

AN ABSTRACT OF THE THESIS OF

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Allocating use in wilderness by rationing is one way to control crowding and resource deterioration problems. The wilderness user's perception of wilderness management systems is vital to effective management decisions when overuse problems arise. The purpose of this study was to determine which direct rationing systems users preferred. The five systems respondents examined were pricing, queuing, merit, advance reservations, and lottery. The objectives were to determine: 1) if Eagle Cap and Mt. Jefferson respondents perceived rationing to be necessary in the areas they had visited; 2) what system users perceived to be "best;" and 3) what factors influence the user's perception of the acceptability of a system to distribute permits. To determine the "best" system, respondents evaluated the following for each system:

- 1) whether the system is a fair method of distributing permits;
  - 2) how the system affects the user's chance of obtaining a permit;
  - 3) whether the user would be willing to try the system; and 4)
- whether the system is acceptable to the user as a management method.

Questionnaires were mailed to 379 respondents (who had been met at selected trailheads) with a 70 percent return rate. The results indicate that the advance reservation and pricing systems are the most acceptable to respondents. The pricing system, however, may not be an effective system since surveyed users responded that it would not affect their chances of obtaining a permit. The lottery system was rejected by 80 percent of the respondents as an acceptable system. Almost half of the respondents indicated a rationing system would be needed soon in the areas they had visited.

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the Mt. Jefferson and Eagle Cap  
Wilderness Areas

by

Margaret Ellen Petersen

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# USER PERCEPTIONS OF RATIONING IN MT. JEFFERSON AND EAGLE CAP WILDERNESS AREAS

## CHAPTER I

### INTRODUCTION

Resource deterioration and crowding are potential problems in wilderness areas. Although they are relatively new problems in wilderness, past experience with national parks and scenic rivers indicates they may be serious. In 1968, some national parks began restricting overflow camping and requiring park entrance fees (Cahn, 1968). By 1972, the National Park Service concluded it was necessary to regulate visitor use because parks could no longer accommodate each and every visitor that came to visit (Stankey and Baden, 1977). National parks have not stood alone in facing resource use problems. As river running gained popularity, many scenic rivers experienced conflict among users, crowding, and resource deterioration. River managers responded to these problems by establishing use limits (Shelby and Danley, 1978). Allowing continued deterioration of the resource (and its associated recreation experience), or controlling excessive use is the choice to be made by resource managers. The National Park Service and U.S. Forest Service have responded to the overuse problem in many areas by enforcing rationing systems which

allocate use according to pre-established limits for the resource.

As wilderness use pressures mount, managers will consider rationing systems as possible control mechanisms for overuse more critically. Wilderness presently represents approximately two percent of the U.S. land base<sup>1</sup>, and wilderness use has increased by 10 percent per year from the end of World War II until 1975 (Stankey, Lucas, and Lime, 1976). Increasing use, especially when wilderness use tends to be localized in popular areas rather than dispersed, has contributed to the potential for crowding and resource deterioration in wilderness areas.

Wilderness, often characterized by qualities such as solitude and untouched lands, will lose these qualities if not properly managed. The problem to be solved when regulating wilderness use is how wilderness can retain its untouched character and opportunities for solitude without simultaneously destroying the user's "wilderness experience" (Hendee, Stankey and Lucas, 1978). The Wilderness Act of 1964 does provide some management guidelines. The wilderness must be without "permanent improvements or human habitation" and must generally appear to be "affected primarily by the forces of nature with the imprint of man's work substantially unnoticeable." In summary, the land should not be physically changed or modified by man. This has direct implications for wilderness management, and is critical as wilderness use and the resource deterioration potential increase. As inferred

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<sup>1</sup> This has been forecasted to increase to 3.6 percent once final contributions to the wilderness land base are made (Brown, 1980).

from the Wilderness Act, the task of wilderness managers is to change the use patterns of visitors rather than modify the physical capabilities of the wilderness. Preserving wilderness quality when it is threatened with overuse, while maintaining a satisfactory "wilderness experience" for visitors, will require careful thought from managers.

#### THE WILDERNESS USER

Some insight into the problem of overuse may be gained by knowing the typical wilderness user's educational, social, and economic background. Studies have clearly identified these characteristics (Merriam, 1963; Stankey, 1971; ORRRC, 1962; Lucas, 1979; Hendee, et. al., 1968; Merriam and Ammons, 1967). The users are predominately male, young to middle-aged adults with middle to high incomes. They are highly educated with three-fourths of them married and most having children. Visits are usually two to three days long, with wilderness use being part of a continuing pattern established in childhood (Hendee, et. al., 1968, p. 22). Evaluation of these characteristics is important, since they have implications for wilderness management methods. For example, since most users are well educated, "talking down" to users when explaining new camping techniques may be inappropriate (Lucas, 1979).

Knowing the user's background is essential to effective decisions. With past research, information collected from wilderness permits, and simulation models, the manager has a

good beginning information base from which to make decisions. User attitudes and opinions, however, are not well known, and cannot be applied across all wilderness areas. They are very important in developing effective management strategies.

Attitudes toward wilderness indicate how users may react towards specific management methods. Opinions concerning the specific management method can provide the impetus to reject or accept a given method. Sometimes, an unpopular strategy must be implemented to effectively solve problems. However, a manager who is familiar with his users should be able to provide the explanations needed in order to accept a disfavored management method.

#### APPROACHING THE PROBLEM OF OVERUSE

Use limits, or carrying capacities, have been established by agencies in response to overuse (Shelby and Danley, 1979). Once a use limit has been established, however, the problem is how use should be allocated if the use limit has been exceeded.

Indirect and direct methods are the two basic management approaches to solving overuse problems (Peterson and Lime, 1979). Indirect methods include physical modifications, dispersing information, and establishing eligibility requirements (Gilbert, et. al., 1972).

An indirect method manipulates the behavior of the user. For example, improving or not improving access roads, campsites, or trails can be used to affect the user's choice (Hendee, Stankey, and Lucas, 1978). If the access road reaches far into the back-

country and reduces the amount of miles to be hiked, use can be expected to increase. Similarly, trails which are not improved, and which have been planned to be difficult may reduce the number of users. Physical obstructions such as placing logs across paths may also reduce user impact (Hendee, Stankey, and Lucas, 1978). Stocking a lake with fish may attract more users while a barren lake may not (Hendee, Stankey, and Lucas, 1978).

Information dispersal, such as promoting nearby recreation activities, advertising underused areas, or teaching users ecology concepts, can all be used to modify user behavior (Hendee, Stankey, and Lucas, 1978). Charging a fee which is either constant or fluctuates with changing use patterns, and requiring demonstration of skills, are other indirect management methods which may influence a user's behavior (Gilbert, et. al., 1972). The individual still retains the choice to choose where to visit so more variation in use is possible (Hendee, Stankey and Lucas, 1978).

A direct approach regulates the user to behave in a certain manner. Individual choice is restricted by enforcing policy rules and regulations. Some of the direct methods are zoning, restricting use, and restricting user activities (Gilbert, et. al., 1972). Enforcing policy would include fines and patrolling for violations. Zoning of incompatible uses, such as snowmobilers and cross-country skiers, or limiting the number of nights allowable in one campsite are ways to control user behavior. Other restrictions which would control the number of users would be

rotating use of access points and campsites, requiring reservations, assigning camping and traveling routes, limiting the number allowed at access points, limiting the size of groups and the number of animals, and limiting the length of stay (Gilbert, et. al., 1972). Activity restrictions could also be applied to campfire building, hunting and fishing.

A direct method may be necessary when the manager cannot change behavior by other methods and overuse has become excessive, or time is of the essence. It is noted that the costs in terms of loss of freedom and enjoyment should be weighed against the benefits of changed behavior (Peterson and Lime, 1979). Management strategies should be chosen carefully, and if a regulatory method appears to be the only way to meet management goals, then the decision should be re-evaluated before a final decision is made (Hendee, Stankey and Lucas, 1978). This is to assure regulation is the best policy for meeting the problem (Hendee, Stankey and Lucas, 1978).

The ability to explain why a method is necessary to the user is crucial if the method is to be accepted. The method actually chosen is equally important. Choosing the best method is dependent upon the user's perceptions of the strategies a manager may select, especially if the decision to employ a regulatory method has been made. Being aware of user perceptions of and preferences for different rationing systems will facilitate the transition from non-regulated use to regulated use. Choosing a rationing system which is perceived as "best" by users, along



with being able to explain the need for the system, can make the transition easier. A rationing system would not be effective if users found it unacceptable and disregarded management directives.

### STUDY OBJECTIVES

The purpose of this study is to examine respondents' preferences for methods of rationing use in the Eagle Cap and Mt. Jefferson wilderness areas. Five rationing systems were evaluated by selected users from each wilderness area. The systems were purchasing permits (pricing), advance reservations, lottery, first-come/first-served (queuing), and merit. The study objectives were to determine: 1) if Eagle Cap and Mt. Jefferson respondents perceived rationing to be necessary in the area they visited; 2) what rationing systems respondents perceived to be "best;" and 3) what factors might influence the user's perception of the acceptability of a system to distribute permits. To determine what system users perceived "best," respondents were asked to evaluate the following for each system: 1) whether the system is a fair method of distributing permits; 2) how the system affects the user's chances of obtaining a permit; 3) whether the user would be willing to try the system; and 4) whether the system is an acceptable management method. Users' opinions regarding rationing systems as management options for controlling resource deterioration will provide insight into the task of determining appropriate management methods. Knowledge of this does not imply rationing systems should be implemented, but it

does lay the groundwork for effective decisions concerning use control. Exploration of these methods now will mean better decisions later if the choice between overuse or controlling use needs to be made.

## CHAPTER II

### RATIONING OUTDOOR RECREATION

#### DETERMINING A NEED FOR RATIONING

Allocating use by rationing in wilderness implies there are established limits of use which must not be exceeded. Before use can be rationed, these limits must be known. One way managers can obtain an idea of these limits is to calculate carrying capacities. In recreational settings, carrying capacities can be used to determine the kind and amount of use which can be sustained over a certain time period without unacceptable changes in the recreational experience or the quality of the land (Lucas and Stankey, 1974). Two types of carrying capacities most important in wilderness evaluation are social and ecological.

#### SOCIAL CARRYING CAPACITY

Social carrying capacity is determined by the number of people appropriate for a particular recreational experience. Different recreational experiences have different numbers of people which are acceptable for the type of associated experience. For example, the local swimming beach can have more people than would normally be expected or desirable for a hike in back-country areas.

The number of people acceptable for a recreational experience

is dependent upon several factors, one of which is the type of user associated with the experience. Different users have varying sensitivities to solitude. For example, a study in the Boundary Waters Canoe Area of Minnesota showed canoeists distinctly displaying a one-sided aversion to motorized craft, and as a result, indicating they were much more crowded when motorized users were present than when other canoeists were present (Lucas, 1964). Besides the type of user, the size of the parties encountered, and where these encounters occur influence carrying capacity. Wilderness users are more crowded by large groups. Stankey (1973), for example, indicated users prefer to see ten parties of three all in a day, rather than see one party of thirty all at once. Visitors expect to see more people in the periphery of a wilderness and compensate for this by accepting higher levels of use without feeling crowded. Similarly, campsite privacy is considered much more important than privacy while traveling (Stankey, 1973).

#### ECOLOGICAL CARRYING CAPACITY

Ecological carrying capacity, the amount of use an area can withstand without unacceptable damage to the natural environment, is the second component which will affect the capacity of a wilderness. Several studies have evaluated the impact of users on wilderness. Frissel and Duncan (1965) reported that even lightly used campsites had lost 50 to 99 percent of their original ground cover in the Boundary Waters Canoe Area. Research

suggests that most of the damage occurs in the first two years of use and then levels off (Merriam and Smith, 1972).

The deterioration of the site, however, may not be as limiting as the associated reduction in visitor satisfaction (Lucas, 1964; Frissel and Stankey, 1972). Hardening techniques and facilities could be used to stabilize or improve the site (Behan, 1974). For example, planting hardier species, providing camping areas with fire pits, and adding outdoor toilets could be used to raise the amount of impact tolerable by the area, and have been suggested for use in backcountry areas (Shafer and Mietz, 1969; Lucas, 1971; Snyder, 1961). These techniques have not been preferred by wilderness managers because they conflict with the Wilderness Act guidelines which call for minimal physical improvements.

#### MANAGEMENT OBJECTIVES

Management objectives also affect carrying capacity. For example, deciding whether a wilderness should be managed anthropocentrically or biocentrically can significantly alter the carrying capacity. An anthropocentrically managed wilderness is managed in terms of human values and experience. A biocentrically managed wilderness is managed with emphasis on the wilderness ecosystem at the expense of recreational or human uses (Hendee and Stankey, 1973). Emphasizing the untouched character of wilderness affects the carrying capacity since the same number of visitors would impose greater impacts on an area

being managed for its untouched character than one managed for people and which provided facilities.

Assuming carrying capacity and management objectives have been established, the manager's task is to select management strategies which will provide opportunities for certain kinds of experiences. It may be that strategies which eliminate "freedom of choice," an integral part of the wilderness experience, could be disastrous. This does not imply an effective strategy must be eliminated because it goes against the user's concept of freedom and wilderness use. Anticipated resistance can be mitigated if the manager understands the user's attitudes and background. This is especially important when the best way to solve the problem is also the solution most objected to by users. Being able to explain the need for a system can be as important as deciding for whom the area will be managed (Lime, 1972). Sometimes, managers incorrectly perceive users' desires, although they may think they do know what they are (Hendee and Pyle, 1971; Hendee and Harris, 1970; Stone and Taves, 1958; Lucas, 1964b). Contact with complainers or interest groups may influence the manager's perceptions of what users think. Misconceptions about the users may result in poor decisions which could have been prevented with the use of accurate and relevant data.

#### CHOOSING A MANAGEMENT STRATEGY

There are several information sources which can be used in deciding on an optimum management strategy. One important

source which can improve the manager's understanding of users is mandatory permits. Using permits improves the information base from which wilderness managers must work (Hendee and Lucas, 1973; Hendee, 1974; Lime and Buchman, 1974) by providing information, such as travel zones and visitor origins. Mandatory permits have been controversial (Behan, 1974; Hendee and Lucas, 1974). However, they are particularly useful in simulation models which can predict the effects of shifts in use patterns within a wilderness (Schechter and Lucas, 1978; Gilbert, *et. al.*, 1972).

Information from permits and models can be very useful for a manager to direct policy decisions. If a policy to ration use has been determined as the best solution to overuse problems, additional information is still needed to assure the selection of the best rationing system. One way to determine which rationing system is best is to evaluate it against agency and user needs. The following discussion provides criteria for evaluating rationing systems.

## EVALUATING RATIONING SYSTEMS<sup>2</sup>

### Criteria for Evaluating Rationing Systems

There are several criteria against which a manager can judge a rationing system for a given situation (Shelby and Danley, 1979). Three criteria are efficiency, equality, and

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<sup>2</sup> The following relies heavily on excellent discussions by Stankey and Baden (1977), and Shelby and Danley (1979).

equity<sup>3</sup>. In wilderness use, an efficient rationing system would allow enthusiasts (those that value their use highly) better chances of obtaining a permit than those who had many other options for recreation which they enjoyed equally well.

Equality of a rationing system means that each potential user has an equal chance or equal opportunity to obtain a permit (Shelby and Danley, 1979). Equality can be exemplified by drawing straws, or tossing a coin, because each participating person has the same chance of winning the desired outcome. It should be noted that a system which is equal is not necessarily equitable, because equality does not account for the effort exerted on the part of the user.

Equity is the measure of a system's fairness (Shelby and Danley, 1979). A system's equitability is evaluated in terms of the user's effort and his resulting chance of obtaining a permit. A system which is very equitable would allow those users exerting the most effort to have higher probabilities of obtaining a permit.

Evaluating rationing systems against the three criteria of efficiency, equality and equity can facilitate decisions in wilderness management. Evaluating the system's ratings according to each criterion, can show which system will help achieve agency goals. In the following discussion, each rationing

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<sup>3</sup> "Need" is another criterion used by Shelby and Danley (1979). Because of its close resemblance to equity, and the difficulty in defining "need," it has been omitted from the following discussions.



system which Eagle Cap and Mt. Jefferson respondents considered will be evaluated in terms of efficiency, equality and equity<sup>4</sup>.

### Pricing (User Fees)

Pricing, as a rationing method, is an indirect control technique. It manipulates the level of resource use by fluctuating the cost (Gilbert, et. al., 1972). Use can be controlled by setting the fee high enough to exclude users who value using the wilderness less than the fee. Pricing can be effectively used to prevent resource deterioration by excluding users unwilling or unable to pay for use of the resource.

Historically, pricing has been well accepted. Pricing is an economic mechanism for allocating resource use. It is generally associated with a market where goods can be bought and sold. However, pricing has been used for goods generally considered non-market, such as campgrounds. When more of a commodity is demanded than is available, it becomes an "economic good" (Gibbs, 1977). Crowding in wilderness areas allows the resource to be evaluated as an economic good.

Normally, an equilibrium price is determined by the intersection of supply of the resource and the demand for the resource. With wilderness, the supply would be fixed at the carrying capacity established for a given area. Currently, it is not understood what prices are needed for visitor use to equal

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<sup>4</sup> Associated rankings of the system's criteria are personal observations made by the author.

the area's carrying capacity. With more precise knowledge of user responses to price fluctuations, pricing could be a very effective tool (Stankey and Baden, 1977). If pressure on a resource base is to be minimized, the fee would have to be high enough to eliminate users which are unwilling or unable to value the resource as highly as the fee. The eliminated user would substitute other activities. Those who value the wilderness experience more than or equal to the fee would still make use of the resource, but those who valued the wilderness experience less than the fee would be eliminated.

Pricing seems to be an efficient system because users are forced to evaluate how much they value a wilderness experience. The fee, provided it is set at a high enough level, assures the user a place in the wilderness without having to spend time, effort, or skill which are the associated costs of the other systems. An additional advantage of fees is they can help recover the cost of administering a price system which also reduces resource deterioration by matching the number of users with the carrying capacity of the area. Pricing would also require those who use the resource to pay for the use of the resource, rather than having all taxpayers subsidize the resource users (Shelby and Danley, 1979). Additionally, differential pricing can accommodate fluctuating use levels (Stankey and Baken, 1977). A higher fee could be charged for high-use periods, such as weekends and holidays, than would be charged for weekdays or off-season use. Fees could be similarly

differentiated between high-use and low-use areas to disperse use.

Pricing ranks medium to high in terms of equity depending on the income distribution. If those who are eliminated do not have enough income to support their recreational pursuits, the system is not equitable. Similarly, the pricing system ranks low in terms of equality, because not everyone has an equal chance at income. A user fee can prevent an enthusiast from using wilderness because he cannot afford it. However, studies suggest wilderness users have predominately middle-to-high incomes (Hendee, et. al., 1968; Merriam, 1963; ORRRC, 1962; Stankey, 1973), and that low incomes are associated with students who tend to understate their long term income potential (Vaux, 1975). Although most wilderness users may have above average income, lower income users must still be considered (Stankey and Baden, 1977). Recreationists who spend money in travel and equipment, however, may not find a fee to be an extra burden (Shelby and Danley, 1979). This raises questions as to the effectiveness of a pricing system for rationing resource use. A New Hampshire study showed experienced campers to have larger investments in equipment and time spent planning, and these campers also showed higher trip expenses than the inexperienced (LaPage, 1968). Nearly all of the respondents in the LaPage (1968) study were in favor of fees in campgrounds.

Pricing of recreation has been accepted by users provided the purpose of the price is understood. User-fees were favored

by a majority of users in the Crab Orchard National Wildlife Refuge, however, most of these users falsely believed the fees were used for maintenance and facility development (McCurdy and Miller, 1968). Hendee, et. al., (1968) showed 40 percent of the respondents from three wilderness areas in favor of fees if the revenue were used to assist costs of administering and maintaining backcountry. In the Bob Marshall wilderness, 60 percent of the respondents were willing to pay \$3.00 to \$5.00 per person for a yearly license to preserve the wilderness for recreational use (Merriam, 1963). Stankey (1973) did not find such favorable attitudes towards user fees. Less than 25 percent of the respondents from four wilderness areas favored an entrance fee. In a later study, Stankey and Baden (1977) suggest this resistance is related to the idea that nature should be "free" to the user, although this does not imply that the experience is valueless because there is no "cost" to the user.

Implementing a pricing system would require potential users to pay a fee of a predetermined amount before they could enter the wilderness. This would be similar to camping fees in state parks where users pay for their camping site at the entrance gate before being allowed to proceed further. User fees are common at U.S. Forest Service campgrounds where the user pays a nominal fee by depositing it in a prominently located fee box. In a wilderness setting, user fees have not yet been used, and there are questions concerning their legality on public lands (Stankey and Baden, 1977). If one were to be implemented, fees

would probably be payable at ranger stations and perhaps at access points. Fees could be payable for seasonal licenses or on a trip by trip basis. Enforcement poses problems because to effectively enforce an entire wilderness would require a crew checking permits to determine compliance with the fee regulation.

### Advance Reservations

Advance reservations are commonly used in theaters, restaurants, concerts, airplanes, and trains. Essentially, the reservation guarantees the user a place. The number of permits accepted for use of the resource is determined by the carrying capacity. Reservations are often used in conjunction with fees, but this is not necessary.

The reservation system is not as efficient as the pricing system. It does not favor users who value the experience more, since there is no guarantee that those users will obtain a permit. However, the system ranks moderately equitable because those that can plan ahead and make a commitment to do so, will have improved chances of using the area. It has been suggested that wilderness users may be restricted by this method because of the short, frequent trips which characterize wilderness use. These trips are generally associated with short planning horizons. Having to make multiple reservations, especially if the future is uncertain, may mean applicants will be frequently denied their first choice (Stankey and Baden, 1977). The reservation system ranks moderately high in terms of equality;

those planning ahead will have better chances, so not everyone has an equal chance of obtaining a permit. But, generally all users have an equal chance to apply.

Research indicates that not all campers are delighted about reservations (Trends, 1973), because of the necessity to plan ahead. It seems that as campers accept the need to plan ahead if they desire to enter a particular area, the reservation system becomes more acceptable. Reservations are well established for use in recreation situations and will probably be used more as the demand for recreation increases (Shelby and Danley, 1979). In southern California, respondents of a study on rationing of the San Gorgonio and San Jacinto wilderness areas indicated that users perceived rationing to be necessary (Stankey, 1979). The rationing of use was allocated by a combination of systems, whereby 75 percent of the permits were allocated by reservation, and the remaining on a first-come/first-served basis. Sixty-three percent of the respondents perceived the existing system as an acceptable method for issuing permits, although 25 percent suggested other systems ranging from fees to proficiency tests. Reservations used on the Middle Fork of the Salmon River in Idaho have been reported by river managers to be working well (Warren, 1977). Reservations are also used on the Snake River in Hell's Canyon. Permits are allocated on a per launch basis rather than per person because the number of encounters and limitation of one party per campsite were more important in controlling perceived crowding than was the actual number of

people (Shelby and Danley, 1979). Similarly, use is rationed on many popular western whitewater rivers.

In a study of the Westwater Canyon, 79 percent favored advance reservations, with 80 percent from the Desolation Canyon concurring (Schreyer and Nielson, 1978). Where reservations for campsites are required in the Rocky Mountain National Park, Fazio and Gilbert (1974) found 80 percent of the unsuccessful applicants still supporting rationing of use. A survey of four wilderness areas in 1971 showed 61 percent of the respondents in favor of mail reservations (Stankey, 1973). Overall, the reservation method has been well accepted where it has been used in parks and campgrounds, and has been chosen as the best method in areas where rationing has not been used (Stankey, 1973).

Even if a reservation system is accepted by users there are administrative constraints which must be considered. One problem is in minimizing "no-shows," which are people who make a reservation, but fail to claim their spot. This causes an underutilization of the resource at times when the demand for entry may be high (Stankey and Baden, 1977). Fees can be used to ensure a higher "show" rate because people are less likely to make multiple reservations in order to keep spaces open until they make a decision. When a reservation is free of charge, "no-shows" can be expected and will need to be reallocated or else the area will be underutilized. Because of users who prefer to go "spur-of-the-moment," many campgrounds allocate permits mostly by reservation, with a remaining percentage filled

on a first-come/first-served basis. This practice not only accommodates people who cannot or will not plan ahead, it also reduces underutilization of the resource by filling in the places of "no-shows" (Shelby and Danley, 1979).

Other administrative decisions which must be made concern the reservation policies, choosing a method for making reservations (e.g.: mail, telephone, in-person, ticket agencies), and considering the costs of establishing and administering a reservation system. Included in this would be deciding whether to use a manual or computerized reservation system. A manual system seems to work well for agencies which process small numbers of requests, but if more personnel must be hired to meet time demands, then a computerized system may be worth the additional costs (Burnett, III, 1973). A reservation system can work well provided the public understands the purpose of it and is aware of its existence. In cases where the reservation system has failed, it has been due either to public criticism, or because the agency believed the system was not meeting the needs of the users (Burnett, III, 1973)<sup>5</sup>.

An advance reservation system for permits in wilderness areas would work similar to reservation systems employed in parks. The potential user would apply ahead of the trip departure date for a permit. The administering agency would return to

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<sup>5</sup> For further details concerning administrative concerns of reservation systems, the reader is referred to Burnett, III (1973) and Shelby and Danley (1979).



the applicant a notice of his trip status (i.e.: whether or not the applicant was successful in obtaining a desired trip date). More than one date per season could be reserved, but once a specific date was filled, no more permits would be issued for that date. In national parks, users can request specific camping sites and dates. Other sites within the park are often suggested by park personnel if the desired site is unavailable. Under centralized reservation systems, open spaces in nearby parks can be located.

### Lottery

Lotteries are a common part of American culture. Historically, lotteries were used in biblical times to allocate duties (Shelby and Danley, 1979). They are used in gambling, raffles, the military draft, and big game hunting permits. A lottery allocates the use of a resource on a random selection basis. It is a variation of the reservation system, and in the long run advance reservations are similar to a lottery when mailed applications are made for limited events, such as obtaining a World Series ticket (Schreyer and Nielson, 1978, pg. 83). Irregularities in the postal system's delivery, or in the user's application, essentially reduce the process to a drawing from a mail bag on a given day (Potter, 1979).

Unless a lottery has been changed to accommodate agency goals, such as applying a higher chance of being selected to applicants who have in the past been unsuccessful, the system ranks high

in terms of equality. Every potential user has an equal chance of being selected. But, because lotteries do not differentiate between the user's value of the resource and his chance of obtaining a permit, "pure" lotteries are not efficient. Nor are pure lotteries equitable systems since the effort exerted by the applicant has no relationship to his chances. Lottery does favor individuals who apply for entry to many wilderness areas as opposed to seeking one specific area. This may serve to further disperse use as applicants weigh their chances of obtaining access to areas (Stankey and Baden, 1977).

It appears that users are not willing to risk their chances on getting into wilderness areas (Stankey, 1973). Sixty-two percent rejected lottery as a rationing method in a study by Stankey (1973). On the Westwater and Desolation Canyons, Schreyer and Nielsen (1978) found 64 percent of their sample rejecting lottery, perhaps because they were not familiar with the system. However, lotteries have been perceived as fair by approximately 90 percent of the hunters applying for big game hunting permits once the reasons for the system are understood (Potter, 1979). Game permits are allocated by lottery in many states in conjunction with a fee.

Lotteries can be administered in a variety of ways. They are flexible systems and can be altered to be more efficient by charging a fee in conjunction with the application. Applications may be taken on a group or individual basis, although group permits would need to account for size so the impacts on a

resource may be minimized (Stankey and Baden, 1977). Allocation of permits on a time basis would need to account for overlapping trips so that carrying capacity would not be exceeded. The turn-over rate within a lottery can be manipulated; for example, unsuccessful applicants may have better chances on the next try by allowing a special drawing. Leadtime, the amount of time between the user's trip status notice and the departure date, would need to be determined before a lottery can be effectively designed. Processing applications and collecting fees can cause peak workloads for agencies and management techniques to smooth out these problems will need to be developed specific to the agency (Shelby and Danley, 1979).

A study by Danley (1980) suggests the following scheme for a lottery for river-running: a lottery would mean users apply for a desired trip date well in advance of their departure so that a drawing may be held. Applicants would be notified of their trip status at least four weeks in advance. More than one date per season could be applied for with alternate choices allowed in the event the applicant cannot obtain the desired trip date. Dates which are not filled by the lottery would be available by telephone reservation or on a first-come/first-served basis.

### Merit

Nature once certified outdoor people; if they did not pass the test, they never left the wilderness to tell about their adventures (Wagar, 1940). Under a merit system, applicants

would have to demonstrate their skills before qualifying to participate in certain activities. Examples are driver's exams and hunter safety tests.

Merit and pricing both rank high in efficiency. Users must invest time and money, respectively, before they can use the resource. Thus, the resource is more likely to be used by users who value it more. Merit is also ranked highly equitable, since those users chosen are the ones who have exerted the most effort in obtaining the necessary skills. However, merit ranks low to medium in equality, because not everyone has an equal chance of being included unless they possess the experience.

A merit system for wilderness use has been proposed by J.V.K. Wagar (1940) and Garret Hardin (1969) as the best system possible. Both suggest that physical condition and being able to face the inherent dangers of the wilderness are the criteria by which users should be judged. This will inevitably require handicapped, out-of-shape, or too young users to go somewhere else. Merit systems have been criticized for several reasons. First, standards developed to define merit may be argued as favoring certain groups or individuals. Second, even if equitable standards are developed, testing these skills may be difficult. Deciding on how the user must demonstrate merit can be difficult, whether the qualifications are past experience, knowledge, physical fitness, or demonstrable skills. The merit system works on the premise that what the user knows will also be practiced in the wilderness. Even so, desired wilderness practices vary from area to area depending on the climate,

topography, geology, and vegetation (Stankey and Baden, 1977). Third, how fair can selections be made when all of the users are qualified? One solution which has been suggested could be to raise the minimum "score" required to obtain entry (Stankey and Baden, 1977).

The following suggested wilderness merit system is adapted from a study on the Hell's Canyon (Danley, 1980): users demonstrating skill in wilderness practices, such as no-trace camping would be given preference. On days when applications exceed use capacity limits, users with demonstrated skills would be given priority. This means that individuals not meeting the merit criteria may not be able to use wilderness on popular days, such as weekends and holidays. Establishing merit would probably be determined by a U.S. Forest Service developed exam. (Normally, the agency administering the rationing program would be expected to develop and administer the exam). The merit criteria would be subject to the interpretation and evaluation by the administering agency.

#### Queuing (first-come/first-served)

Queuing distributes the resources on a first-come/first-served basis. Commonly used for sports events and movies, the user "pays" for his spot by waiting in line. Like pricing, queuing allows the individual to assess the value of using the resource in relation to his willingness to pay or how much time he is willing to spend waiting to enter (Shelby and Danley, 1979).

Queuing ranks low to moderate in efficiency. Wilderness enthusiasts who make a commitment to drive long distances and wait in line can be displaced by spur-of-the-moment participants who live close by and happen to arrive sooner. Queuing ranks low to moderate in equity. If the user has a high travel and time commitment, then the system is more fair. The system ranks moderate to high in equality, because anyone making the decision to go has an equal chance of getting in the wilderness (up to the carrying capacity limit).

Smolensky, et. al., (1972) suggests rationing by time prices is preferable because time is more equally distributed than money. However, as pointed out by Stankey and Baden (1977), the majority of wilderness users are in the 20- to 45-year-old range and research indicates that leisure time is less available during this age because of family and job constraints than it is during old age or youth. Others argue it is better to pay money than time because money can be recovered and used, while time is lost forever once spent (Shelby and Danley, 1979).

Queuing discriminates against people who have regulated lifestyles, while favoring those with flexible schedules, such as students. Because of the remoteness of some areas, queues may cause confusion from users not knowing whether to anticipate rejection or success (Shelby and Danley, 1979). Those living far away may have to camp at the trailhead overnight, and along with those who must wait during the day, will require extra facilities to accommodate their needs. Queuing may

impose substantial costs for administrative agencies if facilities are needed.

Perhaps because of the risk involved in spending so much time for something which may not be received, queuing has not been well accepted by respondents in wilderness areas where it has been posed as a management method. Fifty-four percent rejected a queuing system in a study which surveyed four wilderness areas (Stankey, 1973). Elsewhere, in the Desolation and White-water Canyons, respondents rejected the system by 60 percent (Schreyer and Nielson, 1978).

Queues for permits could be held at the trailheads or at the ranger station. Queues at the trailheads may require additional facilities as potential users wait for a space to open. Additionally, there would be no way to prevent entry into the wilderness from an unofficial entry point. (A fence around the entire wilderness seems infeasible.) On the other hand, queues at the ranger station would also pose enforcement problems. There may be no need for additional facilities at the ranger station, however, extra personnel may still be needed at the trailheads to check for permit compliance. The queuing system has some enforcement problems which need to be solved before it can be successfully implemented.

## CHAPTER III

### SAMPLING METHODS

Eagle Cap and Mt. Jefferson were chosen for this study because they met the criteria used to determine appropriate study areas. The sample was purposely drawn using the following three criteria: 1) geographical differences; 2) high visitor use; and 3) the diversity of recreational uses offered by the wilderness. All Oregon wilderness areas were first categorized into geographical areas: west and east of the Cascade range (see Table I). Secondly, the amount of use per 1000 acres was calculated for each area based on 1977 U.S. Forest Service data. Third, the number of different recreational activities for each wilderness was evaluated. Several wilderness areas met the first two criteria, so diversity in use, such as fishing, rock climbing and horseback riding was used to make the final selection. On the basis of the three criteria, the second highest use wilderness areas were chosen from each geographical category to be study areas (see Figure 1). Eagle Cap and Mt. Jefferson were not chosen to be representative of all Oregon wilderness areas, but they met the criteria established by this study to determine two diverse appropriate study areas.



TABLE I<sup>6</sup>. ACREAGE OF OREGON WILDERNESS AREAS AND VISITOR DAY/1000 ACRES BY WEST-EAST LOCATION OF THE CASCADES.

<u>WESTERN</u>	<u>ACRES</u>	<u>1977 VD/1000 ACRES</u>
Mt. Hood	14,160 <sup>a</sup>	1,066
Mt. Jefferson	100,208	862
Mountain Lakes	23,071	568
Three Sisters	196,708 <sup>b</sup>	508
Diamond Peak	36,637	232
Mt. Washington	46,116	191
Kalmiopsis	168,900	54
 <u>EASTERN</u>		
Strawberry Mt.	33,653	850
Eagle Cap	293,775	282
Gearhart Mt.	18,709	96
Wenaha-Tucannan	67,088 <sup>c</sup>	---

<sup>a</sup> in 1978 acreage was 243,608

<sup>b</sup> in 1978 acreage was 47,160

<sup>c</sup> became wilderness in 1978; no official visitor day information in 1977

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<sup>6</sup> Compiled from 1977 U.S.F.S. wilderness data for Region 6.

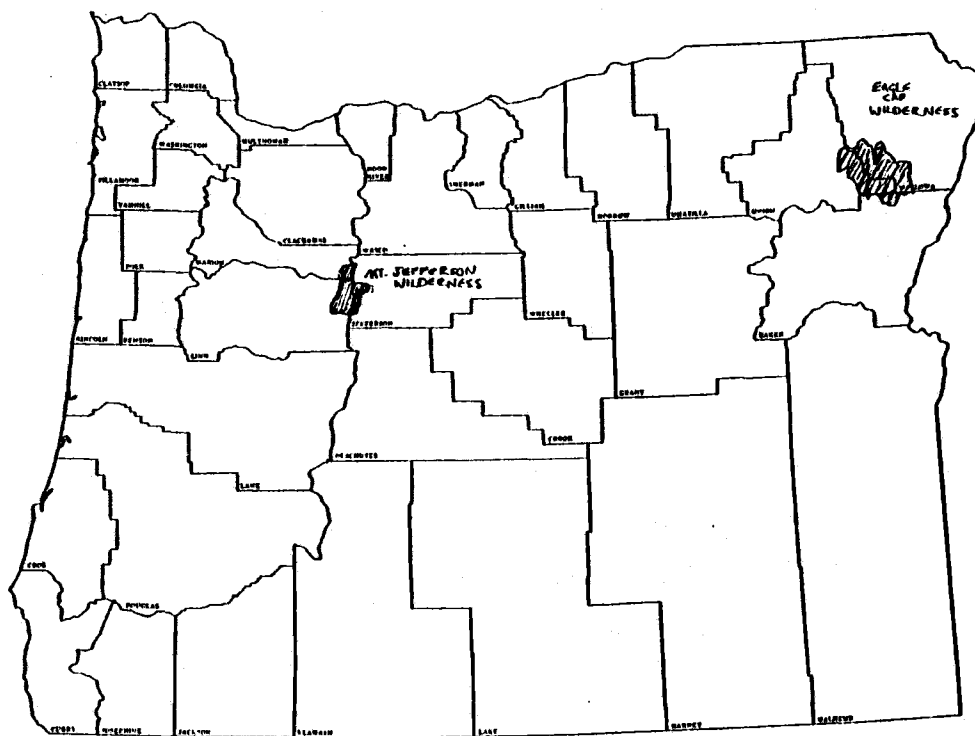


Figure 1. Locations of Mt. Jefferson and Eagle Cap Wilderness Areas within Oregon, 1979.

## OVERVIEW OF THE STUDY AREAS

Eagle Cap and Mt. Jefferson offer different recreational experiences to prospective users, in part because of their geological differences, and in part because of their locations within the state. Eagle Cap is twice the size of Mt. Jefferson at 293,735 acres, and is not surrounded by nearby large population centers. Eagle Cap attracts more horseback riders than any other wilderness in Oregon with half of its visitors using horses (U.S.F.S., 1975). In 1979, only three percent of the visitors in Mt. Jefferson used horses, and these were mainly for packing purposes (U.S.F.S., 1979). Combined, the two wilderness areas provide a contrast in user types, geography and location. The following discussion provides location and size information, geographic, topographic, vegetation, and recreational use descriptions for Mt. Jefferson and Eagle Cap.

### MT. JEFFERSON WILDERNESS

Mt. Jefferson wilderness, in the central Cascade range of western Oregon, is managed by three national forests: Willamette, Deschutes and Mt. Hood. Encompassing 100,208 acres, it extends 25 miles along the crest of the Cascade summit. Sixty miles southeast of Salem and 40 miles northwest of Bend, it is bordered by U.S. Highway 20 on the south, and by Oregon State Highway 22 on the west.

Mr. Jefferson, the mountain for which the wilderness is named, peaks at 10,497 feet. From its summit, the peaks of

Three Sisters, Mt. Washington, Mt. Hood, and Mount St. Helens can be seen rising from the volcanic plateau. Three-fingered Jack is the second largest volcanic cone in the wilderness at 7,841 feet. Other volcanic cones exist, but are smaller or have been eroded. The high Cascades are geologically young, with some lava flows only a few hundred years old. Most of the bedrock consists of basalts and andesites which are frequently covered by a mantle of pumice and ash.

Dense conifer forest covers the lower slopes. Approximately 87 percent of the wilderness is forested, with the remaining area in alpine areas, barren rocks and glaciers. Above 3000 feet, subalpine species such as silver fir, white fir, lodgepole, and whitebark pine are found. Some of the subalpine meadow species are western cassiope, red mountainhead, beaked sedge, and black alpine sedge (Franklin and Dyrness, 1973). Below 3000 feet, Douglas-fir, ponderosa pine, western hemlock, white fir, and juniper predominate.

The lower volcanic slopes are etched by stream valleys. As a result of glacial erosion, many of the valleys are U-shaped and head in bare rocky basins which usually contain small lakes. The wilderness is dotted by over 125 of these lakes, although 15 are moderately large. Marion Lake is the largest at 360 acres. Since 1930, the Oregon Fish and Wildlife Commission has been stocking lakes in Mt. Jefferson. Marion Lake is known regionally for its good fishing (U.S.F.S., 1977). Deer hunting is allowed during the High Cascade deer hunt which takes place

primarily in the southern portion of the wilderness. The elevations in the wilderness range from 3000 feet on Jefferson Creek and the South Fork of Breitenbush River to 10,497 feet at the summit of Mt. Jefferson (U.S.F.S., 1977).

Mt. Jefferson's proximity to large population centers contributes to its high use. Only 40 to 90 miles away lie the major cities of Portland, Salem, Corvallis, Albany, Eugene/Springfield, and Bend, which range in population size from 360,000 in Portland to 17,800 in Bend. There are approximately 1,783,700<sup>7</sup> people within a 100 mile radius. Most of the use in Mt. Jefferson is attracted from the valley between the Cascades and the Coast Range in Oregon (U.S.F.S., 1979). The majority of the visitors travel by foot, with only three percent using pack animals in 1979 (U.S.F.S., 1979). In 1975, more than 34 percent of the visitors were day users and about 46 percent stayed over for one night. Three visitor days<sup>8</sup> is the average stay per visit (U.S.F.S., 1977). Seventy percent of the use occurs between July 15 and September 15, with 75 percent of all visits occurring on the west side.

During the summer season, the typical group size was three people in 1979 (U.S.F.S., 1979). Ninety-four percent of the

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<sup>7</sup> Compiled from "Population Estimates of Counties and Incorporated Cities of Oregon." Portland State University Center for Population Research and Census. July 1, 1979. Portland, Oregon.

<sup>8</sup> One visitor day is equal to twelve hours.

visitors were Oregonians, with 34 percent from the Willamette Valley (excluding Portland), five percent from Deschutes County, and 27 percent from Portland (U.S.F.S., 1979). Many of these users return to make other wilderness trips in the Mt. Jefferson wilderness. Twenty-five trail entrances are present in the wilderness, although they do not receive equal use. In 1977, Marion Lake received 24 percent of the total visitor day use, with Pamela Creek, Square Lake and the Pacific Crest Trail receiving the next heaviest use.

#### EAGLE CAP WILDERNESS

Eagle Cap wilderness, located in northeast Oregon in the Wallowa Mountains, is administered by the Eagle Cap ranger district on the Wallowa-Whitman National Forest. The Wallowa Mountains have fairly gentle slopes, and the elevations within the wilderness range from 3400 feet at the boundary to nearly 10,000 feet at Matterhorn Peak.

Northeastern Oregon covers a large part of the geologic time scale (Franklin and Dyrness, 1973). The bedrock is sedimentary and includes sandstone, siltstone, shists, limestone, slate, argillite, tuff, and chert depending on the geologic period in which they were formed. Glacial activity has distinctly carved the Wallowas, and is perhaps the most distinctive feature of the Eagle Cap wilderness. From the prominent peak of Eagle Cap, for which the wilderness is named, a spectacular view is offered. The drainage pattern of the wilderness radiates

out from Eagle Cap Peak. The Minam and Lostine Rivers, Hurricane Creek, two forks of the Wallowa River, three forks of the Imnaha River, and three forks of the Eagle Creek all originate around the Eagle Cap.

Fifty percent of the Eagle Cap is forested, 15 percent is subalpine, five percent is meadow, and the remaining 30 percent includes rock and grassland communities. The forest communities include spruce, ponderosa pine, Douglas-fir, lodgepole, western larch, whitebark pine, Engelmann spruce, and subalpine fir. Green fescue is common in the grasslands prevalent in the subalpine meadows. Many of these grasslands, however, have been overgrazed and have deteriorated to a grass-forb stage (Franklin and Dyrness, 1973). Overall, the Eagle Cap wilderness can be characterized by forested lower valleys, with shrub timber in the upper canyons, high alpine lakes, and U-shaped valleys resulting from glaciers (U.S.F.S., 1975).

Big game hunting for deer and elk in the fall is an attraction of the Eagle Cap wilderness. Fish are stocked in the lakes by the Oregon Fish and Wildlife Commission. Rocky Mountain bighorn sheep were planted unsuccessfully in 1929, and again successfully in 1972 (U.S.F.S., 1975). Mountain goats were introduced into the Chief Joseph Mountain area in the 1950's. Ptarmigan were introduced in the Bonny Lakes area of Chief Joseph Mountain in 1967. Both plants were successful.

Baker and LaGrande are the nearest towns to the Eagle Cap wilderness which offer a sizeable population. Both are about

40 miles from the wilderness and have populations around 10,000. The population in the nearby valleys is small and declining due to changes in farming and ranching practices (U.S.F.S., 1975). The major centers of populations contributing users are over 100 miles in distance from the Eagle Cap. Approximately 78,500<sup>9</sup> people surround the Eagle Cap within a 100 mile radius. Eagle Cap attracts visitors statewide in Oregon, and also those from Washington and Idaho.

Eagle Cap has the highest proportion of horse use of any wilderness in Washington and Oregon. Riders comprise nearly one-half of the total day use. The season of use ranges from the first of July to the middle of November, with 75 percent of the use occurring during July and August. Visitors from 35 states and three foreign countries used the Eagle Cap wilderness in 1978 (U.S.F.S., 1978). Fifty-four percent of the visitors were from Oregon, while 13 percent were from Idaho and Washington. Nearly a quarter of the use in 1978 was from local towns around the wilderness, with 15 percent of the users considered semi-local which travel from Pendleton, Moscow-Pullman, and Walla Walla. Twenty-three percent of the Eagle Cap's visitors originate from west of the Cascades in Oregon (U.S.F.S., 1978).

In 1978, the average number of horses per party was 5.5 (about 1.3 horse per person). The average party size is 3.5,

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<sup>9</sup> Compiled from "Population Estimates of Counties and Incorporated Cities of Oregon." Portland State University Center for Population Research and Census. July 1, 1979. Portland, Oregon.



with horse groups averaging four people per party. The Eagle Cap has 47 trailheads, with the heaviest use occurring on the northern side. Wallowa Lake portal alone handles 35 percent of the visitors. Other well used trailheads in descending order are Two Pan on the Lostine River, Bowman Creek on the Lostine River, Hurricane Creek, and North Catherine Creek (U.S.F.S., 1978).

#### SAMPLING ACCESS POINTS

After selecting two wilderness areas, a sample of the access points in each wilderness was determined by the following: first, access points were stratified by low-use and high-use. Low-use access points were considered to have trails with less than two parties exiting per day. Use figures to stratify access points for 1979 were obtained from U.S. Forest Service personnel. The high-use area for Mt. Jefferson occurred on the western side, and the high-use area for Eagle Cap was on the northern side (see Figures 2 and 3). Second, from these high and low-use areas, five access points were selected. Three access points were drawn from the high-use categories, and two from the low-use categories. Because spending more time at the higher use trails was considered to be more efficient use of the interviewer's time, the high-use sections were sampled higher in terms of numbers of access points selected.

Potential respondents were met as they left the access point. Interviewing groups appearing similar in group size,

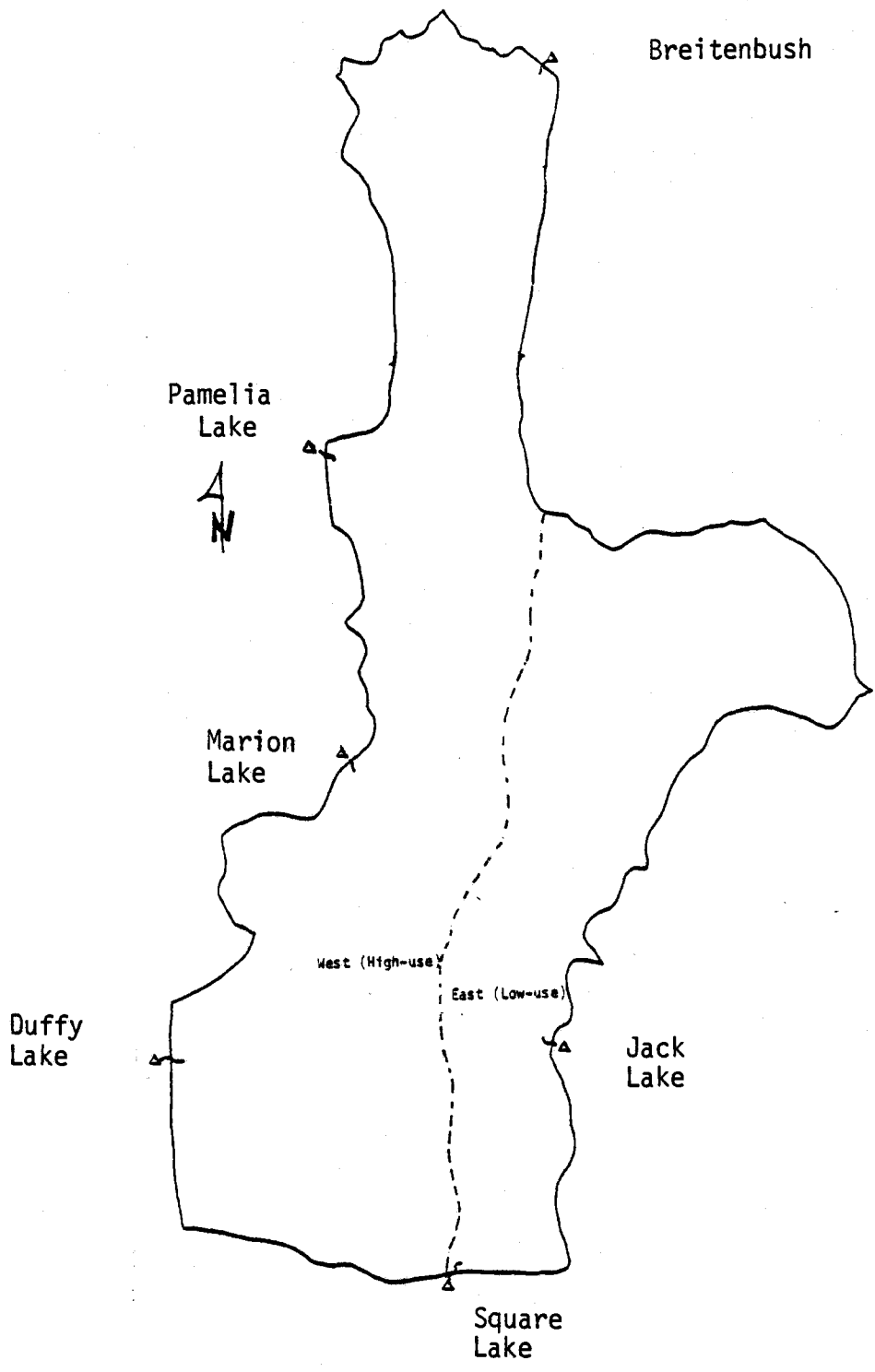


Figure 2. Stratification of Mt. Jefferson Wilderness (Oregon) for access point selection, 1979.

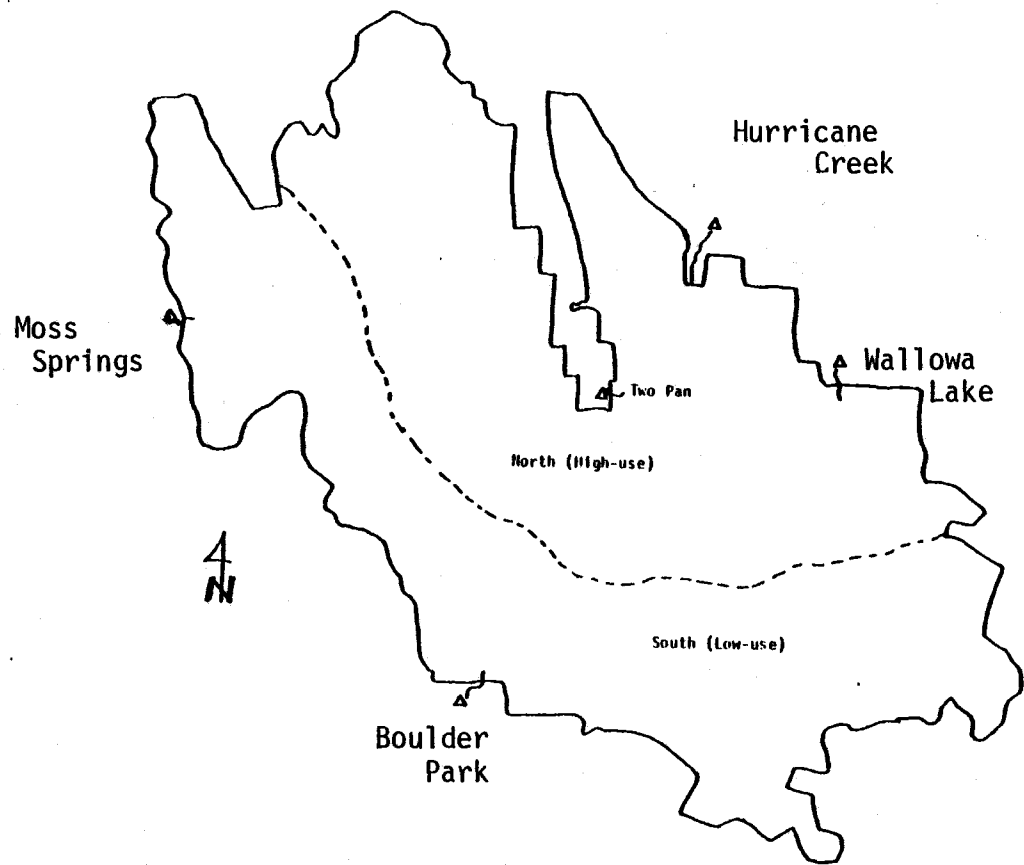


Figure 3. Stratification of Eagle Cap Wilderness (Oregon) for access point selection, 1979.

age, or recreational activity was avoided. In the event more than one party exited from the access point at one time, the party to be interviewed was selected by the use of random numbers. All members of the selected party were asked to fill out a brief interview form. Introductory information was gathered, such as the purpose of the user's trip, where they visited, how crowded they perceived their campsites and trails, and what activities they participated in on their trip. From this form, the respondent's name and address were obtained which was used for sending a follow-up questionnaire on rationing systems.

The interview schedule was determined by the months in which sufficient snow had melted to permit entry into the wilderness by summer season visitors, holidays, and the time and money spent in getting to the access point. A preliminary test of the interview form provided information on the best days to sample. It was determined Fridays through Mondays would be the best sample days because of the higher number of visitors leaving the access points, and because of concern about efficient use of the interviewer's time. After consideration of the above factors, four of the Mt. Jefferson access points were randomly assigned to weeks in July. The fifth was randomly assigned to the second week in September because it was inaccessible to many users in July due to snow pack. The order of the interviewing at Mt. Jefferson access points was randomly determined since the time and money spent between

access points was not considered to be a substantially important factor.

Eagle Cap access points were visited in a clockwise, systematic fashion because not all of the access points were within satisfactory time and cost limits (such as driving time). Eagle Cap was sampled in August, and in the first week in September, so Labor Day weekend could be included in the sample. See Table II for the order of visitation in each wilderness and the number of respondents sampled. Hours for interviewing wilderness users were varied so that variations in user departure dates could be accounted for.

A total of 379 respondents were contacted during this study<sup>10</sup>, 261 from Mt. Jefferson, and 118 from Eagle Cap. Of these interviews, 190 respondents (73 percent) returned the follow-up questionnaire from Mt. Jefferson, and 99 respondents (84 percent) returned it from Eagle Cap. Approximately 75 percent of the respondents were from high-use areas, which is representative of the number of visitors using high-use areas in both Mt. Jefferson and Eagle Cap (U.S.F.S., 1977, 1978).

The results of this study cannot be directly applied to all wilderness areas in Oregon. To do so would imply this was a probability sample of all wilderness areas. Drawing conclusions concerning the entire population of users in Mt. Jefferson and

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<sup>10</sup> Twenty-eight of these were addresses obtained from surveys which were left at Pamela Lake and Duffy Lake trailheads in Mt. Jefferson wilderness with an explanatory sign.

TABLE II. NUMBER OF PEOPLE INTERVIEWED FROM EACH ACCESS POINT  
IN MT. JEFFERSON AND EAGLE CAP WILDERNESS AREAS  
(OREGON), 1979.

<u>ACCESS POINT</u>	<u>NUMBER OF RESPONDENTS</u>
<u>MT. JEFFERSON</u>	
1. Marion Lake	91
2. Square Lake	56
3. Duffy Lake <sup>d</sup>	51
4. Jack Lake	41
5. Breitenbush	11
6. Pamela Lake <sup>e</sup>	11
	261
<u>EAGLE CAP</u>	
1. Boulder Park	11
2. Moss Springs	14
3. Two Pan	47
4. Hurricane Creek	14
5. Wallowa Lake	33
	118

<sup>d</sup> Seventeen interviews were collected from forms left at the Duffy Lake access point.

<sup>e</sup> All were left for users to voluntarily fill out.

Eagle Cap should be made with caution because the sample occurred at one point in time and reflects only summer visitors. Although Mt. Jefferson access points were sampled in a different fashion than those in Eagle Cap, each produced a representative sample of users.

### THE QUESTIONNAIRE

The questionnaire used in this study was modified for wilderness areas from one developed by Shelby and Danley for a Hell's Canyon river-running study (Danley, 1980). The questionnaire was developed to determine the user's perceived chances of obtaining a permit under various rationing systems, the perceived acceptability of the system to distribute permits, the perceived fairness of the system's method to distribute permits, the user's willingness to try the system, and the user's "ability to pay" for a system.

The five rationing systems used in this survey are pricing, advanced reservations, lottery, first-come/first-served, and merit. Questions concerning the system's fairness and willingness to try a given system used a modified Likert continuum. For more information concerning the development of the questionnaire, the reader is referred to Danley (1980). A copy of the questionnaire is contained in the Appendix of this thesis (see pocket).

## CHAPTER IV

### RESULTS

The results in this chapter are compiled from the follow-up questionnaire. Five different rationing methods were suggested for distributing user permits in the Mt. Jefferson and Eagle Cap wilderness areas. The methods were purchasing permits (pricing), advance reservations, queuing (first-come/first-served), lottery, and merit. Additionally, information concerning the respondent's social, economic and educational background was gathered. The following discussion of results examines the respondents' background, the preferred users and willingness to pay for permits by high-use and low-use days, whether rationing is necessary, and which system was perceived "best" by respondents.

#### BACKGROUND INFORMATION

The economic, social and educational characteristics of users from Eagle Cap and Mt. Jefferson were similar to those reported in other studies (Merriam and Ammons, 1967; Hendee, et. al., 1968; Stankey, 1973). The typical user surveyed (see Tables III and IV) has a Bachelors of Arts (BA) or equivalent from college and earns around \$25,000 per year. Half of the users surveyed were married, and the majority of those surveyed were male with an average age of 32 years. Of the respondents,



TABLE III. SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS FROM EAGLE CAP AND MT. JEFFERSON WILDERNESS AREAS, (OREGON), 1979.

	EAGLE CAP	MT. JEFFERSON	T-TEST BETWEEN MEANS
Average Age (years)	32.2 (N=93)	31.4 (N=185)	-.63
(Average Number Of Years Ago) When Began Taking Backcountry Trips	11.4 (N=94)	10.5 (N=185)	-.75
Average Number of Trips Taken	26.9 (N=80)	31.3 (N=160)	.64

		EAGLE CAP	MT. JEFFERSON
MARITAL STATUS %	Single	36.6	36.6
	Married	52.7	53.2
	Separated, Divorced, or Widowed	9.7	6.5
	Other	1.1	3.8

2.42 Chi Square with 3 DF, Non-significant,  $P > .05$

TABLE III. CONTINUED

		EAGLE CAP (N=93)	MT. JEFFERSON (N=183)
Number of Children %	0	64.5	65.0
	1	11.8	12.6
	2	17.2	14.2
	3	5.4	4.9
	4	1.1	----
	5	----	1.6
	6	----	0.5
	7	----	1.1
	Average	0.67	0.75

5.44 Chi Square with 7 DF, Non-significant,  $P > .05$

		EAGLE CAP (N=93)	MT. JEFFERSON (N=185)
Sex %	Male	72	67.2
	Female	28	32.8

.47 Chi Square with 1 DF, Non-significant,  $P > .05$

TABLE IV. EDUCATION AND INCOME LEVELS FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

	EAGLE CAP (N=93)	MT. JEFFERSON (N=185)
Eighth Grade	----	1.1
Tenth Grade	3.2	1.1
Eleventh Grade	2.2	1.6
Twelfth Grade	11.8	12.4
Some College	25.8	29.7
BA or Equivalent	29.0	36.2
MA or Equivalent	22.6	13.5
Advanced Degree, Ph.D., M.D., etc.	5.4	4.3

7.2 Chi square with 7 DF, Non-significant,  $P > .05$

INCOME (Grouped Levels, in Percentages)

	EAGLE CAP (N=98)	MT. JEFFERSON (N=183)
0 to \$4,999	4.7	6.0
5,000 to 10,999	10.7	13.1
11,000 to 14,999	13.0	13.2
15,000 to 29,999	43.6	47.0
30,000 to 44,999	11.8	15.4
45,000 to over 100,000	16.7	5.4

18.07 Chi square with 19 DF, Non-significant,  $P > .05$

65 percent had no children with 12 percent having one child. The typical respondent began using wilderness areas about eleven years ago and has participated in an average of 29 trips. One-third of the respondents from both areas indicated participating in wilderness excursions was a very important part of their lives. Overall, the users surveyed in this study were very similar to other studies.

In order to obtain an idea of the time frame within which users must plan their trips to the wilderness, users were asked what amount of time they would be willing to wait for a wilderness permit if their original request was denied. Fifty-five percent of all respondents indicated they would be willing to wait two weeks to get a wilderness permit if their original requests were denied (see Table V). Seventy-nine percent of the respondents from Eagle Cap expressed they would be willing to go on a weekday as compared to the 68 percent from Mt. Jefferson. The higher percentages of respondents willing to go on a weekday may be a result of fulfilling trip plans sooner than if they had waited for the next weekend.

Past research suggests that time is critical to wilderness users and that they do not have more free time than do participants in other recreational activities (Stankey, 1971). Surveyed users from the Eagle Cap indicated they had nearly three and a half weeks of vacation time per year, however, the typical Mt. Jefferson respondent indicated four weeks as vacation time (see Table VI). The vacation periods indicated by the

TABLE V. SCHEDULE FLEXIBILITY OF RESPONDENTS WHEN DESIRED TRIP DATE CANNOT BE OBTAINED FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

		WAIT TWO WEEKS	GO ON WEEKDAYS
Eagle Cap	Yes	58.2	79.1
	No	41.8	20.9
	N	91	91
Mt. Jefferson	Yes	55.6	67.8
	No	44.4	32.2
	N	178	177
Chi Square with 1 DF		.08 <sup>†</sup>	3.26 <sup>†</sup>

<sup>†</sup> Non-significant,  $P > .05$

TABLE VI. PLANNING HORIZONS AND VACATION LENGTHS OF MT. JEFFERSON AND EAGLE CAP RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

		LOTTERY LEAD TIME	VACATION TIME/YEAR	PLANNED FOR THIS TRIP	HOW FAR CAN PLAN IN ADVANCE?
Eagle Cap	Mean	4.9 weeks	3.4 weeks	8.0 weeks	4.6 months
	N	80	91	95	91
Mt. Jefferson	Mean	4.2 weeks	4.0 weeks	3.9 weeks	3.4 months
	N	151	181	186	175
T-Test Between Means		-.50	.87	-2.05	-3.43

respondents are of average length so it may be that many users will plan ahead to ensure a wilderness trip is included.

Eagle Cap respondents spent an average of two months planning for their wilderness trip as compared to one month by Mt. Jefferson users (see Table VI). When asked how far into the future users could effectively plan, surveyed Eagle Cap users responded 4.5 months was an effective planning time. Many indicated advance planning could be initiated as far ahead as 13 months. Users surveyed from Mt. Jefferson believed almost 3.5 months was an effective planning period with most responding one month was best (see Table VI). Respondents from Eagle Cap indicated an average of five weeks leadtime would be required if a lottery were administered, compared to four weeks indicated by Mt. Jefferson respondents (see Table VI).

It is noted that Eagle Cap respondents seem to require greater time commitments than do Mt. Jefferson respondents, even though Mt. Jefferson respondents had an average one-half week extra of vacation time. Vacation length does not appear to be critical in the Eagle Cap users' commitment to obtain a wilderness permit. Rather, the time differences may reflect the Eagle Cap's greater ability to attract users statewide and nationally. Users who would travel farther must spend considerable time, effort, and money preparing for a wilderness trip. Mt. Jefferson, which is surrounded by large population centers, appears to not require the same planning effort from its users.

### PREFERRED USERS AND WILLINGNESS TO PAY FOR PERMITS BY USE DAYS

Surveyed users were asked which of the following user groups should be given preference if a rationing system existed: private users, commercial users, users who have used the area before, users who have been unsuccessful in obtaining a permit, or those users with wilderness skills. Seventy-eight percent believed private users should be preferred, with those unsuccessful in obtaining permits in the past, or those with wilderness skills, as the second choices (see Table VIII). Commercial users were not preferred. Historically, commercial users have not contributed a large part of the wilderness use, so this response may be a result of the respondents' unfamiliarity with commercial users. Where commercial users are common, however, a survey of rationing methods on the Hell's Canyon indicated private users still preferred private use over other choices (Danley, 1980). The respondents probably prefer their user group because it would improve their own chances. Danley (1980) found that commercial users preferred commercial use over other choices. Perhaps the most significant response to this question is that many thought unsuccessful applicants should be preferred. This is important if the managing agency desires to weigh the selection procedure of a given rationing system.

Those interviewed were asked whether they believed the wilderness area they had visited should be managed by times or areas on a high-use/low-use basis. Eighty-three percent from Mt. Jefferson and 77 percent from Eagle Cap believed this would be an appropriate



TABLE VIII. USER GROUPS EAGLE CAP AND MT. JEFFERSON RESPONDENTS INDICATED SHOULD BE GIVEN PREFERENCE IN OBTAINING PERMITS, (OREGON), 1979, IN PERCENTAGES.

User Groups	EAGLE CAP				MT. JEFFERSON				Chi Square with 1 DF
	Favor	Oppose	N	Average Rank*	Favor	Oppose	N	Average Rank*	
Private	80.2	19.8	91	2.1	76.7	23.3	179	2.0	.25 <sup>†</sup>
Commercial	15.6	84.4	90	4.1	5.8	94.2	178	4.7	5.69
Historical Users	31.8	68.2	88	3.3	25.4	74.6	178	3.1	.89 <sup>†</sup>
Previously Denied	68.1	31.9	91	2.5	57.8	42.2	178	2.5	2.27 <sup>†</sup>
Those with Skill	55.1	44.9	89	2.7	60.8	39.2	177	2.5	.58 <sup>†</sup>

\* Systems were ranked with 1 (most acceptable) to 5 (least acceptable).

† Non-significant, P>.05

management technique (see Table VII). Users were also asked how much they would be willing to pay to use the wilderness on high-use or low-use days. The results imply respondents were not strongly influenced by pricing, since many did not indicate their chances of obtaining a permit would be strongly affected. This might suggest that pricing would not be an effective rationing tool if it does not influence user decisions. On the other hand, it may influence more political pressure on the supply of wilderness if a large amount of revenue were generated by wilderness users.

Past research suggests price is not a limiting factor in a user's decision. Education, which is closely related to income is more likely the important factor in a user's preference for wilderness recreation (Stankey, 1971). A study on the Hell's Canyon river-runners showed price not to be a significant variable in the user's decision, and that other factors may be more important (Danley, 1980). Yet, if money is not a limiting factor, reviewing what respondents indicated they would be willing to pay for high-use and low-use days provides some interesting results. The average price respondents indicated they would be willing to pay for a low-use day was \$2.00. For high-use days, the average price was \$4.00 for Eagle Cap respondents and \$3.00 for Mt. Jefferson (see Table IX). These prices are not much different from U.S. Forest Service camping fees which range from \$2.00 to \$5.00, but which are charged on a per night basis. The willingness to pay values are much lower than fees associated

TABLE VII. IS A RATIONING SYSTEM NEEDED? AND SHOULD THE AGENCY MANAGE TIMES OR AREAS BY HIGH-USE AND LOW-USE PERIODS? RESPONSES FROM SURVEYED USERS IN EAGLE CAP AND MT. JEFFERSON WILDERNESS AREAS, OREGON, 1979, IN PERCENTAGES.

		Eagle Cap	Mt. Jefferson
Is Rationing System Needed?	Yes, needed now	27.7	27.8
	Probably yes, but not for a few years	18.1	18.7
	Probably no, only if use increases dramatically	41.5	41.2
	Definitely no	7.4	5.9
	Don't know	5.3	6.4
		(N=94)	(N=187)
High-Low Use Periods	Yes	77.2	82.5
	No	22.8	17.5
		(N=92)	(N=177)

TABLE IX. EAGLE CAP AND MT. JEFFERSON RESPONDENTS' WILLINGNESS TO PAY FOR PERMITS ON LOW-USE AND HIGH-USE DAYS, (OREGON), 1979.

Use Day	EAGLE CAP (N=93)		MT. JEFFERSON (N=183)		T-Test Between Means
	Mean	Mode	Mean	Mode	
Low-Use Day	\$2.24	\$1.00	\$1.64	\$1.00	-1.80
High-Use Day	\$3.95	\$0.00	\$2.94	\$0.00	-1.78

with other recreational activities, such as skiing, but users probably do not perceive wilderness use to be a commercial recreational activity.

Surprisingly, surveyed users frequently indicated they would pay nothing for a high-use day. Compared to the modal response of \$1.00 for low-use days, it seems odd that users would be willing to pay less for more preferred times, such as weekends and holidays. This may reflect a wording problem within the survey. It could have been misinterpreted to mean that high-use days would be crowded, and since crowding was disliked, it was not worth paying any amount to be crowded. The wording should have been such that respondents understood the fee was to bring use to an acceptable level. Asking what a wilderness experience is worth to the user, rather than how much he would be willing to pay may be more appropriate. It is probable that the answers to this question are all biased by this misunderstanding. Even so, it is still possible that users indicated a lower price when it was to their benefit.

The low values may result from unfamiliarity with the rationing concept by Mt. Jefferson and Eagle Cap respondents. Wilderness has not been historically thought of as something which must be rationed, let alone a market commodity. Another possibility is the low fees may be an indication of the user's unwillingness to accept a pricing system, although 65 percent did indicate they would be willing to try the purchase system. Perhaps respondents preferred the pricing method because they

thought a fee would not restrict their wilderness use, and believed they would be able to afford a fee with their income.

### IS RATIONING NECESSARY?

Surveyed users were asked whether rationing was necessary in the areas they had visited. Forty-six percent of the Eagle Cap respondents and 47 percent of those from Mt. Jefferson indicated rationing was needed soon (see Table VII). Only 6.5 percent of all respondents indicated rationing would not be necessary in the areas they had visited unless use increased dramatically. The responses to the rationing question differed from the on-site interview form where respondents were two-to-one against rationing. The differences may reflect trip memories having mellowed with time, but most likely they reflect differences in question wording. It is very likely the two questions were interpreted differently. The on-site interview asked, "Do you believe rationing is presently needed in this wilderness area?" The follow-up question was, "Do you feel rationing is necessary in the area(s) you visited?" The first question can be interpreted as applying to the entire wilderness, whereas the second question may be site specific.

A Pearson correlation was calculated between the surveyed users' perception of crowding at the campsite, and their response to the need for rationing. The correlation calculated for Eagle Cap respondents was .42, with the correlation for Mt. Jefferson .17. Research suggests crowding at the campsite is

the most significant (Stankey, 1973). The implication from these correlations may be that Eagle Cap respondents were more sensitive to possible crowding at their campsites.

#### WHICH SYSTEM IS BEST?

Determining the "best" system implies an evaluation of the system's equality, equity and efficiency. This study has indirectly evaluated these factors by asking users their opinions of the following: 1) their chances of obtaining a permit under each rationing system; 2) the fairness of the system's method of distributing permits; 3) the acceptability of the system to users; and 4) the user's willingness to try the rationing system. The best system for any given situation will be one which most closely achieves agency goals, and which also maximizes users' needs. Selection of the system which maximizes equality, for example, should also include the user's perception of the system or it will not be known how the system may affect the user. A system which may be "inherently fair" as Garrett Hardin (1969) perceived lottery, may be grossly unfair as perceived by users, and this should be evaluated by the agency. Discussion of the best system as perceived by respondents will be as follows: 1) the acceptability of the system; 2) its fairness; 3) the user's perceived risk; 4) the user's willingness to try the system; and 5) factors which may affect the system's acceptability.

## ACCEPTABILITY OF SYSTEMS

The majority of surveyed users in the Eagle Cap and Mt. Jefferson perceived the reservation system to be the most acceptable system for issuing permits (see Table X). Respondents indicated a reservation system would hinder the spur-of-the-moment trip. Administrative considerations, such as "no-shows" and added expenses, having popular areas closed out within days of the opening of the season, and group size limits were some of the other problems with reservation systems which respondents mentioned.

The pricing system was the second system considered acceptable for issuing permits. Although, as one respondent stated, "it (the pricing system) changes the whole psychology of access to wilderness from a privilege to a paid-for-right." Several respondents indicated paying to use a wilderness area was disagreeable.

Queuing was ranked third. Users indicated the system was biased towards those living close to the wilderness. They did not consider the access points capable of handling long lines without additional facilities which would increase administrative expenses. The most frequent complaint was it was not worth expending time, effort, and money to risk not being able to enter the wilderness. Not only can queuing be risky as far as obtaining a permit, the costs can be considerable. For people with structured lives, the queuing system may not be favorable.

Merit was ranked fourth by respondents. Users raised questions concerning problems in initiating and participating in such a system, as well as how fair a merit test may be. One



TABLE X. ACCEPTABILITY OF RATIONING SYSTEMS FOR DISTRIBUTING PERMITS FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

		PURCHASE	RESERVATION	LOTTERY	QUEUE	MERIT
Eagle Cap	Acceptable	65.6	72.8	28.6	49.5	41.8
	Unacceptable	34.4	27.2	71.4	50.5	58.2
	Average Rank*	2.6	2.1	3.8	2.8	3.5
	N	90	92	91	91	91
Mt. Jefferson	Acceptable	55.3	73.6	29.8	50.6	48.6
	Unacceptable	44.7	26.4	70.2	49.4	51.4
	Average Rank*	2.9	2.0	3.8	3.0	3.2
	N	179	178	178	178	177
Chi Square with 1 DF		2.19 <sup>†</sup>	.00 <sup>†</sup>	.00 <sup>†</sup>	.00 <sup>†</sup>	.87 <sup>†</sup>

\* Systems were ranked with 1 (most acceptable) to 5 (least acceptable).

† Non-significant,  $P > .05$

concern expressed was an exam which tests wilderness skills may not be taken seriously by users. Some indicated that just because a test could be passed, equivalent behavior in the wilderness was not guaranteed. Others mentioned merit systems could be highly discriminatory of small children and handicapped users.

Lottery was not acceptable to most respondents and was ranked last. Some respondents expressed lottery was time consuming, confusing, and severely limited any planning capabilities since all plans hinged on being selected. The primary complaint seemed to be a lack of flexibility under a lottery system.

#### FAIRNESS OF PERMIT DISTRIBUTION METHOD

The reservation system was considered to be the fairest permit distribution method by both Eagle Cap and Mt. Jefferson respondents (see Table XI). A permit is the user's ticket to use the wilderness area. Under a reservation system, one essentially reserves the permit so it can be obtained at a later date while remaining assured of entry into the wilderness. Lottery was considered a fair permit distribution method by only 20 percent of all respondents. This low score may be a result of the uncertainty a lottery poses to users when every applicant has an equal chance of being selected. There is no assurance a user will be selected, no matter what effort, money, or time may have been spent.

TABLE XI. FAIRNESS OF SYSTEM'S METHOD OF DISTRIBUTING PERMITS FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

		PURCHASE	RESERVATION	LOTTERY	QUEUE	MERIT
Eagle Cap	Yes	48.9	50.0	18.8	34.0	24.2
	Don't Know	7.4	7.3	9.4	6.4	16.8
	No	53.7	42.7	71.9	59.6	59.0
	N	94	96	96	94	95
Mt. Jefferson	Yes	42.6	47.6	21.2	29.4	34.4
	Don't Know	5.3	7.5	4.3	12.3	12.4
	No	52.1	45.9	74.5	58.2	53.2
	N	188	187	185	187	186
Chi Square with 4 DF		4.06 <sup>†</sup>	5.4 <sup>†</sup>	4.06 <sup>†</sup>	7.6 <sup>†</sup>	5.67 <sup>†</sup>

† Non-significant, P>.05

## CHANCES OF OBTAINING A PERMIT

An average of 42 percent of the respondents from Eagle Cap and Mt. Jefferson indicated the merit system would have no effect on their chances of obtaining a permit (see Table XII). Thirty-six percent from Eagle Cap believed the purchase system would not affect their chances, as compared to 19 percent from Mt. Jefferson. Combining the "no-effect" and "affect occasionally" groups suggests that Eagle Cap respondents believe they have an equal chance under the purchase and merit system, but Mt. Jefferson respondents perceive better chances under the merit system. Acquiring enough money or skills to meet qualification standards appears to be perceived as allowing better chances than do the other systems' methods of payment. This may be an indication that users do not believe either the merit or purchase system would restrict them from the wilderness. Use may be reduced, however, by the imposition of more restrictions.

Surveyed users indicated their chances under a lottery would be greatly restricted. From Table XII, it can be concluded that more users were not even sure what their chances might be under a lottery. There may be a correlation between the user's perceived chances and the perceived fairness of the system since lottery was ranked equally low under both categories. The user may not consider the system fair if he also perceives poor chances of obtaining a permit.

TABLE XII. WOULD RATIONING SYSTEM AFFECT EAGLE CAP AND MT. JEFFERSON RESPONDENT'S CHANCES OF OBTAINING A PERMIT? (OREGON), 1979, IN PERCENTAGES.

		PURCHASE	RESERVATION	LOTTERY	QUEUE	MERIT
Eagle Cap	No Effect	35.5	16.1	4.3	9.7	43.6
	Effect Occasional	34.4	39.8	16.0	31.2	22.3
	Greatly Restrict	4.3	28.0	40.4	36.6	12.8
	Never Obtain	4.3	3.2	6.4	11.8	3.2
	Don't Know	21.5	12.9	33.0	10.8	18.1
	N	93	93	94	93	94
Mt. Jefferson	No Effect	18.8	8.1	1.6	7.7	40.0
	Effect Occasional	35.5	37.3	17.6	30.4	26.1
	Greatly Restrict	22.6	37.8	42.3	34.8	8.3
	Never Obtain	4.8	4.3	14.3	5.0	6.7
	Don't Know	18.3	12.4	24.2	22.1	18.9
	N	186	185	182	181	180
Chi Square with 4 DF		20.02	5.74 <sup>†</sup>	6.9 <sup>†</sup>	8.6 <sup>†</sup>	3.16 <sup>†</sup>

† Non-significant, P>.05

### WILLINGNESS TO TRY SYSTEM

A majority of the respondents believed they would be willing to try the purchase and reservation systems (see Table XIII). Almost 40 percent indicated they would also be willing to try the lottery system. It is interesting that this many would be willing to try the system when the system was evaluated so unfavorably in terms of risk and fairness. This suggests respondents are willing to try systems established by the agency if they are necessary. Research suggests users would accept active management provided the reason can be well explained (Bultena and Taves, 1961).

### MISCELLANEOUS CONSIDERATIONS

The most favored method for distributing permits for Eagle Cap respondents under the reservation system was by mail, with telephone the second favored method (see Table XIV). None of the respondents favored the ticket agency method (e.g.: ticketron), but 14 percent favored the in-person method. Statistics for Mt. Jefferson were similar except that mail and telephone methods were equally favored. Applying in person may be risky because time and money spent in getting to the agency may be wasted if the reservation for a desired date cannot be obtained. The ticket agency method is not only unfamiliar to users, it may also represent a commercial aspect which is not in keeping with the wilderness experience.

In selecting among alternative ways to obtain a permit if

TABLE XIII. EAGLE CAP AND MT. JEFFERSON RESPONDENTS' WILLINGNESS TO TRY RATIONING SYSTEMS, (OREGON), 1979, IN PERCENTAGES.

Rationing System	EAGLE CAP				MT. JEFFERSON				Chi Square with 4 DF
	Yes	Don't Know	No	N	Yes	Don't Know	No	N	
Purchase	68.1	8.5	23.4	94	63.6	7.5	28.9	187	2.68 <sup>†</sup>
Reservation	70.5	8.4	21.0	95	64.0	11.3	24.7	186	2.38 <sup>†</sup>
Lottery	35.4	15.6	49.0	96	37.4	13.2	49.5	182	1.15 <sup>†</sup>
Queue	53.3	15.2	32.5	92	54.8	9.7	35.5	186	4.86 <sup>†</sup>
Merit	56.3	11.5	32.3	96	59.6	16.4	24.0	183	.31 <sup>†</sup>

<sup>†</sup> Non-significant, P>.05

TABLE XIV. PREFERRED WAYS TO ADMINISTER PERMITS UNDER A RESERVATION SYSTEM FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS (OREGON), 1979, IN PERCENTAGES.

Reservation Method	Eagle Cap (N=88)	Mt. Jefferson (N=162)
Mail	50.0	38.9
Telephone	36.4	38.9
Ticket Agency	No Response	2.5
In-person	13.6	19.8

5.13 chi square with 3 DF, non-significant,  $P > .05$



a system were administered, 84 percent of the surveyed users chose obtaining the permit at any Forest Service office as the best alternative (see Table XV). The choices offered to obtain a permit were: 1) by mail; 2) at the trailhead; 3) at a Forest Service ranger station; 4) at any Forest Service office; 5) from ticket agencies throughout the west; or 6) from a licensed commercial outfitter. The results indicate that respondents favored the majority of the choices offered, with the exception of obtaining permits at ticket agencies or from licensed commercial outfitters. This implies a combination of systems could be used in administering a rationing system; thus providing a maximum of choice for users.

#### FACTORS AFFECTING THE SYSTEM'S ACCEPTABILITY

Factors which might affect the user's perception of a system's acceptability were tested to determine if there were any correlations. The factors which were compared with the system's acceptability were the user's ability to pay for each system, the user's willingness to try a system, the perceived chances of obtaining a permit under the system, and the perceived fairness of the permit distribution method.

Ability to pay was used to decide whether the user who could pay the price of a given system would also be influenced by this in rating the system's acceptability for issuing permits. If the user's ability to pay did affect the user's decisions, it would seem that systems would be rated more acceptable when the

TABLE XV. PREFERRED WAYS TO ADMINISTER PERMITS UNDER ANY RATIONING SYSTEM FOR EAGLE CAP AND MT. JEFFERSON RESPONDENTS, (OREGON), 1979, IN PERCENTAGES.

Administration Method	EAGLE CAP				MT. JEFFERSON				Chi Square with 1 DF
	Favor	Oppose	N	Average Rank*	Favor	Oppose	N	Average Rank*	
Mailing	78.9	21.1	90	2.4	73.7	26.3	171	2.43	.60 <sup>†</sup>
Queue	70.0	30.0	90	2.79	73.3	26.7	172	2.52	.17 <sup>†</sup>
Ranger District	70.0	30.0	90	2.76	63.7	36.3	171	3.0	.77 <sup>†</sup>
U.S.F.S. Office	83.5	16.5	91	2.3	84.8	15.2	171	2.55	.01 <sup>†</sup>
Ticket Agency	16.7	83.3	90	4.8	17.1	82.9	170	4.7	.00 <sup>†</sup>
Outfitters	15.4	84.6	91	5.2	11.0	89.0	172	5.2	.66 <sup>†</sup>

\* Systems were ranked with 1 (most acceptable) to 6 (least acceptable).

† Non-significant,  $P > .05$

user's ability to pay was sufficient. Similarly, the user's perceived chances of obtaining a permit, or of the fairness of the method for distributing permits would seem to affect the user's decision concerning the system's acceptability. Listed below are the criteria for ability to pay for each system which were associated with acceptability:

<u>System</u>	<u>Criteria for Ability to Pay</u>
Lottery	Lead time
Purchase	Income
Merit	Past Experience
Queue	Vacation time
Reservation	Planning capabilities

With  $P > .05$  as the criterion, the Pearson correlation between the fairness of the system's method to distribute permits and the system's acceptability exhibited the strongest correlation of all relationships tested (.50 to .78). (See Tables XVI and XVII.) The correlations for the user's chance of obtaining a permit and the system's acceptability was .12 for Eagle Cap to .47 for Mt. Jefferson respondents. It may be that the fairness of the system's method to distribute permits is associated with the user's perceived chance of obtaining a permit. If the chances are considered poor, then perhaps this is reflected as perceiving the system as unfair. Danley (1980) found that river-runners accepted systems which they perceived to be fair. Acceptance was only dependent on fairness; fairness was partly affected

TABLE XVI. PEARSON CORRELATIONS BETWEEN THE RATIONING SYSTEM'S ACCEPTABILITY AND THE USER'S PERCEIVED CHANCES, FAIRNESS, ABILITY TO PAY, AND WILLINGNESS TO TRY FOR MT. JEFFERSON RESPONDENTS, 1979.

Acceptability of System	Chances	Fairness	Ability To Pay	Willingness To Try
Lottery	r=.21 N=175	r=.55 N=176	r=.027* N=145	r=.43 N=179
Purchase	.30 N=179	.68 N=179	.063* N=174	.53 N=179
Reservation	.27 N=176	.59 N=177	.021* N=167	.50 N=177
Queuing	.26 N=173	.69 N=178	.042* N=171	.52 N=178
Merit	.34 N=172	.78 N=176	.034* N=176	.61 N=175

\* Rejected,  $P > .05$

r = coefficient

N = cases

TABLE XVII. PEARSON CORRELATIONS BETWEEN THE RATIONING SYSTEM'S ACCEPTABILITY AND THE USER'S PERCEIVED CHANCES, FAIRNESS, ABILITY TO PAY, AND WILLINGNESS TO TRY FOR EAGLE CAP RESPONDENTS, 1979.

Acceptability of System	Chances	Fairness	Ability To Pay	Willingness To Try
Lottery	r=.12* N=88	r=.50 N=90	r=.0936* N=79	r=.2913 N=90
Purchase	.35 N=89	.60 N=89	.08* N=81	.57 N=89
Reservation	.23 N=90	.64 N=92	.20 N=87	.47 N=92
Queuing	.47 N=87	.69 N=88	.24 N=86	.48 N=86
Merit	.27 N=88	.75 N=89	.01* N=90	.55 N=90

\* Rejected,  $P > .05$

r = coefficient

N = cases

by the user's perceived chances of obtaining a permit (Danley, 1980). With the ability to pay factors, all were rejected except two from Eagle Cap which were planning capabilities with reservation and vacation time with queuing. Values were .20 and .24, respectively. It may be that the user's perceived costs have not been well identified (Danley, 1980). The correlation of the user's willingness to try the system with acceptability showed a range from .29 for Eagle Cap to .61 for Mt. Jefferson. It appears other factors are present which may influence the user's perception of a system's acceptability and which may have stronger correlations when tested.

## CHAPTER V

### IMPLICATIONS

The overall acceptance of rationing systems by respondents from Eagle Cap and Mt. Jefferson indicates crowding and resource deterioration may be affecting users. The decisions which may be made in the future concerning controlling overuse will undoubtedly be based on a wide range of information about the wilderness and its users. The results from this study indicate nearly half of the respondents perceived a need to ration wilderness use. Rationing may be needed to constrain resource deterioration occurring in popular, localized areas. Perhaps other management methods should be investigated first, however, before a rationing program is initiated. Any rationing program should be carefully evaluated in terms of appropriateness for solving the problem and its usefulness.

It is significant that over half of the respondents indicated a rationing system would be acceptable to them. This strongly suggests the surveyed users are responding to overuse problems to which they have been exposed on trips into the wilderness. It is suggested that rationing systems in the Eagle Cap and Mt. Jefferson wilderness areas may be acceptable to users provided their need was justified.

Two-thirds of the respondents recognized a need for times

or areas to be managed differently because of varying use levels associated with them. If managers decided to ration use in specific areas or at specific times, the strategy would likely be accepted by users. In the future, managers may decide that use must be controlled in some parts of a wilderness, especially since use tends to be localized rather than dispersed. If this happens, then the reservation and purchase systems may be the best direct management techniques to implement based on the surveyed users' opinions. However, since localized problems of overuse must be addressed, other more indirect approaches may be equally effective.

#### WHICH SYSTEM IS BEST?

Respondents indicated the purchase and reservation systems were best when evaluated in terms of their chances of obtaining permits, the fairness of the system's method to distribute permits, the acceptability of the system, and their willingness to try the system. Further study is needed to determine how the agency's needs and the users' needs are related, so an appropriate system can be chosen. It is possible that other systems, in combination or singly, may be used which will actually serve both needs better. Constraints which will mold the decision process in selecting a system must also be considered when choosing the best system. Some potential constraints are budget limits, the amount of extra time required to administrate a system, the number of personnel needed, equipment needs (such



as computers, more telephones, etc.), local political pressures, and legal constraints. These should be carefully evaluated to ensure there are not any surprises after a system has been implemented.

#### FACTORS AFFECTING ACCEPTABILITY

The absence of a correlation between the acceptability of a rationing system to distribute permits and the user's ability to pay implies there are other factors which are more relevant in evaluating a system's acceptability. One of these factors is probably the user's perceived fairness of the system's method to distribute permits, since this was the highest correlation. The user's perceived chances of obtaining a permit and his perceptions of the system's fairness may both affect the system's acceptability. As the user's perceived chances increase, so may the associated fairness of the system. Research suggests, however, that fairness is the critical variable upon which acceptability is dependent (Danley, 1980). For this reason, managers may want to consider equity as a possible goal because it not only allows better chances for those exerting the most effort to obtain a permit, it also appears to be an important factor in whether the user considers a system to be acceptable.

#### IMPLICATIONS FOR WILDERNESS MANAGERS

An effective rationing system can be chosen which will be acceptable to users. Although the reservation system was

perceived as the best system, a variety of systems can be used. A poor rating, such as that for lottery, does not imply the system should not be considered by managers. It does suggest further research is needed to determine how to adapt a lottery into a preferable system for users, if it is believed a lottery system would serve agency and user needs.

Stankey and Baden (1977) suggest guidelines for managers to use when determining if a rationing system is necessary:

- 1) an accurate base of knowledge is prerequisite. Gathering data about users and identifying information gaps is necessary. An effective decision cannot be made on guess work, and needs to be based on quantifiable data if an action is to be justified.
- 2) Direct rationing should be implemented only when less restrictive measures fail.
- 3) Combining rationing systems can be used to minimize costs.
- 4) Users should be required to assess the value of the wilderness experience, such as by skills, time, or money.
- 5) Monitoring and evaluation of the rationing program is vital to ensuring the system works properly. Evaluations can help to pinpoint problems before they become unwieldy.

These guidelines are helpful in directing the selection of an effective rationing system. Choosing an effective system is not something which can be done quickly and effortlessly. Managers should begin to evaluate systems now. In the future, if a rationing program is deemed necessary to control use, then the selected system will be the best one possible if the systems are evaluated now.

## CHAPTER VI

## SUMMARY AND CONCLUSIONS

SUMMARY

Increasing outdoor recreation use in wilderness areas has contributed to a steadily growing overuse problem. Understanding who the typical wilderness user is, and what his attitudes are about wilderness and management systems, provides helpful insight into the overuse problem. Rationing use in wilderness is one way to control unbounded resource deterioration resulting from overuse. There are two basic approaches to rationing use: an indirect approach which may include signs and physical obstructions; and a direct approach which regulates the user's behavior through the enforcement of rules and regulations.

Indirect approach techniques include pricing, which is a manipulative technique because it does not control the user's decision, but influences the user by high or low fees. The reservation, lottery, queuing, and merit systems are more direct controls by maintaining limits on the number of users allowed as determined by the carrying capacity of the wilderness site. All five of the systems have tradeoffs in efficiency, equity, and equality which need to be evaluated by wilderness managers in considering what system would work best for a particular wilderness.

## CONCLUSIONS

Solutions to overuse problems experienced in the Eagle Cap and Mt. Jefferson require patience and considerable thought from managers, combined with cooperation from wilderness users. The results from this study have helped identify several aspects of the surveyed user's perception of rationing: 1) the reservation system is most acceptable with the pricing system also generally accepted. 2) The pricing and merit systems may not be effective rationing techniques because respondents indicated their chances of obtaining a permit would not be significantly affected. This, however, is inconclusive because respondents may be overestimating their chances. 3) Almost half of the respondents believed a rationing system was necessary now in the areas they had visited, or would be necessary in the next few years. 4) The lottery system would require considerable public relations work and thorough explanation of why it is necessary since 80 percent of the respondents rejected it. Nevertheless, 40 percent of the respondents were willing to try a lottery system. 5) Forty-one percent believed rationing would not be necessary in the areas they had visited. These users are important to consider in evaluating any system because they may be the ones displaced by rationing. Although it has generally been found that rationing systems have been accepted where implemented in wilderness areas (Stankey, 1979; Fazio and Gilbert, 1974), it is not known if some users are displaced because of the rationing system and are not surveyed as a result. In conclusion, almost

half of the respondents in this study perceived rationing to be necessary now, or within the next few years in the Mt. Jefferson and Eagle Cap wilderness areas.

#### OPPORTUNITIES FOR FURTHER STUDY

Some of the questions raised during the course of this study may be useful for future research. The ambiguity of the pricing system as an effective rationing technique suggests further information is needed. The fees which would ration use need to be further developed, but more importantly, the effectiveness of pricing as a rationing tool should be evaluated first.

Managers need information about what a wilderness experience is worth to users in terms of money, time, or skills. This information is critical to establishing effective costs. More information concerning the user's willingness to pay these costs would be useful in evaluating various rationing systems. Associated with this would be determining what substitutes are made when the user cannot or will not use the wilderness under a rationing system. Where would users go if they felt their wilderness experience was destroyed by the enforcement of a rationing system, or if they felt the experience was not worth the imposed costs? Displaced users from a rationing system are an important issue. These users may be the only indicator of what a quality wilderness experience is.

## STUDY WEAKNESSES

As a result of variable weather conditions, poor weather may have caused an unintentional bias in the results. Fluctuating weather at Hurricane Creek (in addition to a washed out road which increased the hiking distance into the Eagle Cap wilderness), Wallowa Lake and Breitenbush may have altered the number of respondents which would have been surveyed under more favorable weather conditions. A higher proportion (about 10 percent) of visitors originating from Oregon, Washington and Idaho were interviewed by this study than was indicated by visitor data compiled for 1978 (U.S.F.S, 1978). The selection of sampling methods was constrained by time and money. As a result, the limited sample size of both access points and days may present difficulties in the application of the results.

This study did not collect information from non-respondents or users which normally visit the wilderness during different times, such as in the fall or winter. Thus, the application of the results must be restricted to the surveyed users during the months of July and August for Mt. Jefferson and Eagle Cap, respectively.

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## APPENDIX A

Frequencies of Reasons Provided by Mt. Jefferson and  
and Eagle Cap Respondents for Finding a Given  
Rationing System Unacceptable \*

PURCHASE PERMITS

Frequency

Mt. Jeff- Eagle  
erson Cap

Reason

16	15	I do not believe in having to purchase a right to go on public lands: it's part of our heritage.
5	3	Wilderness is for all -- should not be based on income. (God made it for everyone).
13	3	The U.S. Forest Service is run off our taxes, so who wants to pay double to use wilderness? Besides, the U.S. Forest Service already wastes their budget.
2	--	I don't have control over the days I can go.
2	--	I go backpacking <u>because</u> it is inexpensive.
4	1	Would the cost of the permit be used to maintain the wilderness?
2	--	It changes the whole psychology of access to wilderness from a privilege to a paid-for-right.
3	--	It is so relative; if it became limited in access I would be willing to pay much more (for a user fee). Now, though I believe (a user fee) is unnecessary and I wouldn't like it.
11	2	A very high price limits use by allowing only the well-to-do in. It allows those in which can afford it, rather than those who can't, but want, to use the wilderness.
--	--	A low price does not limit use, so what is the purpose?

\* Reasons which are listed without frequency values are second and third reasons expressed by respondents.

## Appendix A -- Continued

Frequency

Mt. Jefferson	Jefferson	Eagle Cap	Reason
--	--		Only registering upon entry should be required.
--	--		I refuse to pay for a permit to enjoy the wilderness.
3	2		I don't believe money is the answer to the problem.
2	1		All a fee does is support more bureaucracy by paying someone's wages to do the job: More paperwork, difficult to administrate.
--	1		What type of restrictions would you put on the number of permits issued? Have you researched a threshold figure? Would the price reflect the degree of privacy or wilderness experience?
5	1		Too restrictive -- takes away a basic freedom.
1	--		I have to "pay" to use the wilderness as it is now with the cost of gas and supplies. Because of this, I don't think an additional cost will reduce the traffic by much.
2	--		The idea of paying to use the wilderness (except for a fee for trail maintenance) is disagreeable to me.
4	--		I often go spur-of-the-moment and I might not be able to purchase permits. Inconvenient.
1	1		Horse groups should be required to pay higher fees because they do more damage -- when they don't conform to the regulations, they do even more damage.
--	--		If I have to pay a fee, I also want to be able to choose an area away from horses.
4	1		I would not pay. I would go somewhere else for a wilderness experience. It doesn't have to be another wilderness area. Also, I may use the wilderness in spite of the permit system.

## Appendix A -- Continued

## ADVANCE RESERVATIONS

Frequency

<u>Mt. Jefferson</u>	<u>Eagle Cap</u>	<u>Reason</u>
5	1	I do not like to be denied access to public property.
--	--	Planning ahead may be impossible for other than the unemployed or retired.
3	2	It is too much of a hassle just to see if you can or cannot go.
3	2	Cancelling reservations at the last minute would be unfair to people who had wanted to go and couldn't get a reservation. To help this, a centralized, regional, and automated system would be needed for handling the permits.
32	13	It is sometimes impossible to know in advance when I can go -- Spur-of-the-moment. It limits my chances and spontaneity. It restricts day trips. What about farmers and families?
2	1	There could be flood reservations occurring, thereby eliminating many people (unless fees were enclosed). A fee would probably improve the likelihood of people making reservations good. Also, what about big groups? They can close out an area in a hurry.
8	1	Some spontaneity is desirable given Oregon's summer weather, work, and other responsibilities in one's life.
--	1	I would still go whether or not I had a reservation.
2	--	If reservations were by phone or mail, it would be easy for out-of-staters to get permits, hence cutting down on our chances. There should be a "bumping policy" where Oregonians have priority first.
--	2	A person would have no flexibility, if his plans were changed he would be out of luck with no permit.

## Appendix A -- Continued

Frequency

<u>Mt. Jefferson</u>	<u>Eagle Cap</u>	<u>Reason</u>
7	1	Too restrictive.
--	--	Keep the current method in Eagle Cap.
1	--	Reserving takes the fun out of the trip, because you know you have to go whether you want to or not.
3	1	My work may not allow me off on the day I can get a reservation.
2	1	Before long, the entire summer could be reserved.
3	--	If I decided spur-of-the-moment, how would I know if I could get in?
2	--	The wilderness is for everyone, not a few.
2	--	Depends on the user limit.
2	1	I hate to see increased rules and regulations.
--	--	It would discourage my use of wilderness.
--	--	No one has the right to restrict the use of forests (wilderness).
1	--	I would not go if I could go somewhere else for free.
2	--	Natural wilderness areas are not restaurants, hotels, or campgrounds. Please keep it simple and natural: don't bring the city into the country.
2	--	If the areas were crowded enough to need permits, I'd go somewhere else anyway.
2	2	Limits flexibility.
1	--	I don't see a need for permits -- U.S. Forest Service can't do job efficiently now, why give them more responsibility?
1	--	More trails and outside areas would relieve spot pressure.



## Appendix A -- Continued

Frequency

Mt. Jefferson	Eagle Cap	Reason
--	--	I would pay a user charge only if everyone paid the same amount for all days such as the system in campgrounds.
1	--	There should be a set open and close time for applications. Otherwise, eager February beavers may buy up all of the permits for July.
2	--	A person could buy many reservations and sell them.
1	--	Horse use is what should be limited; not foot use.
--	--	It is about time the U.S. Forest Service put in toilets to meet the use needs rather than packing "it" out which has been recommended to us by rangers and other rumors.
4	2	Why is it necessary to pay? Require permits and then limit the number issued.
--	--	Permits are not necessary for every area in the wilderness.
--	--	It is hard enough as it is now to get ready for a trip.
2	--	Out-of-staters should be charged more and considered after native Oregonians. Either that, or they should carry the load, and be required permits first.
1	--	One shouldn't have to buy permits during ski season -- except maybe on weekends.
4	2	I would prefer to use "low-use" areas or at least "low-use" days if I did want to use the wilderness. So, I would not consider a permit (paying for one) on a "high-use" day.
4	2	I don't feel there is a need.
--	--	If a fee is to eliminate users who don't value the wilderness as much, then this is the wrong approach.

## Appendix A -- Continued

Frequency

<u>Mt. Jeff- erson</u>	<u>Eagle Cap</u>	<u>Reason</u>
2	--	I would not use an area on a "high-use" day.
1	--	Permits should have no names on them -- just be tickets.
--	--	The current system is fine as it is.
--	--	The system is not equitable.
1	--	I would not deal with such a system.
--	--	The system would be corrupted and exploited.
--	--	What if you want to go somewhere else due to weather or insects? Buy another permit and then go? Reduces spontaneity.
--	--	What would families or boy scouts do -- would there be a family plan?
--	--	A high and low-use day system would be discriminatory.
1	--	What are you supposed to do when the U.S. Forest Service ranger station is closed?
1	--	Land use permits should be financed by surplus state income tax or absorbed by the federal forestry budget.
1	--	When people pay they feel like part owners and tend to abuse it, consciously or not!
1	--	There is no guarantee that only those with permits could get in -- how would you police this system?
1	--	If I didn't think the price was reasonable, I would go somewhere else. Also, couples have to pay twice as much.
--	--	It would make more unneeded regulations.
--	--	I don't see the wilderness as "elbow-to-elbow", and even if it was "crowded", I would rather make my own choices.

## Appendix A -- Continued

Frequency

<u>Mt. Jefferson</u>	<u>Eagle Cap</u>	<u>Reason</u>
--	--	How would you enforce it?
1	--	It's like purchasing a picture of Mt. Hood.

N = 109    N = 37

## Appendix A -- Continued

Frequency

<u>Mt. Jeff- erson</u>	<u>Eagle Cap</u>	<u>Reason</u>
--	--	How do you set limits for reserving?
--	--	Ticket agencies and in-person stipulations restrict out-of-staters: Don't they deserve an equal chance?
1	--	I get off work too late to make reservations.
4	2	I don't think it is necessary.
--	--	People should be penalized for "no-shows" if they don't tell the U.S. Forest Service and cancel so someone else can go.
1	--	There should be a maximum time period between reservation applications and trip dates, say, 4 months.
1	--	It destroys the whole concept of freedom.
1	1	It would limit use of the area to people familiar with it -- travelers would miss out.
--	1	People should be able to make reservations the week before they go -- not a month ahead, because everything could become booked up.
--	--	Penalize sloppy campers instead.
--	--	Not fair.
--	--	Expensive and complicated system to operate.
--	--	I couldn't change my trip plans spontaneously.
--	--	No assurance of getting a permit.
--	--	Defeating purpose of escaping to the outdoors with these hindrances.
1	--	Probably fair, but it wouldn't work for me.

N = 95    N = 32

## Appendix A -- Continued

## LOTTERY

Frequency

<u>Mt. Jefferson</u>	<u>Eagle Cap</u>	<u>Reason</u>
37	18	Too indefinite a system so I don't know what my chances are -- difficult to mesh with vacation, undesirable uncertainty (job requires advance notice).
1	--	Seems unorganized -- last minute.
2	1	Additional red tape for the U.S. Forest Service.
3	--	It severely limits my planning abilities.
2	--	I have a limited number of opportunities so I don't need another unpredictable restriction.
4	5	Too much trouble with scheduling. (Might go somewhere else where it's less hassle).
1	--	I prefer a method which could screen in those with skill and sincere interest.
17	4	Most trips are spur-of-the-moment due to weather, time, money, etc. and lottery prevents that.
1	1	If first-come/first-served wouldn't work most of the time, it would indicate area use pressures that would defeat the whole wilderness concept.
2	--	Changes in plans and changes in days off would affect me.
2	2	I like to know immediately if the area is available when I decide to take a trip.
2	4	I don't like the idea of more rules and regulations.
3	1	It is too hard to plan an outing with friends.
3	1	The user wouldn't know until later if he had obtained a permit. This creates scheduling problems.

## Appendix A -- Continued

Frequency

<u>Mt. Jefferson</u>	<u>Eagle Cap</u>	<u>Reason</u>
8	3	The method of random distribution is not fair.
1	3	I don't know what my schedule is 4 to 8 weeks ahead.
2	--	Time consuming.
1	--	Too confusing.
1	--	Balances chances of out-of-staters to get a permit; I would rather Oregonians had an advantage.
--	--	If you have to change your plans -- you lost your trip.
4	--	Administratively too expensive and unwieldy (cost in taxes)!
1	--	I feel reserve permits are more fair.
5	1	Wilderness is for everyone.
5	--	It limits the chances of groups and school organizations.
1	2	One may never be selected.
--	1	Because I live so far away, I would want my first choice of areas or else I wouldn't go.
--	1	Too restrictive.
--	--	Need more than one type of permit system.
--	--	This would be unfair the the U.S. Forest Service -- they would have to write or call the losers.
--	--	I could not cope with the bureaucracy it would take to form a lottery system.
1	3	One would have to plan in advance and would be hampered by the strict time line, especially when from a long distance. Needs more flexibility.

## Appendix A -- Continued

Frequency

Mt. Jefferson	Eagle Cap	Reason
3	1	More complicated, more difficult to handle; would be unfair to the person who has planned well in advance and might lose out to one who hasn't planned well.
6	4	I don't feel we need a permit system.
1	1	People would start applying to see if they could get on -- a status symbol, or out of self defense.
--	--	How do you prevent individuals from flooding the system? (Applying over and over).
1	--	Leaves too much room for abuse and fraud -- payoffs, etc.
--	--	If it was so crowded that we needed permits, I would go anyway without one.
--	--	Gives no flexibility with on-the-moment trip destination changes.
1	--	A big disadvantage is commercial outfitters would have everyone in the party applying for permits in hopes that a successful permit date will be obtained as do river outfitters for river permits.
--	--	I doubt people would fill (the vacancies) more than a month in advance so this system would be first-come/first-served anyway.
--	--	What about travelers who are passing through?
--	1	I live close by and I think my chances of obtaining a permit would be slim to none -- unfair.
--	1	Life has too many games already.
1	--	It would not work at all for me.

N = 123    N = 57

## Appendix A -- Continued

## QUEUING

Frequency

<u>Mt. Jeff- erson</u>	<u>Eagle Cap</u>	<u>Reason</u>
4	1	I like details more planned -- uncertainty.
--	2	I would have to come from too great a distance.
84	32	I couldn't afford to get there and find out all the permits were gone. One would have to start very early and because of job, etc., may not be able to do this. Mad-dash!
3	--	A great deal of planning and driving time, money, supplies, etc., would be wasted if one didn't get in (to chance being turned away).
1	1	I foresee long waiting lines and overnight camping.
6	2	I see no need for a limit.
--	1	I live a long distance from the use area.
--	--	There are few facilities at a trailhead.
--	--	Queuing only if by phone or by mail -- not at the trailhead.
--	--	This would be impractical and difficult to administer.
1	--	God made it for everyone.
1	--	I wouldn't have any alternatives if I couldn't get in to make a specific (mountain) climb.
1	--	Inherently unfair.
--	--	I would always have to have an alternate plan which may be difficult.
2	1	Too restrictive.
--	--	One of our national beliefs: Freedom, would be violated.



## Appendix A -- Continued

Frequency

Mt. Jefferson	Eagle Cap	Reason
1	--	Unemployed or students would have advantage.
1	3	Discriminates against those living far away.
--	1	I don't like this, but only because I would like to revisit the area, and I don't feel this gives me much chance.
1	--	Oregon people should have the first chance.
2	1	My vacations must be scheduled; I need to plan months in advance.
--	2	Since I live close by, I like this idea.
--	--	It is unfair to people who plan extensively months ahead and get turned away.
--	--	Urban people (would be) discriminated against.
1	--	It is inconvenient and removes spontaneity from day hikes.

N = 109    N = 47

## Appendix A -- Continued

## MERIT

Frequency

<u>Mt. Jeff- erson</u>	<u>Eagle Cap</u>	<u>Reason</u>
8	6	It's difficult to administrate and police such a system.
2	3	Another bureaucracy to pay for with no appreciable result.
19	8	Anyone could probably pass the test, but how do you know if they will really practice it, or take advantage of it? It does not guarantee performances. Folks that don't care will ignore the rules of ecology and courtesy anyway.
1	1	It's debatable among people regarding the good and bad merits: which are which?
27	13	This wouldn't give the city people or novice backpackers much of a chance to get a permit. It discriminates against those with few wilderness skills.
1	2	Test may become a joke or at best, token.
--	--	It would probably become first-come/first-served.
--	--	Politically impossible.
14	11	All should have equal rights -- unfair method.
2	1	My reservation is how it will be judged and issued -- the test would be too open to interpretation and loopholes.
4	4	No more regulations and money spent are needed.
4	3	How can people learn proper skills if they can't go into the wilderness to learn them? Some people have yet to acquire experience.
8	5	Who could say what's safe or not or judge people fairly. Some requirements may be "off" such as packing "it" out. Vague, difficult to evaluate. Too subjective.

## Appendix A -- Continued

Frequency

Mt. Jefferson	Eagle Cap	Reason
1	--	Who can say whether a test accurately tests people?
4	--	A demerit system would be fairer -- fines, suspension, etc.
--	--	Unskilled can go with skilled group and use wilderness properly with out a test (boy scouts learn with group experience).
4	2	I would like to see more people educated and informed, but not tested.
--	--	This is a bureaucratic method to keep people out.
--	--	It would restrict small children and handicapped.
4	3	There is too much time involved in getting a permit. Inconvenient.
--	--	It really goes against the grain (nuisance).
1	--	It would not be accepted by the majority.
--	--	It discriminates against racial groups and lower social security classes.
1	--	It would be impractical to implement -- why not stiffen the wilderness regulations and test those?
1	--	What about day hikers? If you want to hike in briefly to see what it is like you have to take a test? You'd lose lots of people.
1	1	Too time consuming for the U.S. Forest Service and users.
1	--	It should not be connected with a permit system on an occasional basis to keep use down -- should be used consistently.
--	--	It is not a positive system for those who want to learn.
--	--	What do you do if everyone is qualified and there are still too many people for the area?

## Appendix A -- Continued

Frequency

<u>Mt. JEff- erson</u>	<u>Eagle Cap</u>	<u>Reason</u>
--	--	I don't like the idea of being judged.
1	--	More testing, labeling, etc.,...that is what I am trying to get away from in the outdoors.

N = 110    N = 63