest, but only adjacent to it. Organization camps were cut back to two due to the fact that the dude ranch and resort group had adequate sampling coverage. The campground camper-user group was dropped completely because very few $7 recreation stickers were sold. Those campgrounds that required the $7 permit were actually vacant or had very little use.

In his "Problems Analysis Research in Forest Recreation," Dana (1956), stated that "Probably the best way to get the answers is to ask the users." This was the approach the author used, and the results are encouraging. Only one individual refused to complete the questionnaire either personally or by mail. See Appendix 8.

Sampling Procedure

In view of time and limited funds available, the author decided that 50 direct users could be interviewed. The allocation of the sample to user group categories was made proportional to the square root of the population in each user group category, allocated according to maximum possible binomial variance.

Selection of owners for interview was made by random numbers drawn from a box. Each user was identified through the records of the Gallatin National Forest and assigned a number and had an equal change of being drawn for possible interviewing.

Table 1. Interview categories, sample allocation and actual sample of Direct Users of the Gallatin National Forest, 1965

USER GROUP	TOTAL POPULATION	SAMPLE ALLOCATED	ACTUAL SAMPLE
Forage			
Cattle Grazing	225	12	10
Sheep Grazing	23	3	3
Timber (Forest Products Plants)			
Sawmill	7	3	5
Pulpwood Producer	2	2	
Treating Plant, Pole & Post	2	1	
House Log Producer	2	1	
Water			
Water-Municipality	3	3	3
Water-Irrigation District	6	3	3
Recreation			
Winter Sports Center	3	1	3
Organization Camp	2	3	
Dude Ranch	25	5	7
Resort	32	6	5
Wildlife			
Hunting	6	4	7
Fishing	6	3	
	344	50	46

Characteristics of User Groups

Forage. Forage users are ranch operators who graze either cattle or sheep on the Gallatin National Forest under a leasing arrangement explained in Appendix No. 6.

Timber. This user group included sawmill owners, pulpwood operators, wood treating plant and house log operators who had purchased wood material from the Gallatin National Forest under Forest Service timber sale agreements and policy.

Water. This user group includes water municipalities and irrigation districts who manage reservoirs within the boundaries of the Gallatin National Forest. The water is then distributed to the home owner or rancher and a charge is made for the specific amount used. Currently no fee is charged by the Forest Service for the water which originates on the watershed either in the form of snow or rain and eventually through run off flows to the reservoir for ultimate use.

Recreation. The recreation user group includes a winter sports center, organization camps, dude ranches, and resort operators. The fees that they pay are based on a percentage of the profit if the facility is constructed on national forest land, and grazing fees for the number of horses used in the packing of guests into the back country.

Wildlife. This user group includes both hunting and fishing organizations. Both hunters and fishermen purchase an annual license to harvest game and fish in Montana. The individuals in these two categories also belong to one or more organizations for annual membership

fee of 2-10 dollars. As members they elect a set of officers who carry out the objectives of the organization and meet with Forest Service officials on a regular basis to discuss multiple-use programs affecting wildlife.

CHAPTER II

LITERATURE REVIEW

It would be impossible to present a complete review of literature on multiple use. During the past few years, nearly all issues of the Journal of Forestry, American Forests, and other journals and publications dealing with natural resources have had articles on the theory and practice of multiple-use forestry. The most relevant document pertaining to multiple use is the Multiple Use Act which was enacted by Congress in 1960.

Defining Multiple Use

A review of literature indicates that there is considerable misinterpretation of the Multiple Use Act under which the Forest Service operates. For example, Adams (1956) declared that multiple use to a layman has come to mean free public recreation more than anything else. Orell (1962) had the following to say about the layman's definition of multiple use: "To the half informed man on the street multiple use means only the right to hunt, fish, camp, and sightsee on forest lands."

Orell (1962) stated that the industrial forester's definition of multiple use is "the accommodation of a maximum of other compatible uses with a single use." He asserted that the highest single use of commercial forest lands is growing trees for successive timber harvests. Shanklin (1962) declared that the multiple use policy statement issues by owners of timberland along the Allagash River in Maine shows that they have and will continue to manage their lands primarily for production of wood fiber.

Duhnrack (1960) believes that the U. S. Forest Service's concept of multiple use is "the combining and fitting of resources in a pattern of harmonious action, producing a sustained yield of all multiple values to the optimum obtainable." Multiple-use forestry for national forests as defined in Public Law 86-517 is quoted by Shanklin (1962): "Multiple use means: The management of all the various renewable surface resources of the national forests so that they are utilized in a combination that will best be used for all the American people and not necessarily the combination of uses that will give the greatest dollar return or greatest unit output." In an editorial appearing in the April, 1960, issue of American Forests, Dana was quoted as defining multiple use as "the management of all the resources on a given property so as to give the maximum satisfaction to the owner." He also stated that satisfaction can be of social, personal, or monetary nature. The author feels that this definition is the most appropriate.

The term "multiple use" to many of the direct users of the Gallatin National Forest has connotations of being a new key phrase, but according to Secretary of Agriculture James Wilson's letter of instructions to Pinchot in 1905, when the forest reserves were transferred from the Department of the Interior to the Department of Agriculture, the terms water, wood, and forage were well mentioned.

> "All of the resources of the new reserves are for use, and this use must be brought about in a thoroughly prompt and businesslike manner, under such conditions only as will insure the permanence of these resources. The vital importance of forest reserves to the great industries of the Western States will be largely

> increased in the near future by the continued steady increase in settlement and development. The permanence of the resources of the reserves is therefore indispensable to continued prosperity, and the policy of this department for the protection and use will invariably be guided by this fact, always bearing in mind that the conservation use of these resources in no way conflicts with their permanent value.
>
> "You will see to it that the water, wood, and forage of the reserves are conserved and wisely used for the benefit of the home builder first of all, upon whom depends the best permanent use of lands and resources alike. The continued prosperity of the agricultural, lumbering, mining, and livestock interests is directly dependent upon a permanent and accessible supply of water, wood, and forage, as well as upon the present and future use of their resources under businesslike regulations, enforced with promptness, effectiveness, and common sense."

Applying Multiple Use

Most authors appear to be in agreement that multiple use is a planning concept applicable to large areas rather than to each acre within a forest holding. VonCiriacy-Wanthrup (1938) said that multiple use should refer to large acreages with each acre allocated to its optimum use since the concept of multiple use does not require that campers, fishermen, sheepherders, hunters, etc., simultaneously utilize each acre, but does require equitable distribution of water for recreation, timber, and wildlife resources existing in an area. Connaughton (1959) agreed that multiple use is a planning concept applicable to large areas taking into account all the various resources and utilizing those which return the maximum benefit.

Pearson (1940) and Greeley (1953) believe that land classification or zoning is necessary for multiple-use land management. The primary

use or usage should be a basis for land classification management, uses not interfering with the latter would be allowed. According to Cliff (1961) ". . . multiple use management presents the most promising solution to the problem of our shrinking forest land base and increasing needs of the products of the lands."

The largest problem facing multiple use land management probably is the measurement and assessment of value for resources such as water, wildlife, recreation, and wilderness areas. Connaughton (1943) stated that the benefits of watershed protection are often remote and hard to visualize. Wagar (1964) mentioned the difficulty of measuring the changing recreation and wildlife values. Beasley (1961) analyzed present methods of determining values for recreation resources concluding at the present there is no perfect method.

Lammi (1951), Gregory (1955), Zivnuska (1961), and Hagenstein and Dowdle (1962) discussed methods of multiple use land allocation within the frame work of economic analysis. Gregory (1955) analyzed multiple use in terms of traditional theory of "joint production." Some authors have also discussed comparisons of multiple-use values at various levels of measurement: stumpage level, raw product, consumption level, income level, and capital investment. They all agree that optimum allocation occurs when returns per unit in point of time are equal for the various resources employed.

Amidon and Gould (1962) report in their study the possible impact of recreational development on timber production in three California national forests. This study indicates that the recreation capacity of three forests analyzed can be increased ten times the present total,

and at the same time sustained yield capacity from productive forest land would be reduced to only 13%; thus, multiple use management policy as applied to these 3.5 million acres of national forest land can provide about 40,000,000 visitor days of recreation plus almost 240,000,000 board feet of timber at sustained-yield capacity. The public benefits of such joint productions seem large, even if individual acres within each forest are devoted to a single use.

Even greater efficiency may result whenever land management practices can be devised to use some acres for more than one product. Cushwa (1963) said if management for multiple use takes positive action before, not after the need arises, then it is deliberate and carefully planned integration of various forest land uses so that each use interferes with the other as little as possible and supplements the others as much as possible.

Cushwa (1963) in his study of forest recreation estimates and predictions of the North River area, George Washington National Forest, Virginia, brings out the important point of minimizing interference in regard to what is the importance of seasons in planning for area use:

> "We have seen that 44 per cent of the total recreational use occurred during three weeks of the openings of the fishing and hunting seasons. During this period, 76 per cent of the hunting and 60 per cent of the fishing use occurred. Furthermore, 35 per cent of the camping use occurred during these three weeks. Obviously there will be a sharp increase in demand for camping sites and facilities to take care of hunters, because camping is the largest single use of the area. Facilities which can be used until late fall or early winter should be considered."

Determining Limitations of Multiple Use

The carrying capacity for forest land in all wildlands has a point of diminishing return. Wagar (1964), in his study of the carrying capacity of wildlands for recreation, reaches these conclusions:

1. Recreational carrying capacity is not an absolute value inherent solely on the ecology and original characteristics of each land area.

2. Limitation of use at some carrying capacity is not an end in itself but is a means to an end.

3. For purposes of determining recreational carrying capacity, the objective of managing wildlands may be stated as the sustained production of the highest quality recreation that is possible at acceptable costs.

4. Accepting limitation of use is only one of the costs that can be paid for quality recreation.

5. Limitation of use will be appropriate only when it is an acceptable cost for quality recreation.

6. In the absence of measured data, it is impossible to estimate the effects that increased crowding of a wildland area would have on human judgments of the quality of recreation.

7. Management procedures may allow both high-quality recreation and high rates of use if they:

   a. reduce conflicts between competing uses,
   b. reduce the destructiveness of people,
   c. increase the durability of areas, or
   d. provide increased opportunities for enjoyment.

8. Relationships between vegetation, visitor use, and site factors can be described and show promise as tools for predicting the impact of visitors on recreation areas.

9. Once determined, carrying capacities can be applied in a variety of ways.

10. Finally, it is concluded that, while research can provide various types of information for guidance, final definitions of recreational carrying capacity must be of an administrative nature.

Realizing that our land and all of our natural resources have limitations, and the competition for this land is increasing each day, we are thus faced with the situation of unhappy special interest groups as we limit and allocate the use for the various user groups. Although it may be easy to shift the decision making the responsibility to impersonal equations based on formulas devised by research scientists, we still must have the opportunity for human judgment when we decide what use should be made of our national forests. The Northern Rocky Mountain Region and more specifically, Montana, is an area that has been seeking a more rapid rate of economic growth and resource use in the past few years. With the Gallatin National Forest completely within the boundaries of the State of Montana, the use and the development of the resources on this national forest are dependent upon the over-all development of the Northern Rocky Mountain Region, and specifically, the economic development in Montana.

Undoubtedly, some of the greatest group pressures that the Forest Service will witness in the region will be from the recreation users. The Outdoor Recreation Resources Review Commission's report, January, 1962, had these important findings to report:

1. The kinds of outdoor recreation most people take part in today are relatively simple.

2. What people now do for recreation is not necessarily what they want to do in the future.

3. Water is a focal point of outdoor recreation.

4. The recreation problem is not one of a number of acres, but of effective areas.

5. People want outdoor recreation close to home and for most people home is in the fast-growing metropolitan areas.

6. As mobility continues to increase, more people will travel farther to enjoy outstanding scenic, wildlife, and wilderness areas. These places are where you find them, and they provide outdoor experiences of memorable quality which cannot be duplicated elsewhere.

7. There are many overlooked outdoor recreation resources in urban areas.

No suitable management program for our nation's natural resources soils, waters, forests, rangelands, and wildlife can succeed without public support. Technical knowledge in recent years has constantly been far ahead of public acceptance. This characteristic of American conservation is epitomized by the imaginary character who is reputed to have said "don't confuse me with the facts, my mind is already made up." The importance of good communications and good public relations cannot be over-emphasized.

Recreation Versus Timber Production

Very few published studies have rigorously investigated the impact of recreation on timber production. Most of the articles published on this subject are the opinions of their respective authors.

Stewart (1961) in planning recreational development for the University of Maine Forest, a tract of 1700 acres in Stillwater, Maine, estimated that only 5 per cent of the forest land was required to provide recreational facilities deemed adequate to fulfill the needs for the next twenty years.

Seiker (1955), Woodard (1957), and Rosecrans (1957) cited the need for timber harvest in recreation areas. If stands are not harvested, hazards such as fire, insects, and diseases and personal safety from falling limbs can occur. Harvest of mature and defective trees is essential to protect the remaining trees and people in the recreation or surrounding area.

Woodard (1957) and Morriss (1961) discussed timber management policies for recreation areas. Many authors have cited the need for carefully planned logging operations on recreation areas to assure minimum damage to area.

Pearson (1940) believed that the conflict between timber and recreation could be solved by the education of the public. He stated that the public must be taught a well managed selection forest is a place of beauty.

Dermody (1965) in his study of recreationists in Yellowstone National Park discovered some interesting attitudes of park users, and many of these people are users of the Gallatin National Forest.

He noted that the recreationists he questioned prefer to consider themselves "roughing it," though their indicated preferences as to facilities, roads, and the fencing of campgrounds were evidence to the contrary. Dermody felt, though, that the recreation users in Yellowstone were satisfied with the results of Park Service planning in relation to concessions, roads, interpretive programs, and primary attractions. He felt that a reservation system would meet with serious opposition.

Concepts Regarding Taxation, Grazing and Recreation

Considerable amount of acreage of private land is found intermingled among the federal land within the Gallatin National Forest. American Forest Products Industry (1964) calls for an intensive study to classify lands for their proper long-term use and to establish a tax base which will guarantee long-term land productivity.

A new law in Connecticut provides for another plan for taxation. It provides for the valuation and taxation of farms, forestland and open space lands on the basis of actual use rather than a valuation based on the yardstick of a possible "highest and best use." This kind of taxation may not be the right direction because at stake is the principle of property taxation, not merely forest taxation.

Grazing

The controversy in regard to the Wapiti (Cervix canandensis), or elk as it is commonly called, is one of the never-ending items for discussion at sportsman, livestock, and Chamber of Commerce meetings. Emotion runs high at these meetings and the word of the big game biologists regarding the cause of range deterioration is often met with closed ears and minds. Streeter (1965) states that the present situation is one of complex interactions of biotic, edaphic, topographic, microclimatic, and moisture factors. The heavy elk usage of the restricted winter range, coupled with soil texture and topographic factors, creates a compacted soil indicated by a high built density.

Detailed knowledge of the elk range is necessary for any wise administration of this boundary area of northern Yellowstone National Park and the adjoining Gallatin National Park. This is not to say that worthwhile research has not been done, but the point is that a complete integrated study which would involve the analysis of all the economic, social, and ecological factors that are associated with the area should be considered in one composite study.

The Forest Service has been aware of the deteriorating condition of the winter range not only on the Gallatin National Forest, but also on all the lands under their jurisdiction.

Since public lands are a source of forage for animals, the President's Materials Policy Commission (1952) asked several public agencies to prepare estimates of potential improvements which can be effected on these lands. These estimates also are used as a guide for possible improvements on privately owned grazing land in the same general areas.

The Forest Service estimates that the carrying capacity of the national forest range lands can be raised before 1975 from its present 7.7 million to 10 million animal-unit-months--a little more than a 30 per cent increase. Present carrying capacity is likely to decline, however, from 7.7 to 6 million animal-unit-months unless, according to the Forest Service, although range management could be intensified by improvements costing 51 million dollars. To raise the carrying capacity to the projected 10 million animal-unit-months will require in addition a reseeding program on 4 million acres at a cost of 40

million dollars. The combined total costs of improving Forest Service lands thus would be 90 million dollars.

Federal Grazing Permits

Degn (1965) in his "Evaluation of Federal Grazing Permits on Montana Cattle Ranches," summarized his results as following:

> "All net returns comparisons indicated greater permit values to smaller ranch operators than to large ranch operators. Nearer to optimum input factor balance gained through the possession and use of federal grazing permits of the small ranches in the privileged ranch category is the probable explanation for the high permit values of these categories. Additional grazing land, through federal grazing permits, apparently gave the ranchers in the small size category of the privileged ranch study, advantages over the comparable size group in the non-privileged study through better land use and nearer to optimum ranch organization. This greater difference between net returns of the small size categories of the two studies resulted in high permit values. To exemplify, ranchers dependent upon small irrigated pasture acreages for their feed supply might well be expected to raise output of livestock disproportionately with the addition of small amounts of dry range (federal grazing permits) to relieve the grazing load on the irrigated pasture.
>
> "The larger size groups of the non-privileged ranch study on the other hand were apparently more readily able to achieve good input balance without the aid of federal grazing permits. This resulted in smaller differences between the net returns of the two studies and therefore smaller AUM permit values."

In addition, Degn stated that policy makers should be cognizant of several components of permit value such as: the portion needed for risk of tenure in federal land use, the portion that has already been capitalized into the value of the rancher's base property, and the portion that is brought about by a nearer to optimum input balance due to the use of the federal land.

CHAPTER III

MULTIPLE-USE OF OUR NATIONAL FORESTS

The peculiar nature and character of the Gallatin National Forest and other federally owned lands, the fact that they have been available for the use of private individuals and groups but not used by government enterprise as such, has resulted in a pattern of use compatible with private land ownership. Each form of land ownership in the United States has stimulated and benefited the other. However, it would be misleading to say that major management problems have not emerged as a result of the mixed pattern since this study of direct users of the Gallatin National Forest indicates many areas of conflict.

The user of the federal lands is often a user and an owner of private lands, and his use of the one must be closely related to his use of the other such as is the case with livestock operations in the West. The fact, too, that federal land units are variously interspersed with private land units has often presented problems for the federal land administrator; this is the case of alternately owned section (640 acres) of land in the Gallatin National Forest (Figure 3).

Up until 1900, use of the federal land was often without specific legal authority. Until the national forests were brought under constructive administration following the Act of 1897, little or no legal authority existed by which the federal lands could be used or their products harvested. There was authority for land disposal, although this was often unsuited to the types of land and the uses desired, but authority to use the federal land itself was lacking.

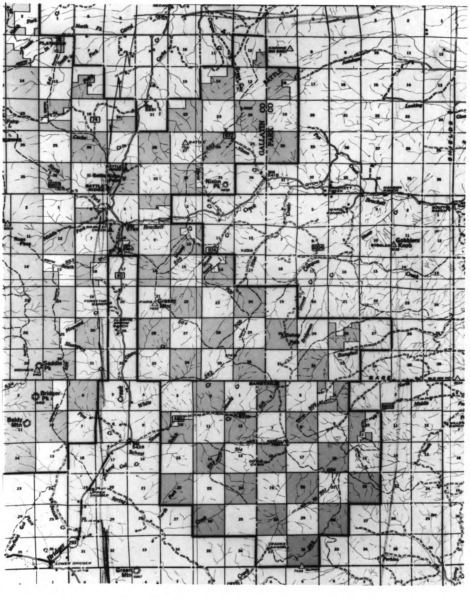

Figure 3.--Intermingled private ownership within the boundary of the Gallatin National Forest is often referred to as checkerboard ownership. This section of the Gallatin National Forest illustrates this point which is typical of many of the national forests. Shading indicates Forest Service ownership.

While the federal government had never provided specific legal authority for many of the uses, neither had it made a serious attempt to stop them. This is true of the grazing of livestock on federal land, especially in the early days of public land use. In other cases, as in the building of roads across public land, the law was vague and constuted an open invitation to the public to avail itself of the federal land without specific authorization. In still other cases, as in the extensive cutting of timber in trespass, especially in Minnesota, Wisconsin, and Michigan, the federal government made sporadic and generally ineffectual attempts to stop or curb the trespass. The General Land Office tried repeatedly and with great courage to stop trespass; but the Congress and the people generally were either indifferent or positively encouraged it. Congress was unwilling to provide funds to enforce policy or legal means whereby lumbermen could get land or timber cutting rights suited to their needs.

Uses of the federal land by private individuals have been classified broadly as follows into four groupings (Clawson & Held, 1957):

1. Uses yielding commodities or services of direct commercial value to the user. These include chiefly:
    a) timber harvest;
    b) mineral production, including oil and gas, coal and other leasable minerals, as well as metals;
    c) forage harvest by domestic livestock;
    d) occupancy for various business purposes, such as resort hotels, service stations and many others.

2. Uses yielding directly consumable services and satisfactions to the user, on the site. Because of custom, history, or for other reasons, many of these are available free of charge or for nominal charges. These include:
   a) recreation uses by individuals, in all aspects, including vacation residence:
   b) scenic uses;
   c) wildlife, for enjoyment or for hunting and fishing.
3. Uses yielding commodities and services that are primarily consumed off the site, and for the most part non-commercial. The chief use here is as watershed; the water may be valuable, but the watershed use generally does not yield direct revenue to the landowner.
4. Miscellaneous uses of all kinds, of which rights of way, for many purposes, are perhaps the most important.

Timber from federal land is sold on a competitive bid basis, with the contract awarded to the highest bidder. In many cases the resource or the use is available to the first comer, with a price more or less at the market value. Mining claims can be staked by the first person, and obtained after meeting the requirements of the law.

Single, Multiple and Dominant Uses

Actually, "single" and "multiple" uses represent the extremes of a continuum of methods of use and administration. There is virtually no land, not even national parks, with only a single use; all land upon which precipitation falls is watershed, all land except the most extreme

desert has some wildlife, nearly all land has some recreation and scenic value, and most land has some forage or tree growth that can be harvested. Even if the latter uses were excluded, as from most national parks, watershed, wildlife, and recreational values remain. This situation applies also to privately owned land. However selfishly the lumberman or rancher might manage his land in his own interest, some of its watershed and wildlife values remain, though perhaps in greatly diminished importance.

The basic principle of Forest Service multiple-use management is the conscious management of the land to the end that it can provide several uses at the same time. The process is not haphazard; it is deliberate, as illustrated in figure 4. But no matter how seriously multiple-use is sought in public land administration, there must be some scale of preferences for choice among uses in those situations where full use for one purpose interferes with full use of another. There may be situations in which the best management for watershed purposes is also the best management for wildlife, or when the best management for timber production and harvest is also the best management for watershed, and so on. When this is true, there is clearly no need for a scale of preferences among uses. But in the most usual case full enjoyment of one use means some reduction of another. Then the question arises: Which use, or which degree of one use, should be sacrificed to another use or to some degree of another use?

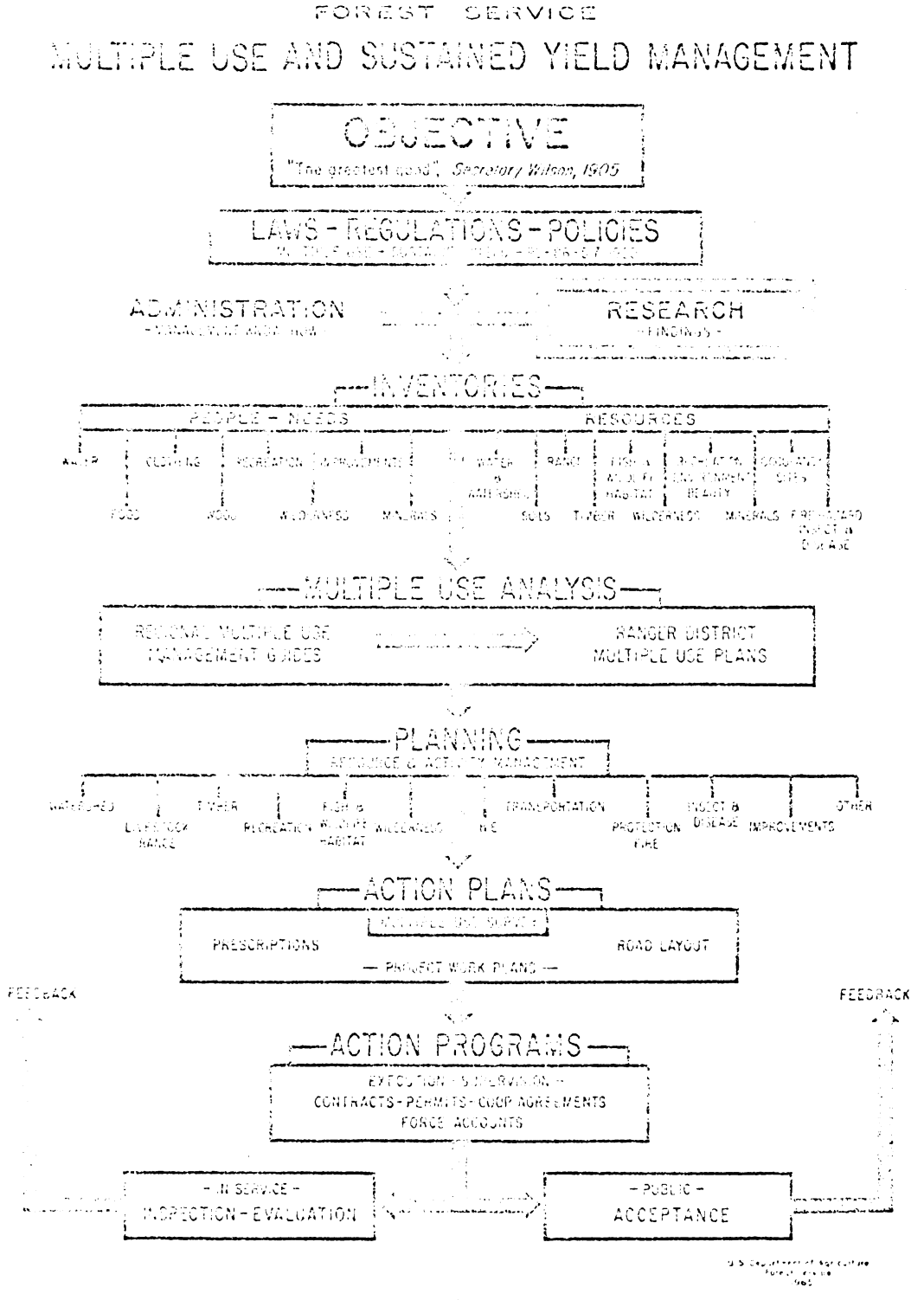

Figure 4. Multiple-use and sustained yield management planning diagram.

The Nature and Pattern of the Various Uses

In some cases a use of federal land may be spread more or less evenly over the entire area of land allotted to it such as a grazing lease or a cabin site; in other cases a use may be highly concentrated in certain well-adapted areas. Where use is concentrated, as with swimming beach areas or a ski development, special problems of administration and management are involved.

The watershed use of land applies more or less equally to all the land in a federal land management unit; as with the rain and snow which falls on all the land, though not equally or uniformly. But land on which precipitation is relatively great is, from one viewpoint, usually important as a watershed area.

Erosion hazard also varies on the Gallatin National Forest. Some areas have a greater erosion potential than others. From this viewpoint, areas with high erosion potential are important watershed lands and call for intensive management. In some areas the balance between vegetation and other forces holding soil in place is so precarious, as against the rainfall and other forces leading to soil movement, that relatively slight changes in land management methods and practices may lead to seriously accelerated erosion. Therefore, the need for long range planning or "the greatest good for the greatest number in the long run" becomes increasingly critical.

Certain wildlife tend to govern their own movements--especially is this true with elk (Cervus canandensis), on the Gallatin National Forest and Yellowstone National Park. Man can influence their distribution in various ways, but always within some limits. Animals and birds will go

where food and water and shelter adapted to their needs are to be found, and where disturbances from man and predators are at a minimum. Yet, their use of federal lands tends to be a widely dispersed one.

The grazing of livestock under lease arrangement is also more or less proportionately distributed, in relation to available forage, over the entire area allotted to this use. This so-called free run of the national forest is being changed by the installation of fences and the placing of the range into definite pastures.

Forestry, in the sense of positive management of land to produce forest products, may be practiced over relatively large areas. Fire control and disease and insect control, for instance, are necessary for the entire area. On the other hand, the timber harvest from such lands is likely to be concentrated on a definite rotation system based on a given timber management plan.

Recreational use of most federal lands is highly concentrated in developed areas. Most people actually use only very small areas in the sense that they walk over them, camp upon them, and hunt or fish on them. Usually the larger areas are seen only from a distance or they serve as buffer strips to give value to intensively used areas. There are a few people who use the larger areas, but this generally involves hiking or riding horseback for considerable distances, and the great bulk of visitors do not want to do this. Yellowstone National Park, according to national park administrators, was visited by 2,000,000 people in 1965 but only two per cent of the land area was utilized by 98 per cent of these visitors, and 98 per cent of land area was utilized by the remaining two per cent.

Actual mineral development of federal lands is also likely to be highly localized. Mineral occurrence is usually confined to specific areas and in many situations the surface use of land for mineral production is quite small, even when the value of the minerals is great. In other situations, however, mineral use may be destructive to surface values. For example, placer mining for gold, by use of dredges, completely destroys the surface values for many years and often indefinitely. To some extent the surface of the land may be restored after such destructive mining by application of suitable techniques. With preplanning, the restoration job is made easier and less costly.

The relationships of uses of federal land are brought into sharper focus when we consider these uses as they apply to a specific type of federal land. The national forests have enjoyed the longest record of applied land management, and the concept of multiple land use has been applied to them rather extensively for a recorded period of time. They contain a wide variety of physical conditions; in addition, pressures of nearby populations accentuate public need.

Grazing

Grazing of domestic livestock is one of the several uses of our national forests. Of the total area of 161 million acres in national forests (excluding Alaska), 62 million acres are used for grazing. Twenty-five million acres of these grazed lands also grow commercially valuable timber; figure 5 illustrates the distribution of the National Forests.

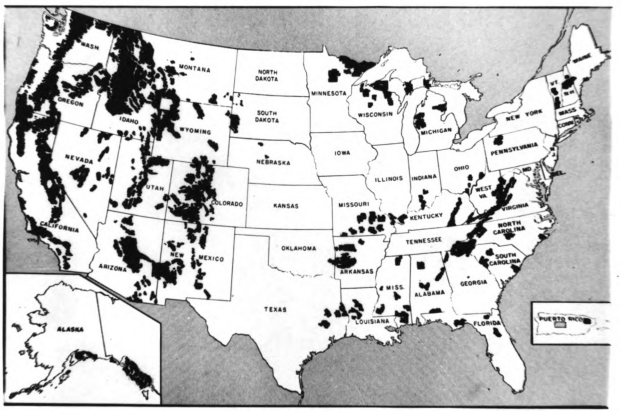

Figure 5.--Distribution of the National Forest in the United States and Puerto Rico containing nearly 181 million acres and lie within or across the borders of 39 states.

Wildlife

The Forest Service has always been concerned with wildlife values which they seek to protect and develop. In many states Forest Service employees serve as local game wardens with power to arrest violators. Wildlife numbers on national forests have increased greatly in the last 30-40 years, as they have also on other types of land and especially private land. The population of some game animals, deer in particular, is greater today than it was thirty or forty years ago, and in many areas is in excess of the available winter feed supply. This is one of the critical items in big game management. While many game species have not adapted so well to land settlement, the primary reason for the large increase in deer in recent years has been the protection from over-hunting and predators. Logging and other uses of land have often increased the feed for some game animals.

Timber Harvest

Timber harvest from national forests was small in the early years of Forest Service administration, but it rose gradually and steadily. In 1910, only about 0.5 billion board feet of timber were removed from the national forests annually. At that time most national forest timber was relatively far from the population centers and there was little demand for it. An ample supply of old-growth timber existed in private ownership, generally in more accessible locations, and often of higher quality, so that timber owners had little incentive to bid for national forest timber.

Recreation

The national forests, because of their variety of physical features, have come to be one of the prime recreational attractions of the nation, and their use for this purpose is certain to grow greater with the years to come (Brockman, 1959).

The volume of recreation provided by an area is not easily measured. The usual measurement technique is to count the number of persons who use an area and the length of time they use it, but this makes no allowance for differences in the quality of the recreational services obtainable. Most people derive greater enjoyment from one type of recreation than from another, and from one area than another for the same type of recreation. There might even be general agreement among large numbers of people that one area is superior to another for a particular type of recreation. But there are very few quantitative and accepted measurements by which the value of different recreation types and areas may be judged or rated. The output of recreation, therefore, is usually measured in terms of numbers of people and lengths of time, with no allowance for quality or value per unit of time. New and better survey techniques are being devised and evaluative research is bringing out information on recreation use that heretofore was impossible to obtain.

Watershed Utilization

One of the several purposes recognized by the Congress in authorizing national forests was protection of watersheds. Some people believe that, at least in large areas, this is their most important use and that it will become even more important as time goes on. National forests

often lie in high mountain country where total precipitation is greater and where the winter snows become the source of summer water supply.

Mineral Development

Usually the national forests have been open to development of minerals under the mining laws and the mineral leasing laws. In the early days of the West, considerable mining activity took place upon lands now within national forests. However, since valuable mineral deposits nearly always passed into private ownership, relatively little actual mineral production has taken place on national forests, except in isolated cases.

Other Uses

In addition to the major uses outlined above, the land in national forests is used also for relatively minor purposes of which right-of-way for private roads, electric power lines, and irrigation canals are perhaps the most important. Other minor uses, such as leasing for resort, summer home, and commercial and industrial sites are some of the miscellaneous uses that are currently not being encouraged by national forest administration.

CHAPTER IV

USER PROFILE

From an analysis of the Gallatin National Forest user interview schedules, data were compiled pertaining to age, educational background, years of use, income level, and attitudinal response of direct users toward multiple-use policy and administration of the Gallatin National Forest. The data are discussed first on the user group level, then are related to each other in a discussion of the user as an individual.

From Table 2, it may be seen that the timber and forage user groups included the youngest members within their ranks, with the recreation and wildlife groups pulling the average user age to 45-54.

Water users had by far the highest number of years of consecutive contact (Table 3). The fact that the wildlife group also averaged a relatively large number of years of continual use appears to support the idea that those economic enterprises (this would exclude recreationists) which serve the broadest segments of the public have the longest histories of continuous use. There is also an increase in educational levels attained as compared to consecutive years of use. The latter progression includes the recreation users, who may be said to include representatives of the general public in their own ranks.

Table 2. Ages of Individual Users or Owners of Firms Using Gallatin National Forest

Age	% of Total Sample [a]	Multiple-Use Category				
		Forage	Timber	Water [b]	Recreation	Wildlife
(Years)		Number of Respondents (percent)				
Under 25	4.35		40			
25-34	5.00	10	20			
35-44	23.10	30	40		33	10
45-54	34.30	40			33	80
55-64	18.00	20			33	10
65 & over	00.00					
TOTAL	84.75	100	100		100	100
Average Age 45-54						

[a] Total does not equal 100% because water category is not included.

[b] Includes only officers of water municipalities and irrigation districts.

All groups had relatively high formal educations (Table 3), with wildlife and recreation users the best educated. It is interesting to note that the relatively high number of years of formal education were compatible with even the most years of continuous use.

User incomes (Table 4) averaged in low levels by today's standards, despite the educational levels attained.

Table 3. Average Number Years of Education and Years of Use of the Gallatin National Forest for Each User Group

User group	Average number years of formal education of respondents	Consecutive years of personal and institutional use
Forage [a]	11.5	22.8
Timber [a]	12	16.3
Water [b]	---- [d]	52
Recreation [c]	14.7	22.5
Wildlife [c]	16.3	34.4

[a] Individual operators
[b] Water municipalities and irrigation districts
[c] Organizations
[d] Not applicable

Table 4. Average Individual Annual Income of Respondents

Annual income	% of Total Sample [a]	Multiple-Use Category: Forage	Timber [b]	Water [c]	Recreation	Wildlife
		Number of Respondents (percent)				
Under $2500	3.05					20
2500-4999	31.10	20			50	60
5000-9999	27.20	20	20		50	20
10,000-14,999	8.50	30				
15,000-19,999	2.82	10				
20,000-over	7.83	20	20			
TOTAL	80.50	100	40		100	100

Average Income $5,000-9,999

[a] Does not include water category; therefore, total does not equal 100%.
[b] No response on three questionnaires
[c] Not applicable

Wildlife and recreation users, generally the oldest and best educated users, are the two groups most affected in the short run by the use or misuse of the forest resource by the others. Here is where the balance pivots--the balance between the resource in its more or less natural state (esthetic appeal and wildlife habitat) and the environmental alterations brought about by the timber, forage, and water groups. The effect of the hunter and fisherman upon the forest is normally secondary to that of the latter groups.

If the sportsman's organizations considered in this study enjoy a healthy relationship with multiple-use administrators, it can be hoped that they will generate a like feeling among non-members who also come to the Gallatin National Forest as sportsmen. The conflict of special interests which begins to emerge in the tables of attitudinal responses clearly shows that no matter what the multiple-use administration does, some groups will not be satisfied.

EQUITABILITY OF USER TREATMENT ON FOREST

Only the timber and wildlife groups felt strongly that they were not being treated equitably in relation to other users of the same user groups of the Gallatin National Forest. Twenty percent of the timber group and 33 percent of the wildlife group indicate they were not treated equitably (Table 5). More than 90 percent of the total sample indicated a favorable response to this question of equitability of user treatment as compared to less than 10 percent who indicated an unfavorable reaction.

In relation to other user groups, the wildlife group also felt that they were not being treated equitably in relation to other user groups of the Gallatin National Forest, while the timber group gave a medium

to high response to this question. The recreation group responded medium to low to the question on equitable treatment (Table 6).

Table 5. Opinions of Respondents in Relation to Degree of Equitable Treatment in Relation to Other Users in the Same Group of the Gallatin National Forest

Reaction	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		(Percent of User Group)				
Favorable	90.5	100	80	100	93	67
Unfavorable	9.5		20		7	33
TOTAL	100.0	100	100	100	100	100

Table 6. Opinions of Respondents in Relation to User Group Treatment in Relation to Other User Groups of the Gallatin National Forest

Equality of Treatment	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		(Percent of User Group)				
Very High	0.0					
High	24.6	10	80	100		
Medium	37.4	80	20		20	40
Low	38.0	10			80	60
Very Low	0.0					
TOTAL	100.0	100	100	100	100	100

In Table 6, it is apparent that the recreation and wildlife groups are allied in stands opposite to the timber and water groups regarding opinion of the equity of treatment in relation to other groups, with the recreation users expressing the lower of the two opinions, percentage wise.

It is important to note that the extractors of timber, water, and forage can be regulated in numbers, as can the wildlife groups, more readily than the recreation group, which is governed largely by game laws based on sound biological practices. The tables show no influx of young members into recreation organizations, yet here is where new pressures on multiple-use administrators are most likely to originate.

REACTION TO INTERMINGLED OWNERSHIP

Since much of the land within the boundaries of Gallatin National Forest is privately owned, the question was asked: "Do you feel that the intermingled private land within the Gallatin National Forest is a hindrance to the Forest Service in administering the multiple-use program?" Only one group, forage, felt that this intermingled private ownership was not a problem (Table 7). The forage user group response was expected, since the group owns considerable land within the Gallatin National Forest boundary and leases land from the largest private land owner, which is the Northern Pacific Railroad Company (Table 7).

The timber, recreation, and wildlife groups all felt strongly that intermingled private land is a problem. A description of intermingled ownership is illustrated in Figure 3.

Table 7. Opinions of Respondents in Relation to Effect of Intermingled Private Land Within the Gallatin National Forest on Administration of the Multiple-Use Program

Effect Upon Administration	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		(Percent of User Group)				
Favorable	43.5		80	33	62	71
Unfavorable	56.5	100	20	67	38	29
TOTAL	100.0	100	100	100	100	100

PERCENT OF GROSS RECEIPTS FROM THE GALLATIN NATIONAL FOREST THAT ARE RETURNED TO THE LOCAL COUNTY TREASURER

This study indicates several areas of multiple-use such as timber harvest program, range improvement, and watershed management that may need more explanation to the forest users--especially the information dealing with the 25 percent return to the counties of the net receipts of the National Forest from timber sales, grazing fees, etc. (Table 8). Information such as this related the results of multiple-use management to the user in terms of benefits he will obtain the most directly; i.e., a contribution to the local tax base can be translated into better roads and schools as provided by Federal law at less cost to the taxpayer. In the case of the Gallatin National Forest, this is a significant amount of $37,295.75, in the 1965 fiscal report of the Regional Forester, Forest Service, Missoula, Montana, for the six counties within the forest boundaries of the Gallatin National Forest. Table 8 indicates the level of knowledge of this information by the direct users.

Table 8. Knowledge of Payments Made to the State by the Gallatin National Forest in Lieu of Taxes

User's Estimates of % of Forest Receipts Paid to Local Government	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		(Percent of Users)				
Less than 25	0.6			5		
25	6.0		20			25
26-50	0.0					
51-75	0.0					
76-100	0.0					
Don't Know	93.4	100	80	95	100	75
TOTAL	100.0	100	100	100	100	100

UNDERSTANDING OF ADMINISTRATION OF GALLATIN FOREST

The understanding of administration purposes and objectives of the Gallatin National Forest, as the user interprets the total program, doesn't correlate with the responses to other questions, where they were more vocal. As shown in Table 9, in answer to the question: "How well do you understand the purposes and objectives of the administration of the Gallatin National Forest?", five groups came out to a medium rank on the five-point scale pertaining to understanding the purposes and objectives of the Gallatin National Forest administration. In some of the basic areas of knowledge as indicated by this study, the author feels the various users should have a better understanding on which to base their opinions and would indicate a ranking below medium for all five groups. A better understanding might make users' opinions more compatible with a multiple-use management program because an understanding of the long-range goals would make the users more receptive to the multiple-use concept. See Appendix 7.

DEFINITION OF MULTIPLE-USE MANAGEMENT

When asked to pick one of five definitions of multiple-use management, at least one individual in all five major user groups selected the definition that indicated the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people. Choice number three, restrictive use, found more favor and was selected by 84 percent of the forage user group, and 21 percent of the recreation user group (Table 9).

More than 60 percent favored restrictive use and management in combination, which indicates a receptive attitude toward the means rather than the ends of a multiple-use program. No one offered any additional definitions of their own when asked. The term "greatest good" received only 20 percent. "Zoning" and "systematic blending" both were selected by fewer than 10 percent of the respondents.

Table 9. Opinions of Respondents in Relation to Definition of Multiple-Use Management

Multiple-Use Concept	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		Number of Respondents (percent)				
Zoning [a]	9.1				21	15
Systematic Blending [b]	9.7	8		40		15
Restrictive Use [c]	31.2	84			21	
Management in Combination [d]	30.0	8	80	20	36	31
Greatest Good [e]	20.0		20	20	22	39
Your Own Definition* [f]	0.0					
TOTAL	100.0	100	100	100	100	100

[a] Zoning for highest and best use
[b] Systematic blending and balancing of five multiple-uses
[c] Restrictive Use
[d] The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people
[e] Greatest good to the greatest number in the long run
[f] Your own definition*

*No one offered any additional definitions of their own when asked.

ADEQUACY OF ACCESS TO GALLATIN FOREST

User group attitudes about the specific area or areas on the Gallatin National Forest which the users were having difficulty obtaining access to varied from group to group, based on their use of the Gallatin National Forest. The forage group was concerned about the future grazing regulations and the pressures from other users. The timber group was concerned about the intermingled private land, timber access roads, and with specific drainages containing commercial timber. The water group gave no response to this question, while the recreation group was concerned with those areas adjacent to dude ranches or non-resident posted ownership. Finally, the wildlife groups seem to be well satisfied with the total Gallatin National Forest access situation. Area access was provided to the north in the Spanish Peaks area while the interviewing was in progress, and several people expressed satisfaction with this aspect of the multiple-use program of the Forest Service. One individual commented that the Forest Service is persistent in obtaining rights-of-way and this benefits all future users of the National Forest (Table 10). This response may indicate that problems of access apply to some degree to all groups.

Table 10. Opinions of Respondents in Relation to Access to Gallatin National Forest

Degree of Access	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		Number of Respondents (percent)				
Excellent	0.0					
Good	71.2	60	40	100	80	70
Fair	23.5	30	50		20	20
Poor	4.3	10				10
Very Poor	1.0		10			
TOTAL	100.0	100	100	100	100	100

SATISFACTIONS AND DISSATISFACTIONS WITH MULTIPLE-USE MANAGEMENT PROGRAM

In relation to dislikes or dissatisfactions with the multiple-use management program (Table 11), the following reactions from the forage group were noted: a desire for range improvement, a feeling of inadequate payment of use by other user groups, and a desire for better supervision of hunting camps. In comments to the author, they also felt generally that too much publicity would have a detrimental effect on wilderness areas, and that the multiple-use concept is exploited to get user groups fighting among themselves, an opinion not shared by the author.

The timber group was concerned with increasing the size and number of recreation areas, length of time to develop a timber sale, and the cost and maintenance of forest roads. Also, they felt concern with livestock numbers and the application and intensity of management of the multiple-use program.

Table 11. User Group Approval of Multiple-Use Management Program

Reaction	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water [a]	Recreation	Wildlife
		Number of Respondents (percent)				
Very High	0.0					
High	28.0	30	10	100	10	20
Medium	51.0	60	70		50	60
Low	17.8	10	20		30	20
Very Low	3.2				10	
TOTAL	100.0	100	100	100	100	100

[a] Water municipalities and irrigation districts

Within the water user group neither the municipalities nor irrigation districts had a response concerning degree of satisfaction except to say the Forest Service is doing a good job.

Except for the winter sports center and organization camps, the recreation user group was quite vocal on the question of dislikes and dissatisfactions. The dude ranch and resort group was especially concerned with the high preferences given to the logging program and low quality logging practices. They felt that sheep and cattle need attention with regard to the detrimental effect in alpine areas. Mechanized vehicles, in their opinion, should be restricted from foot and horse trails. Questions were raised by several respondents in regard to administration lag with the present and future multiple-use programs of the forest. Respondents within recreation group stated that preference should be given to quality recreation areas and the improvement of well-traveled roads.

Wildlife organizations were concerned with the siltation effect on streams. This group also felt that the Forest Service uses the various groups as a testing ground for too many of their decisions. Wildlife organization leaders disagreed as to whether big game or livestock created the overgrazing problem. Other users brought out the point that grazing of domestic stock has priority, but all damage is blamed on the elk. According to one respondent, big game have only 35 square miles for grazing while livestock have 435 square miles. Thus, there is a need for a clearer picture in the minds of wildlife organizations regarding amount of available range for both livestock and wildlife.

In expressing the reaction pertaining to satisfactions with the multiple-use management program of the Gallatin National Forest, four user groups were less vocal, and, as stated previously, water users said nothing.

The forage group was pleased with the logging operation phase of multiple-use management because more grazing became available for their livestock, especially in the block cutting of large areas of over-mature lodgepole pine. The sheep grazing respondents were satisfied with the multiple-use policy because it provides an opportunity for all users of the forest to employ the same area in some degree. The timber group was generally content.

Within the recreation user group the dude ranch operators were the most responsive and were generally satisfied with the Forest Service cooperation and zoning of uses. They recognized other uses of the national forest and felt that the Forest Service is qualified to run their business without outside interference.

The wildlife group was pleased with the $7.00 recreation fee (Table 13) and the opening up of new areas previously controlled by politically powerful groups such as livestock.

Most groups except recreation agreed with the multiple-use program. It is understandable that recreation would be most hampered by the actions of the other four. Even though answers of the recreation groups are not in complete agreement, the majority thought that the multiple-use program should receive more publicity. A few of the respondents had a wait-and-see attitude on the multiple use program.

USERS' SUGGESTIONS OF NEEDED ADJUSTMENTS IN USE OF FOREST

Several suggestions were obtained from users about possible adjustments in the multiple-use management program on the Gallatin National Forest.

Suggestions from the forage group were expanded timber sale program, broader fee schedule to include all users of the national forest, and better grazing without reduction of livestock number. Timber group members requests adjustment of road building specifications with fewer restrictions. They also want more staff on multiple-use planning. This timber user group also believe that elk are worth $500.00 per animal, and elk give more efficient return than livestock.

The water group suggested road maintenance of the Main Boulder road for easier access and restriction of motorized vehicles to certain watershed areas.

The recreation user group asked for more realistic multiple-use management and fewer access roads to the back country. One user even suggested the eventual elimination of cattle and sheep grazing. They

also proposed more modern methods of range improvement, such as fertilizing and reseeding damaged areas. According to several respondents, quality recreation should be stressed and measured instead of quantity of such numbers of recreation users.

The wildlife user group wants more access roads and more intensified control of the watershed along with more attention to the recreation potential. They disagreed with the Upper Gallatin Elk Herd Management Plan of the Forest Service, National Park Service, and Montana State Fish and Game Department (Appendix No. 3). The plan calls for inter-agency cooperation in maintaining a balance between elk and soil and water resources. If hunter harvest does not keep the herd at suitable level, some animals are to be live-trapped and transported elsewhere. In the latter case, the removal of live-trapped animals would reduce the highest possible hunter kill, and consequently, the highest possible economic return for the wildlife users.

USER OPINION ABOUT MAJOR PROBLEMS OR PROGRAMS NEEDING ATTENTION

In stating which of the major problems or programs should receive more attention on the Gallatin National Forest, the forage user group felt that a land exchange for the purpose of making a solid block of national forest land would be desirable for more efficient management. They suggested the grazing land should be fenced in order to develop a pasture rotation system of the national forest, which would provide an opportunity for rest-rotation and natural reseeding to take place.

The timber user group was especially concerned with road construction and maintenance, while the water user group thought that campgrounds needed improvement and better access roads.

The recreation user group was interested in trail maintenance, a need for additional access roads, garbage facilities and restrictions on vehicle travel. They were also concerned with the amount of money the Forest Service spends in relation to accomplishments.

The wildlife group considered the problem of access across private land worthy of attention, as well as better loop trail system to eliminate the need of backtracking on the same trail. Additional campgrounds on public land would improve relations with private landowners. They suggested more research on logging and grazing practices because of the need for quality water.

IMAGE OF PROFESSIONAL FORESTER

Users of the Gallatin National Forest drew several images of the professional forester from seven alternatives offered in the questionnaire (Table 12). The timber user group described the professional forester as a timber management specialist. The water user group selected forest protection specialist. The wildlife group selected all descriptive terms except the land-use planner. Recreationists selected four of the terms which signifies a broader image than the water and timber user groups. The forage group selected three terms: multiple-use land manager, timber manager, and watershed manager. Each user group tended to define the professional forester in terms of its own special interest.

Table 12. Opinions of the Respondents in Relation to Terms Which Best Describe a Professional Forester Who is Employed by the Gallatin National Forest

Term	% of Total Sample [a]	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		Number of Respondents (percent)				
Multiple-Use Land Manager	30.02	33			15	33
Timber Manager	11.00	8	100		23	8
Recreation Manager	1.20					8
Watershed Manager	4.40	8				14
Livestock Manager	3.83				8	8
Land-Use Planner	7.50				23	
Forest Protection Specialist	16.85			100		25

[a] Some respondents didn't react to as many choices as others, thus the total doesn't equal 100%.

ATTITUDE TOWARD $7 RECREATION FEE

Responses indicate that because of the availability of many free recreational areas, the $7.00 recreation fee didn't go over with tremendous success. Therefore, discarding the campground camper user group due to the small purchase of the $7.00 "Recreation Sticker" was necessary.

The $7 sticker entitles the holder and all other occupants of a private, non-commercial auto to enter any Forest Service campground, the National Parks, or other designated areas where fees are required. The Recreation sticker will be required in most developed recreation areas of the National Forests until after Labor Day.

There is no charge for hiking, riding, hunting, fishing, or other recreational uses of National Forests outside of designated charge areas.

The author observed that the campgrounds that were referred to as "Recreation Sticker Campgrounds" were actually vacant during the time of his field interview schedule, August through October, 1965. Only the wildlife user group was definitely in favor of the $7.00 recreation sticker (Table 13). According to the Bureau of Outdoor Recreation, the anticipated national revenue, which was approximately $35 million, only approximately $5 million was realized.

Table 13. Reaction of User Groups to $7.00 Recreation Fee for Use of Improved Campgrounds on the Gallatin National Forest

Reaction	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		(Percent of User Groups)				
In Favor	44.0	39	40	50	33	71
Opposed	35.0	39	20	50	33	29
Undecided	21.0	22	40		33	
TOTAL	100.0	100	100	100	100	100

ATTITUDE TOWARD WILDLIFE VS. LIVESTOCK NUMBER

In regard to wildlife vs. livestock numbers on the Gallatin National Forest, it was significant that 83 percent of the forage group wanted to leave both the same, while the wildlife group favored an increase in number of wildlife, and a decrease in number of livestock. The other three user groups--timber, water, and recreation--

split their selection three ways: to increase the number of wildlife, leave both the same, and to decrease the number of livestock. Evidently, all but forage wanted an increase in numbers of wildlife (Table 14).

Appendix No. 3 explains in detail the degree of cooperation between the Forest Service, National Park Service, and Montana Fish & Game Department in balancing wildlife use with available range and forage.

Half of the respondents favored increasing wildlife as the adjustment needed in terms of wildlife vs. livestock populations, with one-third supporting a "leave as is" philosophy. Examination of the composition of the figures in the "% of Total Sample" column again points to attitudes colored by special interest.

Table 14. Respondents' Opinions as to Adjustments Needed in Terms of Wildlife vs. Livestock Populations on the Gallatin National Forest

Adjustment Suggested	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water	Recreation	Wildlife
		Number of Respondents (percent)				
Increase Wildlife	50.04		40	50	29	39
Decrease Wildlife	2.00	8				8
Leave As Is	30.50	83	40	25	36	8
Increase Livestock	1.26	8				
Decrease Livestock	16.20		20	25	36	46
TOTAL	100.00	100	100	100	100	100

ADEQUACY OF CONTROL OF MOTORIZED VEHICLES

All groups except wildlife were concerned with the need for controls on use of motorized vehicles on the Gallatin National Forest (Table 15).

In accordance with the Wilderness Act of September 3, 1964, public use of motorized equipment such as trail scooters, chain saws, generating plants, power drills, or any other machine powered by a self-contained engine or motor is prohibited in the Wilderness and Primitive Areas in Northern Region National Forests.

The forage group felt that controls should be placed on all motorized vehicles on the Gallatin National Forest to the point of closing off some areas. The problem of littering was brought out and a lot of the blame was placed on the recreationist using motorized vehicles in the forest. This destructive type also apparently destroys information signs, leaves gates open, and fires unattended.

The timber group commented on the need for more two-wheel vehicles restrictions. They also wanted timber access roads to the Taylor Peaks and Spanish Peaks areas. The timber group also felt that right-of-way restrictions on both federal and private lands hindered road building.

The water group agreed with the forage group in restricting motorized vehicles to designated trails and roads. The water group also felt that off-trail travel damaged large meadows and grassland areas.

The recreation group was much more vocal than the forage, timber, and water groups. They believed silting resulting from erosion created by motorized vehicles and legal authority should be brought into effect to control motorized vehicles.

Table 15. Users' Attitudes Toward Sufficiency of Controls on Use of Motorized Vehicles in the Gallatin National Forest

Attitude Toward Present Controls	% of Total Sample	Multiple-Use Category				
		Forage	Timber	Water [a]	Recreation	Wildlife
		(Percent of User Group)				
Sufficient	65.5	36	60	80	71	100
Insufficient	34.5	64	40	20	29	
TOTAL	100.0	100	100	100	100	100

[a] Water municipalities and irrigation districts

COMPATABILITY OF OTHER USES WITH OWN USE

The following data are concerned with the compatability of interest or user groups with the primary use of the Gallatin National Forest. Again, this compatability, both within and between user groups, more clearly brings vested interests into focus.

The forage user group (Table 16) was compatible with those users that offered the least competition, such as the water-irrigation district, pulpwood logger, water-municipality and winter sports center. One respondent indicated compatibility with all other users except dude ranch and resort operators.

The timber user group felt that they were compatible with most other users except those in the recreation and wildlife user category. One respondent made the following comment in regard to compatibility, "they are all (compatible) if they pay their own way."

Table 16. Compatibility of Interest or User Groups with Alternative Uses of the Gallatin National Forest

Interest or User Group	Cattle Grazing	Sheep Grazing	Sawmill	Pulpwood Logger	Treating Plant	House Logs	Water-Municipality	Water-Irrigation District	Winter Sports Center	Organization Camp	Dude Ranch	Resort	Hunting Organization	Fishing Organization
	(Percent of Interviewees Indicating Compatibility With Own Use)													
Cattle Grazing	100	100	40	40	40	40	100	100	100	100	100	100	100	100
Sheep Grazing	20	33	40	40	40	40	100	33	0	0	30	40	0	0
Sawmill	30	33	100	100	100	100	100	33	0	0	0	0	0	0
Pulpwood Logger	30	0	80	80	80	80	100	33	0	0	0	20	0	0
Treating Plant	30	0	60	60	60	60	66	33	0	0	0	0	0	0
House Logs	10	0	40	40	40	40	100	33	0	0	60	0	25	25
Water-Municipality	20	0	40	40	40	40	100	33	33	33	15	0	75	75
Water-Irrigation District	40	66	40	40	40	40	100	66	33	33	30	0	75	75
Winter Sports Center	10	33	20	20	20	20	100	33	66	66	60	60	100	100
Organization Camp	10	0	20	20	20	20	100	33	66	66	45	60	100	100
Dude Ranch	20	0	20	20	20	20	100	33	0	0	75	60	75	75
Resort	0	0	20	20	20	20	100	33	0	0	60	80	50	50
Hunting Organization	10	0	10	10	10	10	100	33	66	33	75	60	75	75
Fishing Organization	20	0	10	10	10	10	100	33	33	33	75	80	75	75

Table 15 illustrates that the water user group sees all other users compatible with their primary use of the Gallatin National Forest with the exception of wood-treating plants.

The recreation user group was very responsive when asked about compatibility, as indicated in Table 16. The recreationists were negative to those users who harvested a crop or product from the Gallatin National Forest, such as the forage and timber users.

The hunting and fishing organizations, which come under the wildlife user category, also were negative to those users which harvested a crop or product from the Gallatin National Forest. Only three groups, cattle, sheep, and water, showed some compatibility within. All other groups had varying degrees of internal dissention.

A USER PROFILE

From averages indicated in the tables, a profile of the average user begins to take shape: he is a high school graduate, probably with some college education. He has a lower income than one might expect for his educational level. He has had about 29 years of continuous use of the Gallatin National Forest to reinforce his attitudes. He is:

virtually ignorant of payments made by the forest to local governments in lieu of taxes

favorable toward restrictive use and management in combination as definitions of multiple use management

of the opinion (with reservations) that access is "good," but not "excellent"

confused about just how he would define a professional forester (by the forester's activities)

not favorably inclined toward the $7.00 recreation fee imposed for use of improved campgrounds

in favor of increasing or at least maintaining present wildlife populations

cognizant of the need for controls on the use of motorized vehicles

CHAPTER V

CONCLUSION

This study of direct users of the Gallatin National Forest deals basically with attitudes and specifically with expressed attitudes recorded in the interviews. Each individual is born into a group, his family, and remains a member of groups throughout his life. During the interview it became apparent that a person sometimes can be contradictory and inconsistent because he belongs to different groups or organizations with dissimilar standards and values. This is well illustrated in Table 16, where it was shown that members within the same group felt there was incompatibility among alternate uses.

Thus, an analysis of the composite picture of user groups toward multiple use of a national forest involves an analysis of cultural, biological and physical factors, and is desperately needed in the form of an integrated interdisciplinary study (Moser, 1958). The present study examines respondents relative to special user groups. Further research could point out other common ties which influence national forest users' attitudes.

The author hopes that this study can point the way to further research into more of the specific attitudes of users toward multiple-use management, but the data presented already establish some of the special interests which will dictate the trend. The author believes that knowledge of user age, education, and years of continuous use may

prove of value in the establishing of just what course a multiple-use administration should take in pointing out to users the relative advantages of its program. The study provides a base for establishing a user profile. The user groups cannot be ignored entirely in favor of the "average user," however. Compromises dictated by the importance to society of each group's activities are sure to arise. The mere knowledge of how its decisions will affect each user group's thinking can aid a forest administration in presenting its case to those users.

Multiple-use management of the Gallatin National Forest requires consideration of a probable increase in use correlating with our population increase, per capita income, more leisure time, and better transportation. The combined effect of these factors has led to an increase in outdoor recreation of about 10 percent per year nationally, and that is only one of several increasing uses of national forests. All uses of a national forest are controllable in a degree by management decision, but attitudes toward these decisions of the general public are reflected in the interpretation of these policies.

The first objective of this study, to determine the population of users of the Gallatin National Forest, was attained through a study of Forest Service records (Appendices 9 & 10). Tabulations of recreation sites and areas visited, numbers of visits, and activities (both economic and recreational) were divided by special interests into five major groups: Forage, Timber, Water, Recreation, and Wildlife, and fifteen sub-groups (Table 1, page 8).

Next, this study attempted to determine the policy of the forest administrators in meeting the demands for various user groups in conformance with the overall multiple-use policy. The Forest Service

defines multiple use as "the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people . . ." Implementation of multiple use is documented in several publications, the most significant for the Gallatin National Forest being the Forest Service Handbook 2121 4R1, Multiple-Use Management Guide for Northern Region, USDA.

The Region I publication provides a policy statement adequate for the professional forester for what it calls "use in arriving at sound decisions." Since the respondents in the present study showed attitudes and concepts which were invariably influenced by vested interest, it appears that the administration of the Gallatin National Forest faces deeply ingrained, biased user attitudes when it attempts to present the reasons behind the "sound decisions" as detailed in its official policy statements.

The Forest Service's Multiple-Use Policy is spelled out in layman's language through news releases (Appendices 4 & 5) by the Regional Forester and also through individual contact at the Ranger District level (i.e., field days, tours, meetings with user group associations, etc.). Areas of ignorance among the users, as shown in the study tables and in the following discussion, indicated a possible breakdown in communication.

In reviewing the various programs and news releases from the Division of Information and Education, Region One, Missoula, Montana, the author feels that the users of the Gallatin National Forest are not being sufficiently informed by these methods alone. This is not to say

that the information programs are poorly done, or that they are inadequate in themselves. The author believes, however, that since the users generally retained their biases toward the program, personal contact might be increased to good advantage.

The final objective of the study was to determine the attitudes of the national forest users toward the policies of the forest administrators in providing for a specific group use and in providing for these uses. This study indicates that the users who are directly involved in the managed removal of forage and timber resources, and in recreation, tend to have the highest incomes, the least education, and the fewest numbers of consecutive years of use. Thus, as far as the divergency of interests permits, trends which may be of value to a multiple-use administration begin to emerge, at least in a delineation of the probable educational and economic levels of the public involved in each use category.

In surveying the attitudes of the users of the Gallatin National Forest, much was learned from the personal interview questionnaire used in this study. The problem of user competition comes into the picture mainly through demand for the use of the national forest from the following user groups -- water, recreation, and wildlife versus forage and timber. Forage and timber have traditionally paid for a given use based on carrying capacity and timber volume. Water, recreation and wildlife users have not adequately paid for value received through consumptive use. If accepted by users the new $7.00 Recreation Sticker will undoubtedly balance out some of this disparity. If and when the

Forest Service will charge for water produced on the national forest watersheds remains to be seen, but water is a product of the Gallatin National Forest and could be priced.

The user group with the most education (excluding water), wildlife (16.3 years) had the longest record of consecutive years of use (34.4 years). Water users had 52 years of contact. The other groups, forage, timber, and recreation, had considerably shorter histories of forest use: 22.8, 16.3, and 22.5 years. Educational levels ranged from 11.5 years to 14.7 years in the three groups. Average user age 45-54 might indicate need for an information program aimed at an audience beyond high school and college age.

The incomes of the respondents did not range upwards in proportion to their educations, contrary to what one might reasonably expect.

Some measure of user attitude is also necessary in tailoring the multiple-use programs to the Gallatin National Forest. Twenty percent and thirty-three percent of the timber and wildlife groups, respectively, felt that they were not being treated equitably with other users in the same groups. At best this might imply a breakdown in communication between administrators and users in these areas. At worst, there is always the possibility that their opinions are correct.

Opinions of respondents concerning equitability of treatment in relation to other groups were placed on a scale ranging from "very high" to "very low." Here, the recreation and wildlife users were on the offensive, perhaps because their season of activity is much shorter, and restrictions have a more telling effect on their incomes. About

90% of the total respondents felt treatment within their respective groups was equitable. This point to an overall group solidarity which could only serve to reinforce existing attitudinal bias.

The multiple-use administration in the Gallatin National Forest is faced with a "checker-board" pattern of intermingled private land within the forest boundary. Here, the forage groups favored the existing situation, because they do not face the same problems of access which confront other users because they own land either in or adjacent to the Gallatin National Forest.

A survey of respondents' knowledge of payments made to the state by the Gallatin National Forest in lieu of taxes showed a lack of adequate information in this area. If the benefits accrued by the state can be equated with their effect on the individual in a more tangible form, such as in better schools and roads, the payment system might receive the understanding of the users. This might be accomplished in part by information couched in terms of services received by the public from the payments.

There was little knowledge of the $7.00 recreation use fee, which also points up a need for a better information and education program.

Opinions of the respondents regarding a definition of multiple-use management were solicited by a question phrased in terms of five popularly-accepted definitions of this type of management, plus a provision for the respondent to supply his own definition. Less than 1/3 of the forage group defined multiple-use management as restrictive use, hence relatively few realized the complexity of grazing regulations compatible to sound range management. The livestock man's contact with

multiple-use management centers around regulations concerned with watershed protection and movement of animals on a short-term basis. Thus, the restrictions of his use are more intensive, and are in his opinion the most logical definition of multiple-use management.

The timber group selected management in combination. This seems to show its concern with timber harvest regulations, which are designed to protect other resources dependent on an adequate forest stand. These include erosion control, fire control, and watershed protection.

The water user, being concerned with municipalities and the public as consumers, favors the "greatest good" definition. Recreation users (i.e., sportsmen's groups) are mostly non-residents of the immediate area interested in preservation of all the natural aspects of the forest, and also selected the "greatest good" definition. Again, the wildlife users closely followed the choice of the recreation users, since their interests are similar. Descriptions of a professional forester followed the same biased trend based on the user's interest group.

There was more uniformity in degree of approval of multiple use than in the definitions of it. All users except those in the water group (who held a high opinion of multiple-use) were in the mid-range in the reaction scale. This exception can be explained by the fact that water users believe that the first resource to suffer from the mismanagement of a forest is water.

All users samples were completely satisfied with the access situation. This merits further study, because of the seemingly conflicting attitudes of the forage group toward intermingled private ownership.

Land ownership consolidation, as brought out in the questionnaire used in this study, should receive maximum support by both public and private owners. This consolidation of this checker-board ownership will provide for more adequate development of the land resources in the Gallatin National Forest.

The survey results indicate that there is some opportunity for adjustment in the overall Forest Service policy for administrating the national forests. Although it is easier to arrive at decisions through the use of manuals, equations, and administrative policies, the more time-consuming methods of social action processes better incorporate public attitude.

Respondents did point out that they felt some adjustment of policy was necessary. The adjustments proposed were invariably biased toward each respondent's activity group. The author felt that the respondents showed their most emphatic reactions to the questions dealing with the multiple-use program.

The remaining specific problems dealt with (adjustments of wildlife and livestock populations, and adequacy of control of motorized vehicles) merely underscored the need for a compromise in management to at least attempt to meet the needs of the special interest groups. This is further complicated by the fact that some groups could not reach agreement within their own ranks (Table 15), on adjustments needed in terms of wildlife vs. livestock populations.

This study, the author believes, exposes the need for an indepth study into the make-up and power structure of the various user groups and publics that the U. S. Forest Service must deal with in the administration of the national forests. The results clearly indicate much can be learned in regard to the attitudes of users of a national forest by a personal interview.

Most of us are convinced that multiple-use is a good management philosophy, but perhaps more thought should be given to application of multiple-use to the resource. The philosophy itself is of little value unless it is implemented. The public must be encouraged to express its needs, and then the administration must determine which of these needs will best satisfy a public divided by its special interests. If those needs call for access roads, campgrounds, cabins, boat launching ramps, the public must be advised that adequate facilities plus a staff trained in a variety of disciplines cost money.

When human desires exceed the availability of the resource, those desires should be channeled to another interest that has a less detrimental effect on future resources. For example, motorized vehicles may be excluded and travel restricted to foot or horse in an area that may erode easily.

The first step in any management practice is to define the goals. If the "greatest good to the greatest number" concept is modified to cross user group boundaries by considering attitudes, education, and the other aspects included in this and previous studies, and hopefully, in subsequent studies, the author believes the multiple-use management task will be made easier.

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Appendix 1

IMPORTANT AND SIGNIFICANT EVENTS IN THE DEVELOPMENT OF NATURAL RESOURCE POLICY AND ESTABLISHMENT OF THE NATIONAL FORESTS

The listing of important events in the development of federal policies relating to natural resources is an impressive list. Dana, in his book "Forest and Range Policy" (1956), lists 576 important events from 1609 to 1956.

The list of events has grown from 1956 and now includes the Multiple-Use -- Sustained Yield Management Act of 1960 and many other Public Laws, United States Supreme Court decisions and international agreements.

Following is a digest of the important pieces of legislation relating to the establishment and administration of the National Forests and related Forest Service activities.

THE PRINCIPAL LAWS RELATING TO THE ESTABLISHMENT AND ADMINISTRATION OF THE NATIONAL FORESTS AND TO OTHER FOREST SERVICE ACTIVITIES [1/]

I. Creation by Executive action.

Act of March 3, 1891 (26 Stat. 1103; 16 U.S.C. 471) (Creative Act)

That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation, declare the establishment of such reservations and the limits thereof.

Act of June 4, 1897 (30 Stat. 34, 36; 16 U.S.C. 473)

The President of the United States is hereby authorized and empowered to revoke, modify, or suspend any and all such Executive orders and proclamations, or any part thereof, from time to time as he shall deem best for the public interest. * * * The President is hereby authorized at any time to modify any Executive order that has been or may hereafter be made establishing any forest reserve, and by such modification may reduce the area or change the boundary lines of such reserve, or may vacate altogether any order creating such reserve.

Act of June 7, 1924 (43 Stat. 655; 16 U.S.C. 471 (b) and 505)

The President, in his discretion, is hereby authorized to establish as national forests, or parts thereof, any lands within the boundaries of Government reservations, other than national parks, reservations for phosphates and other mineral deposits or water-power purposes, national monuments, and Indian reservations, which in the opinion of the Secretary of the department now administering the area and the Secretary of Agriculture are suitable for the production of timber, to be administered by the Secretary of Agriculture under such rules and regulations and in accordance with such general plans as may be jointly approved by the Secretary of Agriculture and the

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[1/] U. S. Department of Agriculture, Agriculture Handbook No. 20, Washington, D. C. Revised July, 1964.

Secretary formerly administering the area, for the use and occupation of such lands and for the sale of products therefrom. That where such national forest is established on land previously reserved for the Army, or Navy for purposes of national defense the land shall remain subject to the unhampered use of the Department of the Army or Navy Department for said purposes, and nothing in this section shall be construed to relinquish the authority over such lands for purposes of national defense now vested in the Department for which the lands were formerly reserved.

II. Restriction on additions to national forests by Executive action.

Act of March 4, 1907 (34 Stat. 1271); August 24, 1912 (37 Stat. 497); June 15, 1926 (44 Stat. 745); 16 U.S.C. 471, 471a.

Hereafter no national forest shall be created, nor shall any additions be made to one heretofore created within the limits of the States of California, Oregon, Washington, Idaho, Montana, Colorado, Wyoming, Arizona, or New Mexico, except by the Act of Congress.

Additions to national forest lands in Montana by Executive action.

Act of July 20, 1939 (53 Stat. 1071; 16 U.S.C. 471-b)

The President of the United States is authorized, in his discretion, to add to existing national forests, or to include within new national forests, by proclamation of Executive order, any unappropriated public lands of the United States situated in the State of Montana which, in his opinion, are chiefly valuable for the production of timber or the protection of watersheds: Provided, that the inclusion of such lands within a national forest shall be subject to any claim, entry, or appropriation under the public land laws then valid and subsisting and thereafter legally maintained.

III. Purpose of national forests

Act of June 4, 1897 (30 Stat. 35; 16 U.S.C. 475) (Organic Act)

No public forest reservation shall be established, except to improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States.

IV. Forest reserves designated national forests

Act of March 4, 1907 (35 Stat. 1269)

The forest reserves shall be known hereafter as national forests.

TRANSFER ACT OF 1905

Act of February 1, 1905 (35 Stat. 628; 16 U.S.C. 472, 524, 554)

Sec. 1. The Secretary of the Department of Agriculture shall, from and after the passage of this Act, execute or cause to be executed all laws affecting public lands heretofore, or hereafter reserved under the provisions of section twenty-four of the Act entitled "An Act to Repeal the Timber-Culture Laws, and For Other Purposes," approved March third, eighteen hundred and ninety-one, and Acts supplemental to and amendatory thereof, after such lands have been so reserved, excepting such laws as affect the surveying, prospecting, locating, appropriating, entering, relinquishing, reconveying, certifying, or patenting of any such lands.

Sec. 3. Forest supervisors and rangers shall be selected, when practicable, from qualified citizens of the States or Territories in which the national forests respectively, are situated.

Sec. 4. Rights of way for the construction of maintenance of dams, reservoirs, water plants, ditches, flumes, pipes, tunnels, and canals, within and across the national forests of the United States, are hereby granted to citizens and corporations of the United States for municipal or mining purposes, and for the purposes of the milling and reduction of ores, during the period of their beneficial use, under such rules and regulations as may be prescribed by the Secretary of the Interior, and subject to the laws of the State or Territory in which said reserves are respectively situated.

NOTE--The following is quoted from a letter sent to the Chief of the Forest Service by Secretary of Agriculture James Wilson on February 1, 1905, the date of the above Transfer Act was approved by the President.

"In the administration of the forest reserves it must clearly be bourne in mind that all is to be devoted to its most productive use for the permanent good of the whole people and not for the temporary benefit of individuals or companies. All must be brought about in a thoroughly prompt and businesslike manner, under such restrictions only as will insure the permanence of these resources."

"The vital importance of forest reserves to the great industries of the western states will be largely increased in the near future, by the continued steady advance in settlement and development. The permanence of the resources of the reserves is therefore indispensable to continued prosperity, and the policy of this Department for their protection and use will invariably be guided by this fact, always bearing in mind that the conservation use of these resources in no way conflicts with their permanent value."

"You will see to it that the water, wood and forage of the reserves are conserved and wisely used for the benefit of the home-builder first of all; upon whom depends the best permanent use of the lands and resources alike. The continued prosperity of the agricultural, lumbering, mining and livestock interests is directly dependent upon a permanent and accessible supply of water, wood, and forage, as well as upon the present and future use of these resources under businesslike regulations, enforced with promptness, effectiveness and common sense. In the management of each reserve local questions will be decided upon local grounds; the dominant industry will be considered first, but with as little restriction to minor industries as may be possible; sudden changes in industrial conditions will be avoided by gradual adjustment after due notice; and where conflicting interests must be reconciled, the question will always be decided from the standpoint of the greatest good of the greatest number in the long run."

V. MULTIPLE-USE -- SUSTAINED YIELD ACT

Act of June 12, 1960 (74 Stat. 215; 16 U.S.C. 528-531)

Sec. 1. It is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. The purpose of this Act is declared to be supplemental to, but not in derogation of, the purposes for which the national forests were established as set forth in the Act of June 4, 1897 (16 U.S.C. 475). Nothing herein shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish on the national forests. Nothing herein shall be construed so as to affect the use or administration of the mineral resources of national forests lands or to affect the use or administration of Federal lands not within national forests.

Sec. 2. The Secretary of Agriculture is authorized and directed to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several products and services obtained therefrom. In the administration of the national forests due consideration shall be given to the relative values of the various resources in particular areas. The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of this Act.

Sec. 3. In the effectuation of this Act the Secretary of Agriculture is authorized to cooperate with interested State and local governmental agencies and others in the development and management of the national forests.

Sec. 4. As used in this Act, the following terms shall have the following meanings:

a. "Multiple Use" means the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions that some land will be used for less than all of the resources and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

b. "Sustained yield of the several products and services:" means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.

Appendix 2

HISTORICAL SKETCH OF THE GALLATIN NATIONAL FOREST

History reveals a sequence of events and one of the most significant events for the Northwest was the decision by President Jefferson to send Meriwether Lewis and William Clark to explore the unknown Northwest. This exploration was known as the Lewis and Clark Expedition and passed through the area in south central Montana that is known today as the Gallatin National Forest. Lewis and Clark in their journey west decided to discontinue the name Missouri at the marriage of the three rivers near the present site of Three Forks, Montana, and designate the west fork as the Jefferson for the President, the middle fork as the Madison for the Secretary of State, and the east fork as the Gallatin for the Secretary of the Treasury.

The setting for the exploration and settlement of the Northwest is very well described in Hamilton's book "From Wilderness to Statehood" (1957).

> "The most powerful forces which molded the Americans into a nation were, first the addition, at frequent intervals, of large areas of undeveloped land to the public domain, and, secondly, the migratory habit of the people. Between the close of the Revolution and the Mexican War -- a period of sixty-five years -- the purchase, conquest, annexation, and discovery, the Republic acquired title to a continental area reaching from the Atlantic to the Pacific and extending from the Great Lakes to the Gulf of Mexico. The migratory habit of the American people had its origin in the restless, virile Englishmen who crossed the sea in their search of freedom from religious oppression and economic distress. These pioneers established the first frontier and founded democratic government with freedom of worship, the right of assembly, and free speech. They were courageous and independent and had a high sense of right and justice.

> "There was always a frontier, because of the successive additions of land, and there were always men and women ready to face dangers and endure hardships. As soon as independence was won, the grandest march in the history of civilization began, and it continued until a continent was occupied and a nation of people different from those of any other land had been created out of immigrants and their descendants."

And thus the stage was set by the Lewis and Clark Expedition for settlement to take place along with the establishment of national forests by the Congress of the United States.

The Gallatin National Forest is best described in terms of three working circles: Big Timber, Gallatin, and Yellowstone.

Having lived in this area for over ten years (1954-65), I observed much of the area first hand and also visited with many of the early settlers. Much of the following information is drawn from these personal visits by the author.

The History and Supporting Data for the Yellowstone Working Circle

White men first entered this area with the Lewis and Clark Expedition of 1806. As this area was rich in game and fur-bearing animals, many of the fur trappers roamed the country, but very few records were kept.

With the discovery of gold in and around Virginia City, Montana, many miners crossed this area. Some of these weary travelers, resting and prospecting along the way, led to the discovery of gold at Emigrant Gulch. This strike was rich enough to induce settling of Yellowstone City at the mouth of Emigrant Gulch in 1864.

In the year 1865, a sawmill was established by John J. Tomlinson near Hunter Hot Springs. History indicates that the lumber was used in mining and for construction of boats for use of miners returning East.

Prior to 1883, mining and cattle raising, with agriculture to support them, were the main industries with the small communities having a local sawmill for their own use.

The railroad came in 1883, bringing with them various industries and many optimistic settlers. Lumbering, however, with its vast potentials, was bypassed because of distance to market and high production costs. The industry continued on a small scale, supplying a continuous local demand.

The close of World War II brought an accelerating demand for lumber products. At this time a pole-treating plant was built in Bozeman, thus creating another outlet for utilizing the forest resource.

In 1951, Corcoran Pulpwood Company moved into this working circle, initiating clear-cutting by blocks. This company's operation on national forest land was active through 1959, but the distance from market and high production costs caused it to taper off in recent years.

A lumber mill, utilizing the techniques of edge-gluing narrow width boards and using small-diameter logs that compose a large percentage of the timber stands, was constructed in Livingston by Downer Lumber Company in 1954. This mill's rated capacity was 80,000 board feet per eight-hour day; but in 1961, this mill was closed down and

the equipment sold. The year 1955 saw two new sawmills built in Livingston with a daily output of 20,000 board feet each. Then in 1957, two more sawmills were constructed with outputs of 35,000 and 20,000 board feet per day. The recent investments in the lumbering industry within the working circle have not had time to completely stabilize; however, the outlook for the development of the timber resources of this working circle are very good at the present time.

The challenge of high production and manufacturing costs due to size of timber are being overcome by increased demand for the product, new products, and more efficient manufacturing methods.

The History and Supporting Data for the Gallatin Working Circle

Due to drainage and topography, the Gallatin Working Circle has been divided into two areas: the Gallatin Valley and the Madison Basin or Hebgen area.

Since the establishment of the first sawmill in the valley, the timber and logging industry has played an important part in the economic development of the Gallatin Valley.

Through the early period of settlement and prior to forest management practices or controls, the forested areas were a source of free stumpage for the young and thriving timber industry.

The first commercial cuttings were in 1864, adjacent to a water power sawmill near Spring Hill on the west slopes of the Bridgers.

Later, in 1870, a water-powered saw and shingle mill was established on Little Bear Creek southeast of Gallatin Gateway.

During the 1870's the first steam-powered mill was introduced into the valley. Three such mills were operated by the soldiers from Fort Ellis. These were located in the Bridger Canyon. Another water-powered mill was established near the mouth of Hyalite Canyon in 1878. The logs to supply this mill were cut in History Rock drainage and driven down Hyalite Creek or "Middle Creek." Cutting was also done in Gallatin Canyon, and the logs were floated down the river into a water-powered mill located at "Tie Town" near what is now Gallatin Gateway.

The first extensive timber operation was started in 1883 to provide ties for the Northern Pacific Railroad as it was built across the valley and westward. The ties were cut in the Gallatin Canyon drainage and floated down to "Tie Town."

Around 1900 two important changes came to the timber industry in the Gallatin Valley: One was the establishment of the Forest Reserve; the other was the establishment of an industry that shipped forest products out of the valley. The first timber sold by the Forest Reserve was from a sale for 268,000 board feet located on Wildhorse Creek in Hyalite Canyon.

In 1902, Mr. Walter Cooper began a large-scale lumber and tie operation. The products of this operation were shipped for the use of the Chicago, Burlington, and Quincy Railroad. Part of the timber was cut in Bear Canyon and was transported in railhead down a 9.6 mile wooden flume. Other timber was cut mainly in West Fork, Beaver Creek,

and Taylor Fork in the Upper Gallatin. This timber was moved down the river on "high water" drives to Central Park. Much of this cutting was done on Northern Pacific and other private lands.

Cooper's operation reached its peak in 1905 when 10,450,000 board feet of ties and lumber were produced. A strike at "high water time" in 1906 crippled the Gallatin operations and caused them to fold up in 1907. He continued to operate on a small scale in Bear Canyon until 1913.

The timber industry continued on a small scale, mostly supplying a continued local demand, until 1945 when the Idaho Pole Company established a pole-treating plant at Bozeman. Also, the Corcoran Pulpwood Company became interested in the lodgepole timber in and around the Gallatin Valley. The first two poles sales were in Buckskin Creek and Face Draw units of Hyalite Canyon and totaled 48,000 poles. The first pulpwood sale to Corcoran Pulpwood Company was in the Hyalite area also and for 56,700 cords of lodgepole pine.

Operations of these two companies increased through 1956 when the pulpwood operations tapered off and ceased as far as the Gallatin area was concerned. The operations of the pole company have continued uninterrupted to this date. The establishment of a modern, high-production, electric-powered, lumber mill at Belgrade in 1954 by the Yellowstone Pine Company provided an increased and continuing demand for timber. The production of Yellowstone Pine in 1955 was 11,000,000 board feet and increased to 13,500,000 board feet in 1957. This mill promises to contribute considerably to the stability of the forest products industry of the Gallatin Valley.

The early history of the Hebgen area is not too well known. Timber products were used by the early settlers in this area in the form of house logs, fuelwood, and other building materials. A tie-cutting operation began in 1921 and continued through 1935. During this time it is estimated that about 2,000,000 ties were cut and removed by the Globe Timber Company.

The Montana and Idaho Lumber Company operated in the Hebgen area intermittently from 1936 to 1954. This company produced logs, power poles, and miscellaneous products. Its operations were generally small and did not contribute too much to the economy of the area. One estimate is that the total cut for the entire period of operations was about 16,500,000 board feet. The company is not now operating in the Hebgen area, although it is still in operation in Rexburg, Idaho.

Another important phase in the utilization of timber in the Hebgen area began in 1950 when Charles J. Erickson and Son began a pulpwood operation. The pulpwood is shipped via Union Pacific Railway to Thilmany Pulp and Paper Company in Wisconsin. Cutting has taken place mostly in areas previously cut over for ties. It has permitted economical cleanup through clear cutting and the establishment of a new stand on these areas. The pulp-cutting operation was seriously reduced in 1957 and only about 73,000 cords of material have been removed as of 1964.

The History and Supporting Data for the Big Timber Working Circle

White men first entered this area with the Lewis and Clark expedition of 1806. As this area was rich in game and fur-bearing animals, many fur trappers roamed about.

With the discovery of gold in the Yellowstone Valley in the early 1860's interest in the mineral deposits in this area was aroused. Gold was discovered in the Boulder River drainage in 1870. The resulting gold rush and population increase created a demand for agricultural and livestock products. Homesteads were filed, and the first permanent cattle herds were established in 1882. In 1883, the first bands of sheep arrived in the area.

To satisfy the demands for mining timbers and structural materials, sawmills were established in the Boulder River, Deer Creeks, and Crazy Mountain areas around 1890.

The lumbering industry continued to supply the local demand until the close of World War II. At this time, the demand for stumpage to meet expanding mill capacity in the Livingston area created greater interest in the timber resources of Sweet Grass County and the Big Timber Working Circle. However, due to lack of access to Government timber, the increased cutting was confined mostly to private timber with only a slight increase in cutting on public lands.

Appendix 3

COOPERATIVE UPPER GALLATIN ELK HERD MANAGEMENT PLAN

(Inter-Agency Memorandum)

APPLICABLE POLICIES OF COOPERATING AGENCIES

1. U. S. Forest Service:

   The National Forest Wildlife Management Objective is to manage habitat so that wildlife populations, including non-game species, will be maintained at a level consistent with the requirements for other services of the land and in accordance with the Forest Service Multiple Use Policy.

   a. To this end the Forest Service will cooperate with the Montana Fish and Game Department and the National Park Service in wildlife management studies and practices.

   b. Maintain and develop suitable habitat for wildlife by coordination with the management of other National Forest resources.

   c. Retain and improve the high recreational values of National Forests by employing natural rather than artificial management procedures.

   d. Encourage proper utilization of the wildlife resources on a sustained-yield basis under state laws and regulations.

2. Yellowstone National Park:

   It is the responsibility of the National Park Service in the administration of National Park areas to attain an optimum relationship between plants and animals for the mutual benefit of both so that a maximum variety can exist without detriment to the whole complex community of plants and animals.

3. Montana Fish and Game Commission:

To produce and maintain a maximum breeding stock of big game on all suitable lands of Montana, public and private, in harmony with other uses of such lands, and consistent with the available forage supply, and to utilize, through public hunting, the available crop of big game produced annually by this breeding stock.

COOPERATIVE UPPER GALLATIN ELK HERD MANAGEMENT PLAN

OBJECTIVES:

To manage all elk in the upper Gallatin so as to maintain a balance between elk and available natural food supplies by improving and maintaining the basic soil and plant resources in the upper Gallatin watershed.

PROGRAM:

I. Continue and intensify studies for evaluating conditions and trends of soils, vegetation, and game populations by applicable methods.

II. The goal of elk management in the upper Gallatin is to maintain a wintering population of approximately 1,000 elk until forage surveys indicate this number should be changed.

The annual elk harvest quota, in order to maintain this goal, will be determined in the following manner: A winter or spring aerial count will be made to determine the number of elk in the winter herd. The cow:calf ratio and sex structure of the herd will be used to determine the annual increment. The winter count,

plus the annual increment, will be used to determine the size of the fall elk herd. The number of elk determined by this method to be in excess of 1,000 will be removed by hunting.

Hunting seasons to accomplish the elk harvest will be established as follows:

1. An elk season that will close early in November will be held. Twenty-four hour checking stations will be used to determine the number of elk harvested during this season.
2. If the harvest during the regular season as described in No. 1 has not been sufficient to reduce the herd to 1,000 the season will be reopened when surveys indicate sufficient elk have migrated from the Park to accomplish the stated goal through harvest.
3. The reopened season will be managed by the issuance of permits used to control the number of hunters during any period of reopening.
4. Twenty-four hour checking stations will be operated during the permit season in order to determine the extent of the kill and to insure compliance with the stated goal of 1,000 elk in the base herd.

III. To cooperate fully with the U. S. Forage Service and the Montana Fish and Game Department in the management of all elk in the upper Gallatin, management procedures by the Park Service will be conducted within the Gallatin area of Yellowstone National Park.

1. If the results obtained by hunter harvest have not attained the annual objective of maintaining the herd at an acceptable level, the National Park Service will live trap elk to fill any requests for restocking of elk by transplant.

COOPERATIVE AGREEMENT:

Memorandum of agreement, made by and between the Montana State Fish and Game Commission; the Regional Forest, Northern Region, U. S. Forest Service; and the Superintendent, Yellowstone National Park, U. S. National Park Service,

WITNESSETH:

WHEREAS, the objective and program of the Cooperative Upper Gallatin Elk Management Plan are compatible with the spirit and purposes of all parties to this agreement,

NOW THEREFORE, it is mutually agreed that:

1. All parties to this agreement will take necessary actions within the areas of their responsibilities to accomplish the objectives and to implement the program of the Cooperative Upper Gallatin Elk Management Plan.
2. It will be the responsibility of the Secretary of the Montana Fish and Game Commission to call an annual joint meeting of the three cooperating agencies. This meeting will be called in the spring of each year, preferably during the month of May. The purpose of this meeting will be to review current progress, to exchange and disseminate information, to coordinate activities, prepare work plans and to determine necessary herd harvest.

3. Amendments to this Cooperative Upper Gallatin Elk Herd Management Plan may be proposed by either party, and shall become effective upon approval by all parties.

4. This agreement shall become effective as soon as signed by the parties hereto and shall continue in force until July 1, 1968.

U. S. FOREST SERVICE

July 1, 1965 — By: Neal M. Rahm (Signed)
Regional Forester

U. S. NATIONAL PARK SERVICE

August 3, 1965 — By: John S. McLaughlin (Signed)
Superintendent Yellowstone
National Park

MONTANA FISH & GAME COMMISSION

August 17, 1965 — By: W. E. Staves (Signed)
Chairman

Appendix 4

FOR IMMEDIATE RELEASE
R-1-131: 7665

Regional Office, Forest Service
Missoula, Montana

Skier Visits Up 37% Last Year

At 16 National Forest Ski Areas

MISSOULA---Sixteen National Forest winter sports areas last year recorded a total of 259,131 skier visits, Neal M. Rahm, northern region forester, reported today.

This all-time record high represents a 37% increase over the 188,881 skier visits the previous year to the winter sports areas in Northern Region National Forests.

Rahm says the increase in skiing activity in this area compares with a National 15% to 20% annual increase. "While 1964-65 was a good year in this area," Rahm said, "this is not the primary explanation for the sharp increase."

"This increase reflects the growing popularity of skiing and the improved facilities at the winter sports areas in Northern Region National Forests."

Recreational visits to Northern Region National Forests for winter sports have increased more than five-fold over the 45,000 visits recorded in 1951.

Most of the winter sports areas in the Northern Region have been developed in cooperation with local ski clubs, civic groups, and county and state governments. Through this cooperation, roads,

slopes, tows, and shelters have been constructed and are maintained for winter sports use. Some skiing areas have become so popular that extensive expansion has been financed entirely from private capital. The trend is toward commercial development financed by private capital and government loans.

"From all indications," Rahm said, "there will be more than 300,000 skier visits to the 16 Northern Regional National Forest winter sports areas this winter."

Appendix 5

FOR IMMEDIATE RELEASE
R-1-134: 82565

Regional Office, Forest Service
Missoula, Montana

Forest Service Announces

Reclassification, Adjustment Plans

For Spanish Peaks Primitive Area

MISSOULA---The Forest Service has announced a proposal to adjust the boundaries of the Spanish Peaks Primitive Area and reclassify the area as a Wilderness under the provisions of the Wilderness Act of September 3, 1964, Neal M. Rahm, northern regional forester, announced here today.

The 49,800-acre Spanish Peaks Primitive Area is approximately 25 miles southwest of Bozeman, Montana, in the Gallatin National Forest. The Primitive Area was established in 1932 by the Secretary of Agriculture.

The U. S. Geological Survey and U. S. Bureau of Mines are now conducting geological and mineral studies of the Primitive Area, as required under the Wilderness Act. When these studies are completed, the Forest Service will announce the time and place of public hearings on the proposal.

Rahm said that tentative plans call for the Forest Service to make formal notice of the proposal in the spring of 1966. "The primary purpose of this informal, advance notice is to give all interested parties an opportunity to make on-the-ground studies of the area and

the proposed boundary modifications during the summer and fall of 1965," Rahm explained.

An information folder on the proposed reclassification and proposed boundary adjustments is available from the Gallatin National Forest headquarters in Bozeman, Montana, and the Forest Service's northern region headquarters in Missoula. This folder contains a map of the Primitive Area, showing the proposed boundary adjustments for the Wilderness.

The net result of the proposed boundary changes would increase the area by 4,208 acres.

"The proposed boundary changes are the result of several years of intensive study of the Primitive Area and the contiguous lands," Rahm said.

"Except for a few trails and temporary campsites, there is no evidence of man's activities. This is an outstanding area of superb mountain scenery, and subalpine vegetation. The full recreational potential can be realized under wilderness management. It is needed to round out the outdoor recreation opportunities in this important Montana recreation region. This area would make its greatest contribution to the local community and the Nation as a Wilderness," Rahm explained.

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Appendix 6

GRAZING FEES

Source - Forest Service Manual, 2234, May 1965.

2234.01 - Authority. The authority for fees, payments and refunds is Secretary's regulation G-5 (36 C.F.R. 231.5):
2234.1 - Derivation
2234.11 - 1931 Base Fees for National Forests. The 1931 base fees for grazing on the National Forest were derived from a study of the rentals paid to private persons, corporations, states, Indian reservations, and other Government agencies for use of comparable grazing lands. This study covered a period of years and areas sufficiently large to ensure fair comparison. Allowance was made for cases showing abnormal competition or involving considerations other than use of the forage. Base fees per head per month thus derived averaged 14.5 cents for cattle and 4.5 cents for sheep.
2234.12 - Base Livestock Prices. The periods, 1921 to 1930 in the case of cattle and 1920 to 1932 in the case of sheep, were selected as fairly reflecting representative and complete price cycles for each industry. Therefore, the average prices received by producers in the 11 Western States during these periods were established as the base prices for use in determining the relationship between current grazing fees and current livestock prices. Base livestock prices thus derived were $6.62 per 100 pounds for cattle and $9.15 for sheep.
2234.13 - Adjustment with Annual Fluctuations in Livestock Prices. Current fees will bear approximately the same ratio to the 1931 base fees that livestock prices received by producers for the year preceding bear to the base livestock prices. The 1931 base fees will be adjusted annually to ensure this ratio except that no adjustment will be made where application of the formula affects the monthly base fee by less than 0.5 cent for cattle or 0.25 cent for sheep.-*

*-Each year in January the Washington office will obtain from the Consumer and Marketing Service the average livestock prices of the preceding year. These will represent the average prices per 100 pounds paid producers in the Western States for beef cattle (exclusive of calves) and lambs. These prices will then be used to calculate the percentages to be applied for the current year to the established 1931 base fees, as follows:

1. Average price received for beef cattle for the period 1921 - 1930 was 6.62 cents per pound.

2. Average 1931 base fee was 14.5 cents per head per month.

3. Average price per pound received for beef cattle in the 11 Western States in 1941 was 8.64 cents.

4. The 1941 market price of 8.64 cents in 130 percent of the base livestock price of 6.62 cents.

5. Then the 1942 average fee per head per month would be 130 percent of the 1931 base fee of 14.5 cents, or 18.85 cents, which, when rounded off to the nearest cent, would be 19 cents.

Applicable percentages will be furnished the Regional Foresters not later than January of each year.

Appendix 7

MULTIPLE USE TERMINOLOGY

Glossary

1. Action Plans - The final phase of resource or activity management planning. This contains the prescription or details needed to achieve coordination of uses established for the area in the Multiple Use Management Guide and Ranger District Multiple Use layout plan that is ready for sale and/or contract. Project plans of all descriptions are included in this category.

2. Action Programs - Doing the job on the ground through force account projects, sales, contracts, other contractual work, leases, permits, agreements, and others. These programs must carry out the approved coordination of uses for that particular area of land.

3. AU - The abbreviation AU means animal units or animal unit equivalents. It is based on one mature cow; other classes of livestock are commonly converted to AU's for comparative purposes.

4. AUM - The abbreviation AUM means one animal unit month and has reference to the grazing requirements of one animal unit (as described above) for one month.

5. Coordinating Instructions - Statements developed in the Forest Service Manual designed as suggestions to integrate management of a resource, use, or activity with one or more other resources, uses, or activities. Coordinating instructions provide general guidelines and offer opportunities for coordination of uses in applicable management situations.

6. Management Decision - A statement in a Ranger District Multiple Use Plan of the necessary coordination on a specific area needed to carry out relevant coordinating requirements in order to meet pre-established management direction.

7. Management Direction - A concise statement of objectives applying to the management zone or management unit. Management direction is the direct result of balancing demand (people's needs) for resources against the capability of the land under management.

8. Management Unit - Where management zones are established, a management unit is an area within the zone identified by a localized situation for which particular and specific management decisions are required. Management units do not overlap nor do they cross.

9. Multiple Use Plan - A document, usually pertaining to a Ranger District, consisting of written and graphic sections that set forth management decision based on coordinating requirement and the areas to which they apply.

10. Planning Area - An administrative area, usually a Ranger District, selected for development of a Multiple Use Plan; also, a Region or subdivision of a Region selected for development of a Multiple Use Management Guide.

11. Regional Multiple Use Management Guide - A document developed for a broad planning area. A guide consists primarily of statements concerning present and future needs of the people, comparable ability of the land to produce resource benefits to meet such needs, an analysis of the management situation involved in meeting in knowledge of future trends, and finally, statements of management objectives (direction) and the broad coordinating requirements necessary to secure attainment of such objectives.

12. Resource and Activity Inventory - A compilation of basic data and information collected through survey for individual resources and activities or uses. This data is used for multiple use planning purposes and constitutes the basic information necessary for resource and activity management planning.

13. Resource or Activity Management Plan - A plan developed within the established coordination requirements (as spelled out in Multiple Use Management Guides and Ranger District Multiple Use Plans) for the individual resource or activity. Resource and activity management plans are not governed by inventories but utilize data derived from inventories. Resource and activity management plans are governed by Regional guides and District Multiple Use plans. Inventory data provides a base and reference point from which departures can be made in resource plans in order to meet the coordination requirements established in Multiple Use Plans.

14. Special Zone - A subdivision of a planning area as designated for special purposes by the Secretary, Chief, or Regional Forester. Management direction in Special Zones is established by specific regulations or legal authority. Examples of Special Zones are: Primitive, wild, and woodland areas; resource areas; natural areas, and so forth. Management Zones do not apply in Special Zones. Management units (or management situations) may be delineated as needed for planning consideration of uses.

Appendix 8

QUESTIONNAIRE

For

A STUDY OF THE DIRECT USERS

OF THE GALLATIN NATIONAL FOREST

U. S. FOREST SERVICE, REGION 1, BOZEMAN, MONTANA

By

Richard T. Marks

Graduate Student, Ph.D. Candidate

Michigan State University

East Lansing, Michigan

Major Professor
Dr. Lee M. James
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East Lansing, Michigan

QUESTIONNAIRE USED IN THE STUDY OF DIRECT USERS OF THE GALLATIN NATIONAL FOREST, U.S. FOREST SERVICE, REGION ONE, BOZEMAN, MONTANA

1. Name of user _____ Date _____

2. Address _____ Recorder _____

3. User No. _____

4. User classification

(1) ( ) cattle grazing
(2) ( ) sheep grazing
(3) ( ) sawmill
(4) ( ) Pulpwood logger
(5) ( ) treating plant
(6) ( ) house logs
(7) ( ) water-municipality
(8) ( ) water-irrigation district
(9) ( ) winter sports center
(10) ( ) organization camp
(11) ( ) dude ranch
(12) ( ) resort
(13) ( ) campground camper
(14) ( ) hunting organization
(15) ( ) fishing organization

5. Description of Individual User or Owner of Firm

(1) Indicate your age by checking appropriate space below

_____ Under 25 years _____ 35-44 years _____ 55-64 years

_____ 25-34 years _____ 45-54 years _____ 65 and over

(2) What was your approximate gross annual income before taxes and payroll deductions in 1964?

Check ( ) the appropriate income category below.

( ) Less than $2,500 per year
( ) $2,500 to $4,999 per year
( ) $5,000 to $9,999 per year
( ) $10,000 to $14,999 per year
( ) $15,000 to $19,999 per year
( ) $20,000 and over per year

(3) Indicate your sex. _____ Male _____ Female

(4) Circle the highest year of school you have completed.

1 2 3 4 5 6 7 8	9 10 11 12	13 14 15 16	17 18 19 20
(Grade School)	(High School)	(University or Trade School)	(Graduate)

(5) Number of employees. (Average, 1964) _____

(6) How long have you been a direct user of the Gallatin National Forest?

_____ Years _____ Months _____ Days

6. Description of Corporate or Group Users

(1) Indicate age of organization by checking appropriate space below.

_____ Under 5 years _____ 10-14 years _____ 20-24 years

_____ 5-9 years _____ 15-19 years _____ 25 and over

(2) What was your organization's annual income before taxes and payroll deductions in 1964?

Check ( ) the appropriate income category below.

( ) Under $10,000 per year
( ) $10,000 to $19,999 per year
( ) $20,000 to $49,999 per year
( ) $ 50,000 to $ 99,999 per year
( ) $100,000 to $199,999 per year
( ) Over $200,000 per year

(3) Number of employees (average, 1964) _____

(4) Number of members or customers (average, 1964) _____

(5) How long has your organization been a direct user of the Gallatin National Forest?

_____ Years _____ Months _____ Days

7. Attitudes

(1) What is your definition of multiple-use management?

Select one:

_____Zoning for highest and best use
_____Systematic blending and balancing of 5 multiple-uses
_____Restrictive use
_____The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people.
_____Greatest good to the greatest number in the long run.
_____Your own definition

(2) For your use do you have adequate access to the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Poor		Average		Good

If No, answer question (3). If Yes, proceed to question 8.

(3) What specific area or areas on the Gallatin National Forest are you having difficulty getting access to? _____

(Indicate area on map of Gallatin National Forest)

8. Is the Forest Service reasonable and sympathetic in their dealings with your interests?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Low		Medium		Highly sympathetic

9. Do you feel that your user group is paying an adequate fee for use of the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Low		Adequate		Excessive

10. Are you paying too much? No _____ Yes _____

If so, how much in excess? _____

11. Do you feel that other user groups pay an equitable fee for use of the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Low		Adequate		Excessive

Which groups do not pay an equitable fee for use of the Gallatin National Forest?

_____

_____

12. Which of the following interest or user groups <u>are compatible</u> with your primary use of the Gallatin National Forest?

(Check appropriate blocks)

(1) ( ) cattle grazing
(2) ( ) sheep grazing
(3) ( ) sawmill
(4) ( ) pulpwood
(5) ( ) treating plant
(6) ( ) house logs
(7) ( ) water-municipality
(8) ( ) water-irrigation district
(9) ( ) winter sports center
(10) ( ) organization camp
(11) ( ) dude ranch
(12) ( ) resort
(13) ( ) campground camper
(14) ( ) hunting organization
(15) ( ) fishing organization

13. Which of the following interest or user groups <u>are not compatible</u> with your primary use of the Gallatin National Forest?

(Check appropriate blocks)

(1) ( ) cattle grazing
(2) ( ) sheep grazing
(3) ( ) sawmill
(4) ( ) pulpwood logger
(5) ( ) treating plant
(6) ( ) house logs
(7) ( ) water-municipality
(8) ( ) water-irrigation district
(9) ( ) winter sports center
(10) ( ) organization camp
(11) ( ) dude ranch
(12) ( ) resort
(13) ( ) campground camper
(14) ( ) hunting organization
(15) ( ) fishing organization

14. Are you in favor of the multiple-use management program of the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Very Low	Low	Medium	High	Very High

15. Are you being treated equitably in relation to other users in the same group of the Gallatin National Forest? _____ Yes _____ No.

If <u>No</u>, explain. _____

_____

16. Is your user group treated equitably in relation to other user groups of the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Very Low	Low	Medium	High	Very High

17. What are your dislikes or dissatisfactions with the multiple-use management program on the Gallatin National Forest?

    List in order given:

18. What are your satisfactions with the multiple-use management program of the Gallatin National Forest?

    List in order given:

19. What adjustments do you think the Forest Service should make in the multiple-use management program on the Gallatin National Forest?

20. Do you feel that the intermingled private land within the Gallatin National Forest is a hindrance to the Forest Service in administering the multiple-use program? _____ Yes _____ No. If Yes, answer question 21.

21. In which way is it a hindrance? _____

22. Do you think the multiple-use management program for the Gallatin National Forest should receive more publicity through local community meetings, press, radio, TV, field days, and tours?

1	2	3	4	5
/___/	/___/	/___/	/_____/	/_____/
Less		Adequate		More

23. What are the major problems or programs that should receive more attention on the Gallatin National Forest? Example: More access roads, improved campgrounds, etc.

(Rank by importance)

_____

_____

_____

_____

_____

24. How well do you understand the purposes and objectives of the administration of the Gallatin National Forest?

1	2	3	4	5
/___/	/___/	/___/	/___/	/___/
Low		Medium		High

25. What percent of the net receipts from the Gallatin National Forest are returned to the local county treasurer?

_____ _____

_____ _____

26. What terms best describe a professional forester who is employed by the Gallatin National Forest?

_____ Multiple-use land manager _____ Livestock manager

_____ Timber manager _____ Land-use planner

_____ Recreation manager

_____ Forest protection specialist

_____ Watershed manager

_____ _____

_____ _____

27. Are you in favor of the $7.00 "Recreation Fee" for use of improved campgrounds on the Gallatin National Forest?

_____ No

_____ Undecided

_____ Yes

28. In terms of wildlife vs. livestock numbers on the Gallatin National Forest, do you feel that there should be any adjustments made?

_____ Increase number of wildlife _____ Increase number of livestock

_____ Decrease number of wildlife _____ Decrease number of livestock

_____ Leave both the same

29. Are there sufficient controls in the Gallatin National Forest on use of Motorized vehicles?

_____ Yes _____ No

If not, what controls are needed?

_____

_____

Appendix 9

USDA-Forest Service

RECREATION VISITS - ANNUAL STATISTICAL REPORT

FILE REFERENCE
1380 (2300)

CALENDAR YEAR
1964

B. STATE	C. REGION	D. FOREST	E. DISTRICT
Montana	One	Gallatin	All

		USERS OF RECREATIONAL RESOURCES		
ITEM	RECREATION SITES AND AREAS	Number of visits	Number of man-days	Average length of visit
(1)	(2)	(3)	(4)	(5)
1.	Campgrounds	139,300	186,500	1-1/4
2.	Picnic Sites	97,400	45,100	1/2
	Sub-Total	236,700	231,600	1-1/2
3.	Winter Sports Sites	31,000	23,100	3/4
4a.	Organization Camps not owned by Forest Service	7,700	41,000	5-1/4
4b.	Organization Camps owned by Forest Service			
5a.	Hotels or Resorts owned by Forest Service			
5b.	Hotels or Resorts not owned by Forest Service	6,800	33,700	5
6.	Recreation Residences	22,700	124,600	5-1/2
7.	Wilderness Areas	2,600	12,600	4-3/4
8.	Other Forest Areas	2,588,000	1,016,100	1/2
	GRAND TOTAL (Sub-total and + items 3-8 incl.)	2,895,500	1,482,700	1/2

PRIMARY PURPOSE OF VISITS BY USERS OF RECREATIONAL RESOURCES

Primary purpose (6)	No. visits (7)		Primary purpose (6)	No. visits (7)
a. Camping	138,000	h.	Canoeing	82,900
b. Picknicking	192,000	i.	Organization Camping 4a + 4b	7,700
c. Swimming	14,700	j.	Wilderness Travel	1,000
d. Winter Sports	31,000	k.	General Enjoyment & Sightseeing	1,731,400
e. Hunting Big Game Sub-Total 58,100		l.	Gathering Forest Products for Pleasure	17,500
Small Game Sub-Total 18,600	76,700	m.	Scientific Study and Hobbies	23,500
f. Fishing	486,000	n.	Other activities	28,400
g. Hiking and Riding	64,700		TOTAL (Items a-n)	2,895,500

DATE	SIGNATURE	TITLE
December 30, 1964	Earl H. Welton	Acting Forest Supervisor

Appendix 10

U.S. Department of Agriculture
Forest Service
Annual Grazing Statistical Report

Region One
State Montana — Calendar Year 1964 — Forest 11-Gallatin

Item	Cattle and Horses		Sheep and Goats	
	Livestock (1)	Animal Months (2)	Livestock (3)	Animal Months (4)
1. Estimated Grazing Capacity Net Usable N.F. Land	9,800	28,500	29,500	57,500
2. Permitted to Graze	9,777	27,569	23,594	45,732
A. Under Paid Permit	8,947	27,051	23,594	45,732
B. Under Exempt Provision	830	518	---	---
C. Other Paid Permit	---	---	---	---
3. Authorized Nonuse	190	579	4,123	1,853
4. Actually Grazed	9,682	26,828	22,514	38,831
A. Under Paid Permit	8,827	26,235	22,514	38,831
B. Under Exempt Provision	830	518	---	---
C. Under Trespass	25	75	---	---
D. Other Paid Permit	---	---	---	---
5. Estimated Grazing Capacity Waived Private Land	3,362	11,536	7,674	16,303
6. Permitted Under Private Land Permit	3,362	11,536	7,674	16,303
7. Actually Grazed Under Private Land Permit	3,271	11,022	7,380	14,413
8. Permitted Under Crossing Permit	---	XXXXXX	---	XXXXXX

Item	Unit	C&H	S&G	Swine	Total
9. Paid Permits	No.	227	23	---	250
10. Exempt Owners	No.	XXX	XXX	XXX	---
11. Private Land Permits	No.	69	8	---	77
12. Crossing Permits	No.	---	---	---	---
13. Losses	LS	153	752	---	XXX
A. Poisonous Plants	LS	31	97	---	XXX
B. Predatory Animals	LS	12	252	---	XXX
C. Other	LS	110	403	---	XXX

Item	Acres
14. Net Usable N.F.	924,525
A. Open for Grazing	589,450
B. Closed	335,075
15. Waived Private Land	203,282

Approved Alan J. Lamb Title Forest Supervisor Date 12/31/64

VITA

Richard T. Marks was born in Kingston, Minnesota, on January 12, 1928, to Mr. and Mrs. Robert W. Marks. Currently Marks is Project Leader in Forestry, Wildlife and Outdoor Recreation for the Cooperative Extension Service at Virginia Polytechnic Institute, Blacksburg, Virginia.

Extension Forester from 1957-65 at Montana State University, Bozeman, Marks received his B.S. in forestry from the University of Montana, Missoula, in 1953, with pre-forestry work at the University of Minnesota. He received his master's degree from Montana State University, Bozeman, in 1961. Other experience includes employment as District State Forester, Montana State Forestry Department; Anaconda Forest Products, Bonner, Montana, and Fetscher Logging Company, Missoula, Montana.

Marks is a graduate of Litchfield High School, Litchfield, Minnesota.

He is married to the former Hildegarde Ullereng of Duluth, Minnesota. They are the parents of two children, Stephanie, 12, and Ricky, 8.

In college he was a member of Xi Sigma Pi, honorary forestry fraternity, and Alpha Zeta, honorary agricultural fraternity. Presently, he is a member of the Society of American Foresters, the American Forestry Association, the Society of Sigma Xi and the National Honorary Extension Fraternity, Epsilon Sigma Phi.

At Montana State University, he was also assistant coordinator for the Ecuador Peace Corps Training Program.

He served as editor of the newsletter for the Northern Rocky Mountain Section, and also Chairman of this Section, Society of American Foresters, and as executive secretary of the Montana State Christmas Tree Association.

He served with the United States Marine Corps and in the occupation of China for 18 months.