

THE BACKCOUNTRY OF MANNING PROVINCIAL PARK
MANAGEMENT AND USE

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ABSTRACT

This thesis studies the use and management of a portion of the backcountry in Manning Provincial Park, located 140 miles east of the Vancouver area. Like many other North American wildlands near urban centres, Manning Park is experiencing increased pressure due to population growth in the surrounding area and the current popularity of hiking and camping activities. Demand for backcountry recreation areas appears to be increasing faster than new lands are added to park systems. The result: trails and campsites become more crowded, with possible negative effects on both the physical environment and on the "wilderness experience" of hikers. Environmental quality deterioration, which may indicate that a given area's biophysical carrying capacity has been exceeded, can include pollution of streams, presence of litter, and the chopping of live trees for firewood. Psychological consequences of heavy use have been recognized more recently as important for backcountry management. These refer to the hiker's tolerance for other humans in the area. For some backpackers the wilderness experience is enhanced by social encounters, while for certain individuals, the mere evidence of another camping party can ruin a trip.

Little information on Manning Park's backcountry--biophysical characteristics and problems, and visitor numbers, types and needs--has been collected. Additionally, it is felt managers and planners have not given adequate

attention to the preferences and opinions of backcountry visitors. Thus, the following steps were undertaken:

- 1 An examination of various management choices available in planning for backcountry hiking areas, through a review of relevant literature;

- 2 A case study of the backcountry of Manning Park, focusing on the Heather Trail. First, data were obtained regarding visitors--their backgrounds, preferences for backcountry facilities, numbers of visitors, and management alternatives. Half-hour personal interviews were conducted at campsites in the summer of 1975, followed up with mailed questionnaires in October 1975. Second, information about present management practices, planned future developments, and the opinions of managers on backcountry use and development, was obtained. Personal interviews were conducted with naturalists, administrators, and planners, and the conceptual plan developed for the area by the Parks Branch planners was examined.

- 3 Suggestion of practicable management procedures which would help to create a backcountry environment meeting user needs and desires, while aiding in the maintenance of environmental quality.

The case study revealed that managers lack the data on use levels, visitor opinions, and environmental conditions, which would greatly assist future management and planning efforts. Visitors, too, lack information concerning the park, its features, and facilities. Additionally, they are

not exposed to information about the proper types of behaviour, those least likely to damage the biophysical environment. Two primary reasons exist for this deficiency: the park supplies little information, and visitors tend to avoid the Nature House, thus not receiving the available information.

The following recommendations were set forward: •1 That a hiker registration system be implemented; •2 That more extensive information be made available, and that visitors be encouraged to take advantage of it; •3 That a naturalist be hired to hike the Heather Trail loop during peak use times; •4 That unobtrusive physical measures be taken to curb trail erosion and widening; •5 That a new loop trail be constructed connecting the Three Brothers peaks; and •6 That park managers participate in seminars and workshops dealing with biophysical and psychological carrying capacity problems in the backcountry, and various workable solutions to them.

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INTRODUCTION

This thesis presents the results of a recreational use study of a backcountry area in Manning Provincial Park, which borders the populous Lower Mainland of British Columbia. It is believed that both day and overnight use of this facility are increasing in popularity. On the other hand, it is not presently receiving management attention geared towards helping it cope with intensified use. This study, therefore, is concerned with the effects of increased use both on the hikers' enjoyment of their backcountry experience and on their opinions of desirable management goals and practices for the area.

CHAPTER 1

OVERVIEW OF THE PROBLEM

HISTORICAL CONTEXT

In an increasingly populated and urbanized North America, many forms of outdoor recreation providing escape, physical challenge, communion with nature, and solitude are gaining popularity. Greater numbers of people are exerting previously unfelt pressure on recreational lands, particularly wildland resources. All available evidence, according to Lucas (1964, page 25) points to a greater relative demand for wildland recreation than for other forms of outdoor recreation. The Wildland Research Center (1962, page 236), predicted an eightfold increase in wilderness use by the year 2000, and only a fourfold increase in camping in general. Willard (1971, page 120), states that users of low-density recreation resources are increasing in number faster than the available resources are growing. In British Columbia, provincial park overnight use jumped 40% between 1971 and 1974, while the province's population rose by just 9% (Statistics Canada estimate). Provincial parklands increased from 2.68 million hectares in 1971 to 3.8 million hectares in 1974 (British Columbia Parks Branch figures). Much of the newly-added parkland is in northern British Columbia, however, and is therefore inaccessible to Lower Mainland residents.

Since demand is increasing faster than the supply of usable "wildland" or parkland, the situation near rapidly-growing areas in British Columbia deserves some attention. Throughout Canada and the United States, wildlands near urban centres are particularly vulnerable to population pressures (MacNeill, 1971, page 136). Visitors to Glacier Peak Wilderness, near Seattle, Washington, increased approximately 43%, to 7400 annually, between 1958 and 1965, according to registration data (Hendee, 1968, page 4). Backcountry use in Jasper National Park, easily reached by Calgary residents, increased by 30% between 1963 and 1973 (personal communication, Flanagan, Jasper Park Superintendent, 1975). The California Sierra, within a few hours of San Francisco and Los Angeles, has seen a much sharper increase in use than the national average of 12%. Nash (1968, page 268) reports that over 450 people have camped at one time at small Shadow Lake in the Minarets Wilderness. Three hundred people climb Mt. Whitney, the Sierra's highest peak, on the average summer weekend. Labor Day weekends send 1500 people to the peak. Raft travel through the Grand Canyon via the Colorado River increased from eighty visitors in 1958 to 9935 in 1970, and 16,422 in 1972. Visitors to the USDA Forest Service Wildernesses and Primitive Areas increased fourteen times between 1946 and 1970. Over the same period designated wilderness acreage increased by approximately 3% (Stankey, 1973, page 2).

It is important to note that the recreational areas under discussion are not true "wildernesses," although they may be referred to in the literature as wild or wilderness areas. In fact, they may be managed and serviced regularly, as trails are constructed, pit toilets cleaned, deadfall cleared off trails, litter collected, and campsites patrolled. In this thesis, the term "wildlands" will be used in reference to these backcountry areas which are not true wilderness. Such areas are cared for and managed for human use, but with the intention of protecting the wild and rustic atmosphere.

PROBLEM STATEMENT

The problems brought on by overuse may be better understood if one looks at wildlands used for recreation as a common property resource. They are publicly owned, like air, oceans and fisheries, and can be used by more than one individual or economic unit. At low levels of use an additional user may impose no cost. But since the resource is finite, a saturation point exists, beyond which there are more users than are socially, economically, physically, or psychologically desirable. The additional user causes others to suffer disutilities, or a decline in the quality of the experience; thus his or her presence is negative. As Thorsell (1971, page 25) expresses the dilemma,

"This is the type of problem facing wilderness planners and managers. The central issue is that of any common property resource--the spectre of

growing demand, rising population, finite stocks, unlimited entry, congestion, decline in quality, and lack of effective control mechanisms to ensure an unimpaired yield of benefits."

As use increases in wildland areas, management practices and policies for low-density recreation (e.g., backpacking, day-hiking, canoeing, cross-country skiing) must adapt to ensure an "unimpaired yield of benefits," or that the physical, biological, and psychological carrying capacities of a given area are not exceeded. The specific term "physical carrying capacity" deals with the effects of human visitation on the non-living environment. For example, this category would include the ability of the terrain to resist erosion. The physical carrying capacity of a primary sand dune would be much lower than that of a well-drained forest floor, on the basis of hardness and resistance to site impact. Additionally, a site's capacity to "absorb" trails and bridges without experiencing significant deterioration of wilderness quality would be a determinant of physical carrying capacity in the recreation context. The lack of available deadfall timber for campfires or a dearth of empty camping spots might indicate that an area's physical carrying capacity had been surpassed (Nash, 1967, page 266).

Biological carrying capacity refers to the point beyond which human activity will have permanent irreversible effects on life in the wildland environment. A change in plant numbers or types or in the numbers, behaviour, or

distribution of an animal species will affect other plant-animal relationships in the system. When man pollutes water bodies, feeds bread to bears, or dams a stream, he is likely to alter life systems. At some point these cumulative bio-systemic changes may affect the biological carrying capacity of a recreational area.

Psychological carrying capacity, a more recently popularized concept, refers to the degree to which one is willing to tolerate other people before the wilderness experience declines (Nash, 1967, pages 267-268). In the wildland environment any human activity or evidence of human presence is to a degree an intrusion. The question here is one of threshold: levels of tolerance vary among individuals. At one extreme is the person who needs complete solitude and for whom the sight, sound, or even knowledge of another camping party in the vicinity ruins the wilderness experience. Not uncommon, on the other hand, are those visitors who actively seek out other parties, organizing community campfires and pitching their tents nearby.

Recreational carrying capacity, then, is NOT a single, all-encompassing value. It is flexible, changing under different management and investment levels and with user needs and experiences. One single area will probably be regarded differently and assume different capacities, if viewed by different user groups or managed at differing levels of intensity. Management can exert a great deal of influence over an area's carrying capacity. For example, a

trail constructed on erosion-resistant rock will have a relatively high biophysical carrying capacity, while its visitors' tolerance for others, psychological carrying capacity, may be considerably lower. Thus, the limiting factor is not ecological but psychological. On the other hand, the use of a more sensitive coastal wetland might be limited by biophysical factors before its psychological carrying capacity was reached. In such a case, management can either alter the biophysical environment to tolerate heavier use, or limit numbers so that use levels respect biophysical constraints. Stankey (1972, page 61) provides a more lengthy discussion on some ways in which managers can alter carrying capacity.

A question of trade-off is involved here: greater levels of use will bring certain benefits to society, in the form of more opportunities for more people. With heavier use, however, these benefits are likely to be short-lived. Lower levels of use may be achieved only if some people are denied access to the resource. Benefits will be stretched over a longer time horizon, if carrying capacity is not surpassed, but fewer members of society will share them.

In examining wildland carrying capacity with a view to improving resources management, the recreation planner should consider the preferences and needs of the resource users; in this case, the recreationists. These perceptions can and should play an important role in the formulation of many short and long-range management decisions, from trail

widening and firewood provision to charging user fees and rationing campground space. Lucas expressed support for management decisions which incorporate user opinions, stating that the social sciences have successfully advanced a view of resources as objects culturally perceived, not defined entirely in physical terms.

"Recreational resources can scarcely be studied except in perceptual terms. This is particularly true of a resource so elusive and subjective as wilderness." (1964c, page 22.)

But he feels that

"...it would be impossible to give every recreationist what he says he wants at every time and place. Some wishes, if met now would affect the resource so that the wishes could not be met in the future."

Hendee's viewpoint (1968, page 2) is similar to Lucas' second statement: wilderness management cannot and should not "be reduced to a popularity contest." He emphasizes that "information about user behavior and attitudes does not operate in a vacuum and is not the sole or ultimate criterion with which to shape wilderness management decisions." Ecological, legal, and other considerations may not be well-understood by the public.

Additionally, the incorporation of visitor attitudes into wildland decisionmaking is not a simple process having clear-cut, "correct" answers. Although it may be tempting to depict the wildland recreationist as having certain predictable characteristics or features, such a stereotype would be inaccurate. Backcountry hikers are by no means

homogeneous in socio-economic background, wilderness experience, or attitudes. Many wildland visitor studies, such as Hendee (1968), Lucas (1964b), Stankey (1971), and Thorsell (1971) illustrate these differences.

For whom, then, should wildlands be managed? Do we try to manage one wildland for all visitor types, cutting it into small pieces like a jigsaw? Irreparable environmental damage could result, and nobody will be satisfied--neither the solitude lover nor the Coney Island aficionado. On the other hand, treating wilderness visitors' responses in an indiscriminate fashion might mean that only the visitor whose needs and tastes lie "on the average" would be satisfied. It is precisely this visitor, says Stankey, who can be accommodated elsewhere or in a different activity. At the same time, opportunities would be lost for those seeking near-natural environments, which are ever-diminishing and irreplaceable.

Having decided that viewpoints oriented towards preservation, conservation, and minimal human intervention are most relevant in the wilderness or backcountry planning process, how does the manager isolate those wildland visitors holding these beliefs? In an effort to single out those visitors whose attitudes would be most relevant for planning and management, this particular study was limited to overnight visitors who penetrated a minimum of 8.5 miles into the backcountry. This means of differentiating user sub-groups was used also by Sommarstrom (1966), who did not

sample hikers whose visits were shorter than three days. Lucas (1964) handled variation in visitor tastes by differentiating paddling canoeists from motorboaters, placing more weight on the canoeists' views and wilderness concepts. He felt that canoeists would be more preservation-oriented than motorboaters; thus, the canoeists' opinions were more crucial for wildland planning.

The Wildland Research Center isolated relevant viewpoints after first rating users according to prior wilderness experience, "a rough and admittedly partial measure of commitment" (ORRRC Report 3, 1962, page 135). Hendee (1968) and Stankey (1971) developed scales for the differentiation of users on the basis of values underlying their opinions and motivations relating to wilderness use. Users more oriented to wilderness preservation ideals, solitude, and minimal intrusion of civilization fell at one end of the continuum and were labelled "purists." These people were thus felt to be more important in decisionmaking than were the nonpurists or "urbanists" at the opposite end of the scale. Thus, it is possible, although unavoidably subjective, to isolate the perceptions and opinions of particular user sub-groups, for the purpose of planning for backcountry recreation areas.

STUDY DESIGN

Objectives

Objectives of the study were fourfold, and directed towards the incorporation of user values and opinions into the planning process:

(1) To examine a range of administrative and management choices available in planning for backcountry hiking areas;

(2) to determine what type of backcountry environment is desired by Heather Trail users: trail and campsite development, facilities desired, optimum and tolerable numbers of visitors, and degree of administrative regulation preferred;

(3) To acquire relevant data about present management of Manning Provincial Park's backcountry:

- Attitudes towards backcountry users and management goals held by park staff;
- Information regarding levels of use, crowding, and facilities; and
- Management procedures presently in effect; and

(4) To evolve some overall guidelines and specific management procedures with the aim of creating a backcountry environment meeting user needs and desires. User perceptions and opinions will receive primary consideration in the development of practicable proposals, but ecological,

administrative, and political concerns will also be weighed.

Study Components

Literature Review

This section consisted of (1) an investigation of similar studies conducted in wildland areas of the United States and Canada, covering backcountry recreationists, their perceptions, needs, and opinions, and (2) a compilation of various backcountry management and policy alternatives advocated in the literature, frequently based on the results of user studies. Pertinent findings have been included in this thesis.

Case Study

A backcountry use and management study was undertaken in Manning Provincial Park, where no previous investigations of this type have been conducted. It is believed that the area is deserving of attention and concern, for several reasons:

(1) its proximity to the Lower Mainland population centre, being only three hours from central Vancouver;

(2) problems of congestion are mounting in wildland recreation areas closer to Vancouver, such as the Black Tusk section of Garibaldi Provincial Park.

It was decided to limit the effort to the Heather Trail

loop portion of Manning Park for reasons to be discussed in Chapter 2. The case study focused on the perceptions and opinions of backcountry users who visited the area for a minimum of one night and penetrated at least 8.5 miles. Users were interviewed and observed in the backcountry, and were subsequently re-surveyed with a mailback questionnaire several months later. Information was generated relating to user backgrounds, user opinions of existing facilities and physical management needs, perceptions of numbers and congestion, user behaviour, and reactions to various management alternatives.

In addition, the roles of park administrators, naturalists, and planners were explored cursorily, and an effort was made to understand their attitudes towards backcountry use problems, management priorities, and policy development.

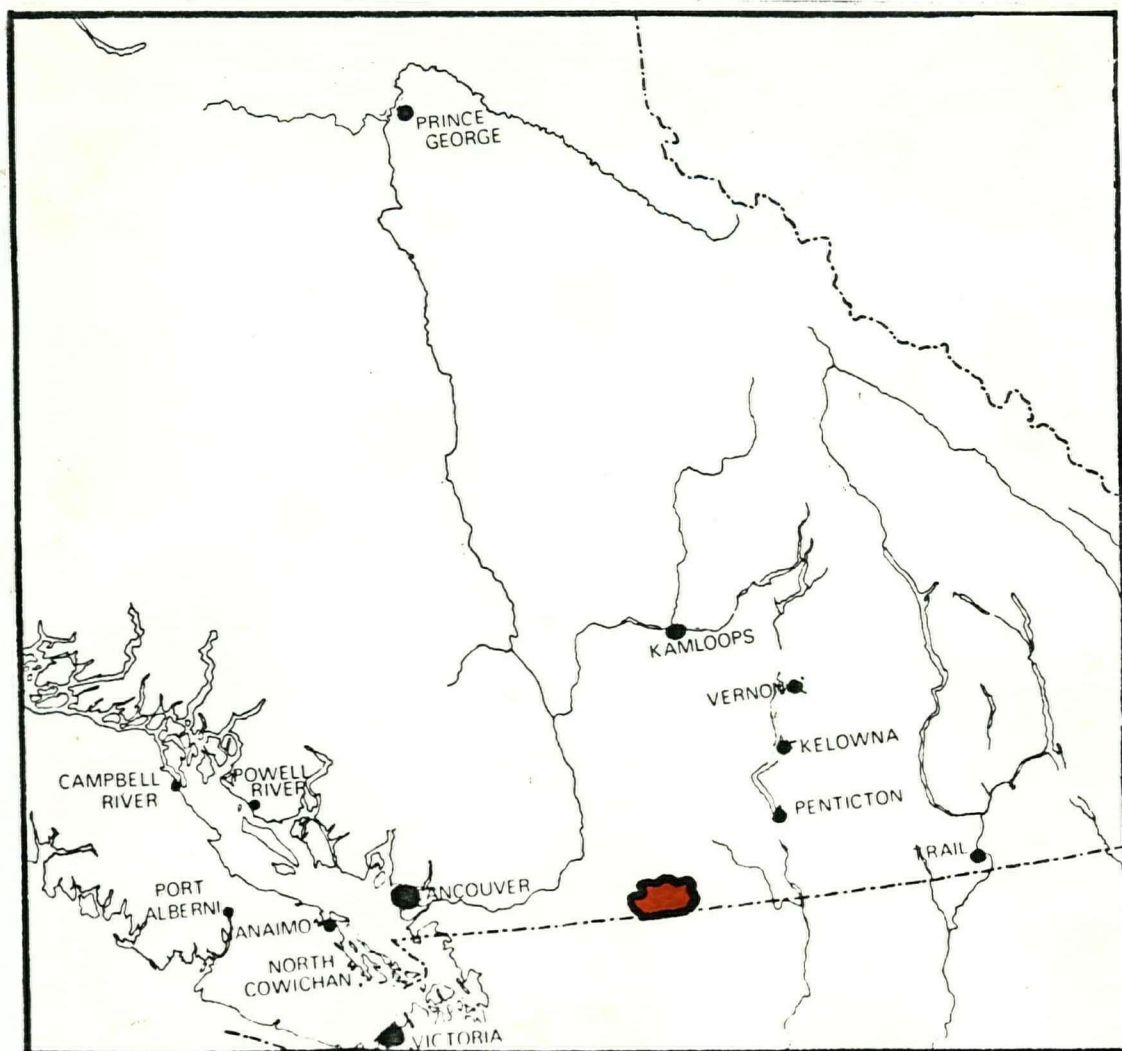
CHAPTER 2CASE STUDYAREA DESCRIPTION

FIGURE 1. MANNING PROVINCIAL PARK, BRITISH COLUMBIA

Manning Provincial Park is located in the Cascade Mountains, one hundred forty miles east of Vancouver, British Columbia, touching the International Boundary, as shown in Figure 1. Over 176,000 acres in size, it holds

recreational opportunities for people with many outdoors interests. Summer offers picnicking, dayhiking, backpacking, nature strolls, canoeing, and fishing. Winter, on the other hand, attracts skiers to cross-country trails and the Gibsons Pass downhill area. Park visitors can stay at a motel offering a sauna and dining room, in rustic cabins, at car campgrounds, or tent in designated wilderness campsites (hereafter "DWC's") on the overnight trails. Motorists passing through find the park centre area attractive for a lunch or rest stop. The lookout point, nature trails, alpine meadows area, and other day-use facilities are used by these visitors as well as by overnights.

General vegetation patterns reflect Manning Park's location in an area of transition between coastal forest and dry interior biotic zones (Lyons, 1952, pages 6-12). The western portion of the park, in the Sumallo and Skagit river valleys, is dominated by typical coastal forest vegetation: western red cedar [Thuja plicata], Douglas fir [Pseudotsuga menziesii], and western hemlock [Tsuga heterophylla] (Cyca and Harcombe, 1970, page 34). The understory is characterized by blackberry [Rubus ursinus], thimbleberry [R. parviflorus], redberry elder, [Sambucus racemosa var arborescens], salmonberry [Rubus spectabilis], rhododendron [Rhododendron macrophyllum], Kinnikinnick [Arctostaphylos Uva-ursi], and other shrubs. Near Manning Park Lodge at the park's centre grow stands of lodgepole pine [Pinus contorta] and Engelmann spruce [Picea glauca ssp. Engelmannii], while

further east, approaching the drier lands, black cottonwood [*Populus trichocarpa*], trembling aspen [*P. tremuloides*], and Ponderosa pine [*Pinus ponderosa*] are common. At higher elevations alpine fir [*Abies lasiocarpa*], white bark pine [*Pinus albicaulis*], and less abundantly alpine larch [*Larix lyalli*] are seen. Manning Park boasts an incredible array of alpine flowers during July and August. The best-known expanse stretches for fifteen miles, from Blackwall Peak northwest to Nicomen Ridge (Cyca and Harcombe, 1970, pages 34-36).

The park's hiking trails, particularly those used by overnight visitors, deserve attention, as they are linked to the focus of this thesis. Approximately ten trails or loops of varied difficulty are used by overnight hikers. The Lakes Chain Trail, a 5.5 mile stroll from the parking lot at Lightning Lake to the DWC at the northwest end of Strike Lake, is probably the least taxing. The Mount Frosty and Skyline trails involve more uphill strenuous walking. Trails intended for overnight use generally have at least one DWC. Longer loops, such as Mount Frosty-Windy Joe, and Heather-Grainger Creek-Skaist, contain two or three, placed a day's hike apart. Some campsites consist of nothing more than spaces cleared for tenting and a few rock fire rings. Others have pit toilets, fire grates, cement fireplaces and stump "chairs." Several campsites provide cut firewood early in the season.

Manning Park trails do not all receive equal foot

traffic. Relatively non-strenuous hikes like the Lakes Chain and Heather Trails are probably the most frequently traveled and are popular with one-day as well as overnight hikers. On the other hand, the Bonnevier Trail, easily reached but requiring a steep climb and offering little water, receives sparse summer use (personal communication with Manning Park naturalist, summer 1975).

In a thorough examination of visitor perceptions of hiker behaviour, numbers, and area management, each overnight trail would be treated. Its backpackers would be sampled and interviewed personally if possible, and its management would be studied. Collection of data on all trails would be particularly important for Manning Park, where trails are used, managed and maintained at different levels. Additionally, it is likely that users of one relatively remote and arduous trail may differ collectively and individually from those taking an easy-access and graded trail. The former group might possess greater experience than the latter, and hold different preferences and opinions. Given certain constraints, however, it was not possible to survey, even superficially, backcountry hikers and facilities throughout the park. Since two field workers had less than two months in which to work, it was felt that usable data could be gathered for only one trail in Manning Park.

The Heather-Grainger Creek-Skaist loop (hereafter "Heather Trail") was chosen as the study area. It is suspected that physical, biological, and psychological overuse problems could be developing along the loop, particularly over the very popular segment between the parking lot and the Kicking Horse campsite area (see Figure 2).

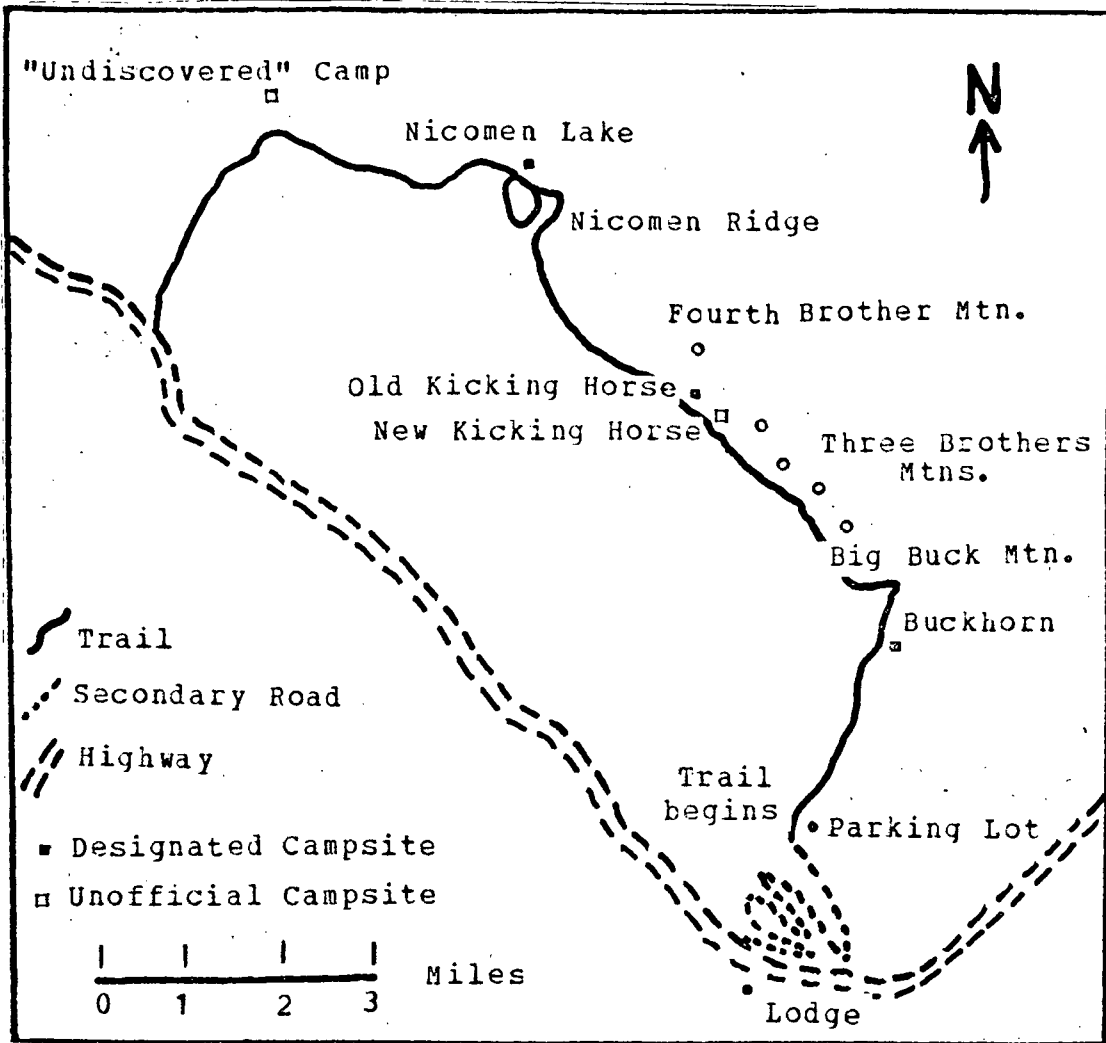


FIGURE 2. CASE STUDY AREA--THE HEATHER TRAIL

First, the trail is regarded by the public as unique, due to the fifteen or more miles of uninterrupted meadow it crosses. Its uniqueness may be contributing to the trail's

popularity, relative to other Manning Park trails. Second, a nine mile uphill road to the trailhead (elevation of greater than 6500 feet) erases most of the climb usually associated with the viewing of alpine meadows. The latter are thus easily accessible to people who would otherwise probably not be strong enough to reach them, did the road not exist. The twenty-six mile loop beginning at Blackwall Peak contains only two significant climbs, neither longer than one mile. The second thirteen miles are nearly all downhill, returning hikers to the highway (elevation approximately 4300 feet). An additional factor possibly exacerbating the effects of overuse is the nature of alpine meadows themselves. The meadows are more fragile and vulnerable to damage brought on by human use than are vegetation communities at lower elevations. Fourth, several nature paths where guided walks are conducted, and a nature hut with displays and pamphlets are located in the parking lot area at Blackwall Peak. These attractions might bring increased traffic to the Heather Trail, which begins at this point.

The anatomy of the Heather Trail deserves some attention at this point. The trail's predominant feature, the alpine meadows, begin approximately one-half mile past Buckhorn campsite (see Figure 2), and continue to Nicomen Ridge nearly unbroken, although dotted with small clumps of firs. From Nicomen Ridge the trail drops sharply to Nicomen Lake, skirts its north side, and descends gradually through

coast forest for thirteen miles. Changes in elevation are noted on the attached map. The first three miles of trail consists of a partially overgrown jeep road, which narrows at Buckhorn camp to a well-compacted path varying in width from one to five feet. The path widens to a jeep road once again for the last four miles or so of the Skaist leg. In fact, the trail between Grainger Creek and the highway was originally a wagon road. For many years logging slash has blocked the road around mile 23; thus, the "road" today exists only between that point and the highway.

The largest campsite, located at Buckhorn, approximately three miles in from Blackwall Peak, has an outhouse, three-sided shelter containing several rusting bedframes and cooking pots, and about ten rock fire rings set in cleared tenting areas. A stream traverses the campsite, providing water all season. Several paths have been worn connecting tent and fire areas with the stream and main trail.

Campsite number two, known as Kicking Horse, is approximately 8.5 miles from Blackwall and 5.6 miles from Buckhorn, set between the Third and Fourth Brothers (see Figure 2). Kicking Horse is actually two campsites, although just one is recognized by the park administration. The original campsite, hereafter called "Old Kicking Horse," lies in a small depression which remains slightly swampy into August, although the tenting sites are unaffected by the water. It contains an outhouse and a three-sided shelter with tables, pots, and a woodstove. In 1975 the

shelter contained large puddles for most of the season, and was used only by the trail crew. Old Kicking Horse has five established camping spots, although only one is visible from the trail. It was hypothesized that after the one or two easily-located spots are occupied, newcomers do not bother to look for the others, turning back instead to a more desirable camp located about one-quarter mile back along the trail. This site, probably created by overflow from Old Kicking Horse, will be known as "New Kicking Horse" for discussion purposes. New Kicking Horse is well-drained, has a better and more conveniently-located water source than has Old Kicking Horse, in addition to six or seven fire and tenting areas. There is no outhouse or shelter. The hilly topography isolates New from Old Kicking Horse, even though they are separated by only several hundred yards. Hikers unfamiliar with the area sometimes arrive at New Kicking Horse, stay for one or two days, and leave the way they entered, unaware of the existence of Old Kicking Horse. Boisterous groups in one of the sites can be heard occasionally in the other, on a windless night.

Nicomen Lake, at mile 13, has two campsites: one small area (three tenting spots) and one considerably larger space, with over a dozen cleared tenting and fire spots. The smaller area, located where the trail first meets the lake, was quite muddy for most of the 1975 season. It appeared to serve as an overflow campsite and was not as desirably located as the larger area. The latter is located

more aesthetically, in a dry section along the northwest end of the lake. It is not readily visible from a distance, unless a colourful tent is spotted from atop Nicomen Ridge. There is neither outhouse nor shelter at the lake.

The last half of the Heather Trail loop contains no officially recognized campsites. Backpackers completing the circuit and not wishing to hike the final thirteen-plus miles in one day must make camp somewhere along the trail. Quite a few, perhaps a dozen scattered fire scars are visible along this stretch of trail, due to the absence of DWC's. One larger campsite with a cleared area of approximately 600 square feet, a large fireplace, and a crude picnic table, is located several hundred feet down an abandoned trail which forks off from the main circuit at Grainger Creek (see Figure 2). This campsite is ideally located but remains undiscovered by present-day travellers who use the new Grainger-Skaist leg.

Hikers wanting to leave the beaten track to bushwhack or explore usually climb one, two, or all of the Three Brothers. These "mountains" are little more than gently rolling upward extensions of the meadows, and require little effort to be climbed, although rock faces prevent easy ascent of all slopes. Alternatively, backpackers can visit the Fourth Brother or climb the rocky scree slope rising above the south side of Nicomen Lake.

STUDY METHODOLOGY

Information about the Heather Trail users, environment, and management was gathered from three sources:

- Overnight hikers in July and August;
- Manning Park managerial and naturalist staff;
- Planners and administrators located outside the park

User Information

Gathering information about recreationists using the Heather Trail was felt to be an extremely important component of the case study, for several reasons. First, as mentioned previously, visitor opinions and perceptions comprise an important aspect of the wildland decisionmaking process, and every effort should be made to obtain them. Second, these data can be obtained only from the hikers themselves; no outside observer can speculate on the meaning of the wildland experience and opinions related to it. Additionally, no up-to-date Manning Park user data are available to the agencies concerned. Not only have opinion statistics not been gathered, but several years ago the optional hiker registration system was discontinued; thus, park staff have no concrete idea of use levels. Chances are good that managers' perceptions of use levels are incorrect anyway (Hendee and Lucas, unpublished manuscript, page 4).

There are several ways in which user information can be

collected. An interview can be administered orally to back-country hikers, either at campsites, on trails, or at exit points. Similarly, hikers in these places can be handed questionnaires to be returned immediately, left in a drop box, or mailed back. Alternatively, questionnaires and instructions for their completion can be placed at exit points, as with the British Columbia Parks Branch user studies (1975). Researchers sometimes mail questionnaires to home addresses gathered from trail registers, fire permits, automobile registrations, or from hikers themselves. In the last case the researcher may first interview subjects and later follow up by mail, or may make only minimal contact in the backcountry, merely soliciting permission to send a questionnaire later.

User information for this study was gathered in two steps. First, fifty-seven interviews were conducted at New and Old Kicking Horse sites and at Nicomen Lake. These interviews were followed up three months later with a mailed questionnaire. Interviews were generally held at the respondent's camping spot, with a few exceptions occurring at Kicking Horse, when a party was merely passing through, on their way to camp at Nicomen Lake, and at Nicomen Lake, when parties based at Kicking Horse arrived for day visits. Respondents were at least fifteen years old, as was the case in the ORRRC survey. The desired respondent(s) were selected after a group was approached, introductions were made, and permission to conduct the interview was granted.

If the situation was not conducive to holding an interview (e.g., if the party had just arrived and taken off its gear), arrangements were made for the interviewer to return at a designated time. Due to the small population size, strict sampling procedures were not followed. The interviewers adhered to the following guidelines, however, in selecting respondents:

- The ratio of male to female respondents was to approximate that of the backpacker population;
- Inexperienced as well as experienced backpackers were to be interviewed (There was a tendency for seasoned hikers to volunteer to be interviewed, while the novices showed a reluctance to participate);
- The age distribution in the backpacker population was to be matched in the sample chosen. This was accomplished fairly easily, because intragroup age differences were usually slight; and
- For groups of five or fewer individuals, one respondent was chosen; for groups of five to ten, two were chosen, and so on.

Interviews generally required thirty to forty minutes. Respondents were extremely cooperative, answering all questions and frequently showing interest in the aims and outcome of the study. Sometimes this enthusiasm was shared by group members other than the respondent. In these cases the interviewers attempted to separate comments made by the respondent from those added by others present, but in several instances the respondent's views were definitely swayed by comments from his or her companions.

Behaviour observation by the interviewers, to acquire information not ascertainable through questioning, was an important component of the user study. For example, one could not expect to obtain an accurate response to the question, "Do you litter?" But an observation of the respondent during the interview and a check of his or her campsite might yield the desired information. Behaviour observation was employed also to check respondents' actions against their ideas. Did people who said that a litter collection facility was not needed leave litter behind? Did the person who said he does not like to camp near other groups pay social visits to all his neighbours? Such information is extremely subjective, of course, but it was hoped that inconsistencies would be avoided by having one person compile all the behaviour observation and apply the same standards to each group.

In reality behaviour observation was only a partial success. It afforded a close look at aspects of the back-packing trip generally not covered in mailed questionnaires. But full observation of all camped groups, which would necessitate not one but several checks, was unfortunately not feasible. Some of the tenting areas, particularly in Old Kicking Horse, were out of the interviewers' sight. Here it was difficult to observe individual and intergroup behaviour. The interviewers were reluctant to intrude on visitors' privacy, so unless a group was camped in sight of the interviewers, observations were sporadic and not

consistent. Wood gathering, fire building, littering, dishwashing, and naturally, toilet habits were difficult to observe. On the other hand, blatant visible violations of recognized camping ethics--chopping of live wood, creating new firescars, and abandoning tin cans--tended to stand out. When possible, attempts were made to examine each campsite after its occupants had departed, although one could not be sure that the last occupants were responsible for litter found in fireplaces or hacked trees.

It was anticipated originally that conclusions would be drawn about individuals' and groups' preferred camping environment, based on their campsite choices. For several reasons little usable information could be obtained through pure observation. This area will be treated more extensively in the BEHAVIOUR section of Chapter 3.

The interview approach contained several weaknesses, which may affect the validity and applicability of the findings, and should be recalled as the results and conclusions of the study are presented in subsequent chapters. First of all, there were only two interviewers covering seventeen miles of trail (from New Kicking Horse to the end of the Skaist portion of the loop, as illustrated on Figure 2). Because they hiked and camped together it is conceivable that some hikers who could have otherwise been interviewed were never even spotted. This problem had both spatial and temporal aspects. The interviewers spent sixteen days on the trail: five Friday through Sunday

periods plus one Monday holiday. It was felt that the probable very low Monday through Thursday numbers would not justify weekday vigils (personal communication with Park Naturalist, 1975). Thus, the sample of fifty-seven represents the most predominant kind of Heather Trail overnight visitor, who could account for as much as three-quarters of the trail's overnight use. It is unlikely that a spatial bias arose out of the confinement of the user search to the DWC's at Kicking Horse and Nicomen Lake. The interviewers felt certain that over 90% of the weekend overnight visitors travelling to or beyond New Kicking Horse used the DWC's, when meadow observation from the tops of the Three Brothers failed to point up any tents for several miles around, and when Saturday afternoon trailside watches around mile 6-7 revealed that parties entering the area were all headed for the DWC's. Judging from the number of recently-made firescars along the trail in the Big Buck area, mile 4-5, it is likely that most of the non-DWC use is concentrated in this area, out of the interview range (see Figure 2). Thus, although an area as large as the Three Brothers meadows could not be scanned completely, it is felt that very few interviews were lost because the interviewers stayed at the DWC's.

The second part of the user study consisted of a follow-up questionnaire sent to all respondents in October 1975. A postal strike interfered with the mailback procedure, but after a telephoned or hand-delivered reminder

to all non-respondents living in the Vancouver area, a return rate of 86% was achieved. The follow-up questionnaire, four pages in length, touched on points not brought up in the personal interviews, and expanded on management alternatives, particularly the questions of overuse and rationing.

Both parts of the user study, the personal interview and the follow-up questionnaire, gathered information in the following categories:

- (1) Data on itinerary and group members, background socio-economic data on respondents;
- (2) Data on trip planning, visitor motivation, and the services provided by park staff in these areas;
- (3) Opinions on present facilities and amount of development, reactions to the provision of various hypothetical amenities;
- (4) Reactions to numbers, and perceptions of tolerable use levels in campsites and on trails; and
- (5) Reactions to various management strategies which could be implemented to cut or forestall overuse, by reducing visitor traffic and placing controls on behaviour.

Contact With Managers and Planners

Several persons involved in the administration of management policies for Manning Park were contacted during the study. Mr. David Bruce, of the North Vancouver Regional office of the Parks Branch, under whose jurisdiction Manning Park falls, was interviewed before the case study and user survey were undertaken. It was hoped to obtain an idea of

the amount of attention the government gives to Manning Park's backcountry, relative to other areas. In addition, information on the administrations's perception of present management problems of Manning Park's backcountry, and the seriousness of these problems, was sought. Mr. Bruce's knowledge of Manning Park problems is limited partly by his physical detachment from them, and also by his need to deal with with park areas and problems perceived to be more pressing. Additionally, limited funds prevent his office from hiring the personnel to undertake the studies required to provide information on backcountry problems in Manning Park.

Mr. D.E. (Herb) Green, District Superintendent, based in Manning Park, was interviewed both before and after the user study was completed. Because he is stationed permanently in the park, he was assumed to be familiar with backcountry problems as they have changed over time, use levels, and visitor needs, as well as present management priorities. Information relating to contacts between Manning Park managers and backcountry users, and the role of managers in influencing use patterns was sought, but it was realized that Green has little contact with backcountry users. The impression was conveyed that his budgeting and personal interest do not favour backcountry study. More "immediate" are maintenance needs, keeping the machinery running. Mr. Green mentioned that he is approached frequently by students for assistance and and funds, and

gave the impression of being consequently wary of those who wish to tell him "how to run his show." His hesitancy was understandable, but it may have blocked communication with the interviewers at times.

Although the opinions and data gained from Messrs. Bruce and Green were valuable, it was felt that more extensive information dealing with user-manager relations, user habits, and backcountry needs was required. For this purpose, an interview with Mr. Graham Bell, Park Naturalist, was conducted. Insight was also gained into the relations between the Superintendent's office and the Nature House personnel. The naturalists' familiarity with backcountry users and problems was somewhat limited, because the bulk of their time is spent with day users, and few backcountry trips are made.

It was felt that this study should not be undertaken without regard for the "real world", or Manning Park's future development as conceived by the British Columbia government. The Parks Branch Planning Division was therefore also consulted, and Mr. Mel Turner's conceptual plan for the park was studied. Details of all these contacts will be presented in Chapter 4.

CHAPTER 3

STUDY FINDINGS

This chapter presents a summary of the data obtained in the user portion of the case study. Some of the data were gathered from observation, while other facts were obtained from the personal interviews and mailback questionnaires. Relevant data from other North American studies of backcountry users are included for comparison and contrast purposes.

OBSERVATIONS REGARDING USE

Amount of Use

An attempt was made to create a reasonably accurate picture of the amount of summer use along the Heather Trail loop. Since no records are kept by either the park administration or naturalists, the author's estimates are based primarily on direct observation. Additionally, several points determined through observation governed the estimating procedure:

- The hiking season includes July and August;
- Weekday use (Monday through Thursday) is minimal;
- Overnighters reaching New Kicking Horse or beyond were counted;
- Ten percent was added to each weekend total, to account for groups not seen by the interviewers; and
- Each group consists of 3.8 individuals.

Thus, over the five weekends for which user counts were made, eighty-five groups were estimated to have camped overnight on weekends, between New Kicking Horse and Nicomen Lake, inclusive. To this figure sixty more groups were added, to account for use on the three unmonitored weekends in August. This brings the subtotal to 550 individuals.

Buckhorn Use:

Personal observation and report from hikers placed the probable use of Buckhorn camp at twelve groups on each of the eight weekends. Thus, approximately 390 individuals would be added to the area total.

Weekday Use:

If one concludes on the same bases that about twelve overnight groups use the area every Monday through Thursday period (half stopping at Buckhorn and half going to Kicking Horse or Nicomen Lake), then the total is increased by 365.

As a ballpark figure, then, it can be stated that summer overnight use of the Kicking Horse-Nicomen Lake area was around 730 individuals. Including Buckhorn, the figure reaches 1300 overnights.

Day Use:

Estimation of day use is much more difficult. Few dayhikers venture beyond the Big Buck-First Brother area and into the area where they would be seen by the interviewers.

Many hike only one or two miles beyond the Blackwall parking lot. A discussion of "day use" per se is not particularly helpful, unless some indication is available of the habits and relative impacts of hiking groups. The average size of day-hiking parties was not determined, but for the sake of ease in computation it was assumed to be 4.0 individuals. Although this figure is slightly higher than the actual figure for overnight groups, it was felt to be reasonable, given that family groups and clubs tended to take day trips, while couples with no children were more likely to make overnight trips. Judging from the numbers spotted between the parking lot and the First Brother on Sunday afternoons, an average weekend figure of twenty-five day-hiking groups is proposed. This means that 100 day hikers used the trail each weekend, 800 throughout the summer.

In summary it is likely that the area extending from New Kicking Horse to Nicomen Lake, and continuing on to the highway, received about 800 individuals in the summer of 1975, and that the region around and including Buckhorn camp saw 2000 hikers.

Use Impact and Evidence of Overuse

This section was not compiled scientifically, since no biological data were gathered, nor were measurements made of environmental parameters. Observations consisted primarily of the following items:

- visible evidence of human presence on trails and in campsites,
- degree of campsite use,
- changes in trail and campsite appearance over the season, and
- hiker perceptions of use levels and area capacity.

Visible Evidence of Human Presence

Much of the twenty-six mile loop comprising the Heather Trail does not display much wear and tear, considering the thousands of footsteps it receives each season. Even in parts of the fragile meadows area, tall untrampled grasses and flowers grow right up to the trailside, the path itself remaining one to two feet wide over mile-long stretches. The problem spots are numerous, however. Patches of snow remain throughout the area until late in the season, even though the trail can be completely clear and dry by mid-July. Meltwater rivulets course downwards, crossing the path at dozens of points (these diminish in number and size as the summer progresses), making mud puddles as long as forty to fifty feet. There is a tendency for hikers to avoid these swampy stretches, beating out alternate parallel paths and destroying the meadows adjacent to the original trail. Hikers not minding the mud and wetness plunge through the puddles, creating an ever-widening pothole at the point where the rivulet and trail intersect (see Figure 3).



Evidence of ponding, trail-widening, alternate paths, and destroyed vegetation.



Hacked tree trunk, branches--
New Kicking Horse.



New fire pit, Nicomen Lake.
Note absence of rock ring.

FIGURE 3

Amount of Campsite Use

It would be difficult to state, on the basis of summer 1975 use estimates, that campsites were either over or under-used. No consistent patterns of use appeared to exist. Kicking Horse and Buckhorn were most crowded when the Lower Mainland was experiencing sunny dry weather. A pleasant weekend in July or August would probably draw four to six groups to each of the Kicking Horse sites, and six or seven groups per night to Buckhorn. A cold and rainy weekend, such as August 8, 9, and 10, 1975, drew only two groups to New Kicking Horse and none to Old Kicking Horse. On the average, Two or three groups would extend their hikes to Nicomen Lake, either for a day trip or to complete the circuit. It is probably safe to say that for the campsites observed, capacity, as defined by the number of existing tent and fire areas, was not exceeded in 1975, except over the holiday weekend, August 1 to 4. It was at this time only that some camping parties may have had difficulty in finding an unoccupied camping spot.

Changes in Trail and Campsite Appearance

Campsites withstood the summer traffic without manifesting dramatic changes; the changes noticed over the season are probably more or less permanent, however, provided that human use continues. Both Kicking Horse sites were altered little between early July and mid August. One new cleared tenting area and fire ring was created at Old Kicking Horse. It is possible that some lower tree branches adjacent to campsites were chopped off. But many branches were conspicuously absent at the beginning of the season, so scars created in 1975 would have been difficult to isolate. (see Figure 3). Until the August holiday, Nicomen Lake camping areas received very little use and consequently showed no apparent change. Four new fire pits were made (see Figure 3), over forty fish were seen taken from a lake approximately one-third of a mile by 100 yards in area, and perhaps a dozen wads of toilet paper were scattered in exposed areas during that weekend. It is very possible that Nicomen Lake received more visitors on that weekend than during any other similar period.

Trail conditions changed markedly over the season. In early July dry spots between Buckhorn and Kicking Horse were barely more numerous than swampy stretches. Meadow soils are most vulnerable to damage at this time, when snowmelt is barely over, the hiking season has begun, and the ground is still saturated (Underhill, 1966, pages 3-4). As mentioned earlier, hikers tended to avoid the mud by leaving the trail

for considerable distances. As the mud gradually dried, they reverted to the original path. But the meadow will not regenerate readily where it was trampled and eradicated. Research conducted in the United States national parks indicates that on dry meadows such as these, where the growing season is about sixty days, recovery of worn ground will take about 100 years. Along the alpine stretches of the Heather Trail, particularly where summer inundation occurs, bare scars, apparently created over past seasons, are widespread. A study of wear factors along the Heather Trail (Underhill, 1966, page 3) came to the following conclusions ten years ago:

Soil compaction is and will remain the major problem involved in use here. The condition of some of the oldest trails in the park indicates that natural factors operate extremely slowly to relieve compaction and that plant growth is inhibited as long as the condition persists. Where off-trail wear results in soil compaction results will be slow and insidious and will be extremely difficult to repair.

In addition to the expected wear and tear on designated campsites and trails, evidence of use was apparent in several new firescars which appeared on the Big Buck ridge, a windswept and dry plateau between Buckhorn and the First Brother (see Figure 2). This area seemed to attract visitors who set out too late in the day to reach Kicking Horse before dark.

User Perceptions of Use Levels and Area Capacity

Hiker perceptions of use evidence and overuse are an important indicator of the psychological element in determining the ideal use level. The interviewers attempted to draw out user feelings in this area, without asking too many direct or leading questions. In general, findings indicated that visitors are somewhat aware of physical manifestations of environmental wear and tear, but they do not link them causally with overuse. Any problems apparent now are not felt to be very serious or worsening at this time. Litter was not raised as a concern; in fact, a number of users (20%) commented on its absence. Only a small number of visitors (10%) mentioned the chopping of live branches as a problem. People seemed aware, however, of the finite nature of the area's wood supply. Late season hikers had no more difficulty finding firewood than did July visitors, and there appeared to be more than adequate wood for all, but people recognized the possibility of a future shortage. Complaints about meeting too many people or lots of people were rare, except over the holiday weekend. Ninety-one percent felt the area at some time could have "too many people," but at least half did not feel that time had arrived. These questions will be discussed in greater detail in later parts of this chapter.

BACKGROUND INFORMATION PERTAINING TO HIKERS

Age

The overnight visitors are generally young, 75% under thirty and 45% between twenty and twenty-four, inclusive. (See Table I.)

The age distribution of Heather Trail backpackers shows figures for younger users, specifically those in the fifteen to twenty-four age group, to be similar to those obtained for comparable hiking populations. Approximately one-third of the Garibaldi-Diamond Head trail users, one-quarter of the Garibaldi-Cheakamus users, and 46% of the Garibaldi-Black Tusk users were between fifteen and twenty-four years, inclusive (Horton, 1975, pages 4-6). Just under half the Mount Robson backcountry users were from fifteen to twenty-four (85% were between fifteen and forty-nine, inclusive) (Gain, Swanky, and Taylor, 1975, page 12). Figures for Mount Assiniboine users were very similar (Gain and Swanky, 1975, page 2).

If one looks at some studies conducted in the United States, the bulk of wilderness users seem to be older. Hendee's Pacific Northwest survey, conducted in 1965, revealed only about 19% of users to be in the sixteen to twenty-four group. A high 46% were between thirty-five and fifty-four, with a quarter between twenty-five and thirty-four (Hendee, 1968, pages 11-12). Schmarstrom's data, gathered around the same time, showed a similar pattern to

exist among backcountry users on the Olympic Peninsula, where over half were older than thirty-five (Sommarstrom, 1966, pages 10-11).

It may be that population pyramids are changing gradually, and that the influx of young people into wilderness activities over the last decade (if indeed such a trend exists) is the inevitable result of high birth rates in the late forties and into the fifties. Alternatively, there could be differences in the age structures of Canadian and United States hiking populations, as a result of the older American interest and involvement in hiking discussed by Nash (1967).

Experience

Heather Trail hikers are fairly new to the sport, with 75% having made "backpacking trips of at least two nights in length" for five or fewer years, nearly half for two or fewer years. (One-night trips were not counted here, in an effort to rule out less "serious" hiking excursions.) nearly everyone (83%) had made at least one previous backpacking trip. (See Table II.)

Visitors to Garibaldi Park were similarly new to backcountry hiking, with about 45% having backpacked for two years or less, and about one-quarter for two to five years. It is assumed that respondents were permitted to include one-night trips in answering this question (Horton, 1975, pages 21-28). Mount Robson visitors were somewhat more

experienced, one-third having zero to two years experience, and an additional 27% with two to five years background. One-quarter had more than ten years experience. It should be noted that riders, climbers, and hikers were lumped together for this question (Gain, Swanky, and Taylor, 1975, page 12). Backpackers in Mount Assiniboine Park were even a bit more experienced. As in Mount Robson, 25% had been active for over ten years, and only 22% (less than half the number of Heather Trail backpackers in this category) had hiked for two or fewer years (Gain and Swanky, page 2).

Frequency of Hiking Activity

Backpacking seems to be an occasional activity for most respondents. One-half the users had made two or fewer two-night trips over the past two summers. Only 10% had made more than six of these trips over the previous two summers.

The Hendee Pacific Northwest study offers an interesting comparison, reinforcing the finding that Heather Trail backpackers hike less frequently than is typical for North American backpackers. The average number of trips into "wilderness-type areas," in 1965, for each respondent, was 6.3, of average length 2.3 days each. Although the trips are short, this means 14.5 person-days over a season of no more than three months (Hendee, 1968, page 21). Average trip length is not inconsistent with Heather Trail findings (see section on Trip Length). But when one realizes that only 10% of Heather Trail users made six trips

over the past two summers, the Pacific Northwest users are comparatively active.

Education

The sample was extremely well-educated, when compared with the Canadian population (labour force) as a whole (see Table III). One-third had university training beyond an undergraduate degree. Eighty-three percent had finished at least some university training. It would appear that some of the remaining 17% will attend university upon finishing high school and reaching the appropriate age. A socio-economic survey conducted in British Columbia provincial park campgrounds showed 68% of the persons sampled to have received at most a high school education (Blackwall, 1971, page 71). This statistic would suggest that backcountry recreationists may be more highly educated than outdoor recreationists or campers in general.

Findings of other backcountry user studies would lend support to this distinction. The 1346 Pacific Northwest backpackers, horseback riders, and day-hikers sampled by Hendee were nearly as highly educated as Heather Trail users: only 36% had no more than a high school degree, 36% had some university education or a degree, and 28% had completed some graduate work (Hendee, 1968, page 13). Data on 179 California High Sierra Wilderness users in 1960 showed only 18% to have finished only high school or less, 49% with some university or a degree, and one-third with

graduate school training, results very similar to those of the Heather Trail survey. Paddling canoeists in the BWCA in 1960-61 were also extremely well-educated. One-fifth had finished only high school or less, 54% had a university degree or some university instruction, and 24% had completed some graduate work (Lucas, 1964). It should be remembered that data on the High Sierra and BWCA users is now nearly fifteen years old. It is possible that an expanding appreciation for wilderness values is diffusing downward in society (Hendee, 1968, page 12), which would lead one to the conclusion that Pacific Northwest, High Sierra, and BWCA users of 1975 would show an overall lower level of education. Owing to the very few studies available, however, and considering the differences in survey methodology, geographic location, and other factors, it is difficult to point with certainty to any trend.

Occupation

From occupation data it seems that users are in a high income group, for the most part, with a high proportion in high-status jobs or with the potential to acquire such status. One-quarter are students and 11% are professionals (doctors, lawyers, and engineers). Only 16% were employed as labourers.

Place of Origin

The trail seems to attract people living within a three-hour drive of Manning Park. Over three-fifths of the trail users live in the Lower Mainland (including Vancouver, north shore communities, Coquitlam, Richmond, and Surrey). Over four-fifths live in the Lower Mainland and Fraser Valley combined. Only 5% are American. (For details see Table IV.)

Place of origin figures for backcountry hikers in Mount Robson Provincial Park were similar in both Thorsell's study (1971) and the British Columbia Parks Branch survey (Gain, Swanky, and Taylor, 1975, page 11). The distribution was extremely different from that on the Heather Trail: only 16% were British Columbians, while 21% were from Alberta and 43% from the United States. As for horseback riders, the pattern showed more British Columbians and fewer Americans. In Mount Assiniboine Park, Albertans form the largest single group (37%), followed closely by Americans (35%), while British Columbians accounted for only 14% of the use. These figures are for hikers, riders, and climbers (Gain and Swanky, 1975, page 3). Garibaldi Provincial Park visitor origin figures were much closer to those gathered in Manning Park. Eighty-three percent of Diamond Head trail users, 78% of the Cheakamus visitors, and 75% of the Black Tusk users originated in Greater Vancouver (which may include some of the communities classified as "Fraser Valley" in the Heather Trail study) (Horton, 1975, pages 21-29).

Sex Distribution

There were twice as many males as females hiking the Heather Trail. In comparison, sex distribution in areas surveyed by the British Columbia Parks Branch was close to this figure. The percentage of males was highest (70%) at Garibaldi-Black Tusk, and lowest (60%) at Cheakamus (Horton, 1975, pages 4-6). In the ORRRC study males outnumbered females four to one (Wildland Research Center, 1962, page 134). If this study were repeated today, such a marked difference between males and females might not be the case today, since women may be participating in wildland recreation activities to a greater extent than they did in 1960.

TRIP DETAILS AND PLANNING

Choice of Manning Park

Nineteen percent of Heather Trail visitors cited "alpine meadows" as the main reason for their choice of Manning Park. Evidently meadows are synonymous with Manning Park to this group, although in reality little of Manning Park's accessible area is in meadow. Convenience, or the park's proximity to the Lower Mainland and Fraser Valley, was named by 25%. Another 16% chose Manning Park on the recommendation of a friend or family member (see Table V).

Choice of Heather Trail

The decision to take this trail is generally made in advance. Eighty percent of the respondents had known which trail they would hike, in advance of their trip. Primary reasons for choosing the Heather Trail were three:

- the meadows (46%),
- its length, appropriate for a two-to-three night trip and longer than most other park trails (21%), and
- its relative ease and quick access by road, putting the meadows within convenient reach (18%).

For a more complete breakdown, see Table VI.

Information, Advice, and Suggestions

Communication of information and advice about the trail was accomplished primarily through contact with friends and family members, particularly for inexperienced hikers (57%). The popular trail guidebooks, Exploring Manning Park (49%) and 103 Hikes in Southwestern British Columbia (33%) were heavily used. There was a tendency for Exploring Manning Park to be particularly persuasive in helping hikers to formulate their trail choice and trip plans. Half the visitors deciding on the Heather Trail in advance had used this book, while only 14% of those undecided before their arrival had used it. Fewer than one-fifth of the respondents visited the Nature House adjacent to Manning Park Lodge (across the highway from the access road to the meadows). A mere 7% utilized the Nature Hut located up in the meadows, only several hundred feet from the trailhead. Surprisingly, those visitors using the Heather Trail for the first time actually visited the Nature House and Nature Hut a bit less (8%) than those who already knew the area (11%). Similarly, maps and pamphlets from the Nature House and Nature Hut were carried by 22%, a large number of those visiting the two nature facilities (see Table VII).

There are clear similarities in information distribution patterns for the Heather Trail in Manning Park and for Mount Robson and Mount Assiniboine Parks, although the clientele are of diverse origins and would seemingly require different types of information and patronize

different information sources. Mount Assiniboine users relied heavily on advice from friends, which was received by 50%. Fewer (28%) used trail guides or maps (Gain, Swanky, and Taylor, 1975, page 14). For Mount Robson, specifically the Berg Lake Trail, word-of-mouth is the most frequently named information source, followed by a guidebook, Hiking Trails of the Canadian Rockies. As with the Heather Trail users, none wrote to Victoria for information, and only 10% stopped at the Nature House, a surprisingly low number, considering that 65% were first-time users and 43% were from the United States (Gain and Swanky, 1975, page 13).

Group Size

Groups of two predominated, comprising 38% of the sample, with another 20% consisting of threes. Several larger groups were encountered (of eleven, thirteen, and twenty-two). The average group size was 3.8 (see Table VIII).

Results of the British Columbia Parks Branch surveys indicate similar group sizes in other backcountry areas. Garibaldi-Diamond Head and Black Tusk parties averaged 3.5 individuals, and Garibaldi-Cheakamus groups averaged 3.6 (Horton, 1975, pages 4-8). Mount Robson and Mount Assiniboine Parks attracted a slightly smaller average group of 2.7 individuals (Gain, Swanky, and Taylor, 1975, page 11, and Gain and Swanky, 1975, page 4). As in the Heather Trail survey, groups of two were most common in the Olympic

National Park backcountry (Sommarstrom, 1966, page 10).

Trip Length

Trips were short and "to the point," just long enough to permit part or all of the circuit to be hiked with no delay. Seventy percent of the groups stayed one or two nights, and over 90% of the trips were three nights or fewer in length. The average backpack trip lasted 2.28 nights (see Table IX). Heather Trail backpackers were not an overly adventurous lot. Only about 20% left the trail to explore on their own or bushwhack. In most of these cases, the side trip was on the Three Brothers. It could be argued that hikers stuck to the trails and did not bushwhack because they did not want to see the meadows damaged unnecessarily. However, their readiness to leave the trails to avoid muddy patches might not be consistent with such an attitude.

Other surveys, in addition to Hendee's (1968), showed backcountry trip length to be close to that of Heather Trail overnight hikes. Garibaldi-Diamond Head hikes averaged 2.3 nights, Cheakamus trips 2.5 nights, and Black Tusk trips 2.4 (Horton, 1975, pages 21-28). Mount Assiniboine hikes averaged 3.3 nights (horseback rides were twice as long) (Gain and Swanky, 1975, page 5). Mount Robson visits averaged 3 nights (Gain, Swanky, and Taylor, 1975, page 12). The difference between parks such as Mount Robson, on one hand, and Garibaldi or Manning on the other hand, seems to

explain the discrepancy; the relative remoteness of Mount Robson and the distances travelled by its visitors, who come from Vancouver, Calgary, Edmonton, and the United States, would probably justify a stay longer than that of a Fraser Valley family spending a weekend in Manning Park. When one has travelled 1000 miles to reach the trail, a stay of three days does not seem very long. It was pointed out in the Mount Robson study that most visitors, however, are on a Rocky Mountain trip, not exclusively a Mount Robson trip, and visit other parks in the area.

Hiker Distribution Over Campsites

New Kicking Horse received 16% more use than did Old Kicking Horse, despite the fact that the two campsites contain roughly the same number of tenting spaces. This increased use of New Kicking Horse probably resulted from its being "first in line" and the only campsite apparent to newcomers not aware of Old Kicking Horse just ahead. Additionally, as mentioned in Chapter 2, the camping spots at New Kicking Horse are more conspicuous; to some visitors a seemingly deserted Old Kicking Horse might have given the impression of abandonment. Assuming that Vancouver weather was encouraging, both New and Old Kicking Horse experienced moderate use on Fridays (two to three groups each) and were generally full or approaching capacity on Saturdays (nine to eleven groups over the entire area). Few overnight users entered the area on Sunday. Use was heavier over the August

1-4 holiday, but was not observed first hand at either Kicking Horse site. Nicomen Lake use patterns were both different and surprising. As discussed in Chapter 2, the lake sites received little overnight use (i.e., no more than two groups each weekend) with the exception of the three-night holiday weekend. At that time over nineteen groups occupied the lakeside camps, and four new fire rings were created by parties occupying "new" sites. About half the groups reaching the lake completed the entire circuit, while the remaining half retraced the thirteen miles back to the parking lot.

HIKER ATTITUDES TOWARDS BACKCOUNTRY IMPROVEMENTS

Heather Trail backpackers are generally of the opinion that the area should be left as primitive as possible. The backcountry should be kept free of development, a place where one can escape from planned improvements and "bureaucratic" rules and regulations. People did not complain, however, about existing facilities, which include outhouses, three-sided shelters, and trails. About one-third of the respondents stated, without being asked, that the area should be kept rustic and natural.

These findings are supported by both Merriam and Ammons (1964, page 393) and the Wildland Research Center (1962), who report that visitors to the western United States wanted simple campgrounds and opposed additional improvements. Eby (1972) determined that a majority of Wells Gray Provincial Park users wanted to see the area maintained as "wilderness", with only rudimentary improvements. Hendee's sample also scorned intrusions of civilization, objecting to new shelters, campgrounds, and roads. As with the Heather Trail sample, no objections to existing facilities were raised (Hendee, 1968, pages 45-54).

Trails

Satisfaction with trails was high; their condition was deemed "excellent" or "good" by the entire sample, 40% and 60% respectively. Bridges and stream crossings as they now

exist were approved unanimously. The anti-development attitude was extended to other questions as well, such as that of muddy places on the trail. As discussed in Chapter 2, numerous inundated segments of the trail, from three to fifty feet long, were unpleasant enough to force most hikers off the path. Yet 60% wanted nothing done about the mud. Reasons given expressed a common theme: "Leave it natural, it's supposed to be this way," and "You've got to make your own way and do it yourself out here in the bush--we don't want special treatment" were popular sentiments. Of the 40% suggesting a method for coping with the mud, one-half recommended stepping stones. Other possibilities, such as corduroy, log bridges, and gravel, were considerably less popular. (See Table X.)

Informational Signs

At this time there are very few signs and directional indicators. Aside from the sign reading HEATHER TRAIL located at the trailhead, the only sign along the twenty-six mile stretch is situated at approximately mile 3, and reads BUCKHORN CAMP--JUST AHEAD. When questioned about the quality of signs and markings, 42% felt there was some inadequacy. Several confusing spots were cited frequently as needing clarification. One of these is the point where the jeep road meets Buckhorn camp and disappears (see Figure 2). Until August, when a crude sign indicating TRAIL was tied to a tree, there was a great deal of uncertainty as to whether

the trail cut across the campsite or skirted it. Another point of confusion is the Bonnevier Trail cutoff, a fork that most people said it would be helpful, but not essential, to label. Others voiced the opinion that campsite markings were needed, particularly at Kicking Horse. Lastly, it was felt that markings at Nicomen Ridge were needed. Rumours were circulated of parties reaching the top of the ridge (mile 12.5 on Figure 2) and turning back, thinking they had somehow passed the lake or were still several miles away from it. In fact the lake lies just one mile from this point, tucked away below the ridge and barely out of sight. Although visitors felt that markings at these places would be helpful, particularly in view of the fact that hikers cannot obtain sketch or topographical maps of this trail from the Nature House. Thus, the 80% or so of backpackers not possessing topographical maps or guidebooks obtained elsewhere must presently rely on word-of-mouth and common sense.

When asked what types of information signs were needed, 42% wanted to see none, again a reflection of anti-development sentiments. Most visitors opposing signs felt it more desirable to provide the needed information in maps and booklets. Of the types of information requested by the remaining 58%, mileage markers were the most heavily favoured (21%). Specific distances to the campsites were requested by 16%, and information about mountains and flowers was desired by 18%. (See Table XI.) hikers with no

previous experience were more likely to name the latter category than were visitors with several years background.

Hendee found that seven out of ten Pacific Northwest users favoured signs conveying only directional and key distance information. The remaining 30% requested interpretive material (Hendee, 1968, pages 45-47), while 23% of Thorsell's sample felt interpretive signs were needed (Thorsell, 1971, page 113).

Garbage Handling

Respondents were asked if they would like to see a garbage collection facility at backcountry camps. Most users assumed that this meant litter cans. One-quarter were strongly in favour, while one-half were strongly opposed to such a development. Those in support cited the convenience as a rationale, and many stated that the cans would ameliorate the situation by removing the "need" to discard litter on the ground. Those opposing backcountry litter collection offered a variety of supportive reasons. The usual defence was an aversion to the increased "organization" and encroachment of civilization that this would mean. Users also mentioned the messiness, attraction of bears, and administrative costs, and the problem of removing the litter from the backcountry. About 25% of the respondents felt that litter cans in the backcountry were not compatible with the essence of backpacking, that one packs out what he or she packs in.

Supporters of garbage disposal tended to be the youngest visitors (ages fifteen to nineteen), and those with no previous experience in the backcountry. The twenty to twenty-four and thirty and over age groups were the most strongly opposed to the idea. Garbage disposal was favoured a great deal more by the users of New Kicking Horse (44%) than by those at Old Kicking Horse and Nicomen Lake (21% each). This difference may be attributed to the slightly larger number of novices using New Kicking Horse. It is clear from the vodka bottle and Tang wrappers in the outhouse at Old Kicking Horse that users had found a convenient trash receptacle not available at New Kicking Horse. Nicomen Lake, however, does not have an outhouse, yet little garbage was noticed in the lake.

Nearly one-half of the sample responded positively to the question, "Would it be a good idea to give litterbags to backpackers?" One-third were negative. The strongest feeling among the negative group was that bags would not be an incentive to someone accustomed to littering; in other words, "If you're going to litter without a bag, you'll do so with one." Some respondents mentioned that nearly all backpackers carry bags which become emptied as food is eaten, and another bag is wasteful and unnecessary. Respondents with university training, especially those having completed graduate work, were most likely to oppose litter bags. Those with mixed feelings often said, "Litter bags might be necessary for some hikers, but I don't need

them." See Table XII for a breakdown of user opinions on garbage handling and litter bags.

Firewood

As mentioned previously, at this time there does not appear to be a firewood shortage. While checks did not show firewood use by 95% of the overnight groups to diminish the overall available supply, even though some of the kindling located in the area immediately circling the campsites disappeared early in the season, however. Those without a hatchet or camp saw were unable to utilize the larger pieces. Users were asked how they would feel about the provision of cut wood in campsites. One-quarter were strongly supportive of a cut wood supply, and another 16% felt somewhat positive but foresaw problems. In addition to the obvious convenience afforded it was felt that the availability of chopped wood might deter would-be "hackers." But costs were several, including the introduction of organization and civilization to the backcountry, monetary costs, wood sources, and wood transport. Additionally, many backpackers consider foraging for wood and having to carry it to the campsite to be an integral part of the excursion, which would be lost if the service were provided. Nearly 40% were flatly opposed for these reasons. Wood provision was only 72% as popular at New Kicking Horse as at Old Kicking Horse. (See Table XIII.)

Comparisons with data from other backcountry studies is

risky, because conditions and supply differ among areas. It is interesting to note, however, that 85% of the Mount Robson sample (Gain, Swanky, and Taylor, 1975, page 22) favoured the provision of firewood.

Provision of Additional Trails and Campsites

More than 75% felt the Heather Trail had sufficient campsites. Over 60% wanted to see more trails in the meadows area, with approximately one-quarter of those respondents specifying longer or loop trails. About half of those favouring an expansion of the trail system qualified the request by adding that "only a couple" of additional trails were needed, and that some of the area should be left natural.

NUMEERS AND CONGESTION

Approximately 20% of the questionnaire was devoted to user perceptions of numbers and congestion, both on the trail and in campsites.

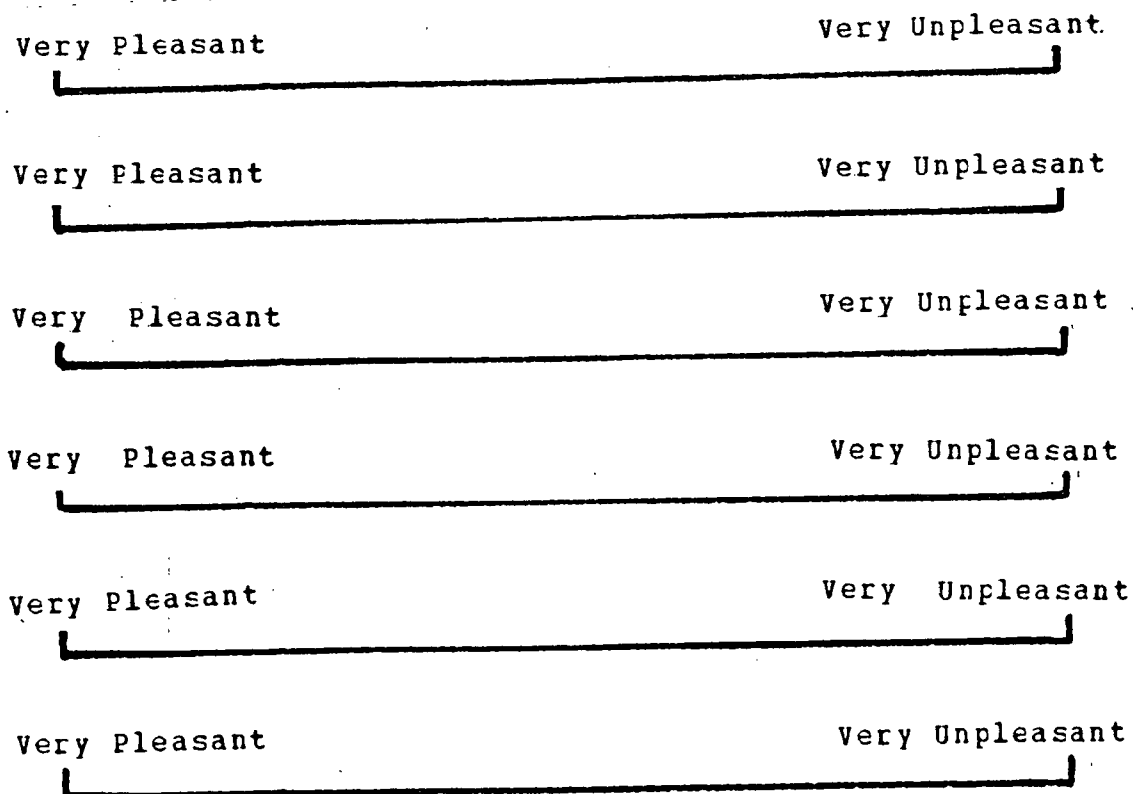


FIGURE 4. SAMPLE CONTINUUM SET, AS SHOWN TO HIKERS

On The Trail

Respondents were asked to imagine themselves seeing certain numbers of groups (as dictated to them by the interviewer) in the course of a day's hike. These numbers--0, 2, 4, 8, 12, and 16--were not disclosed prior to the performance of the exercise.

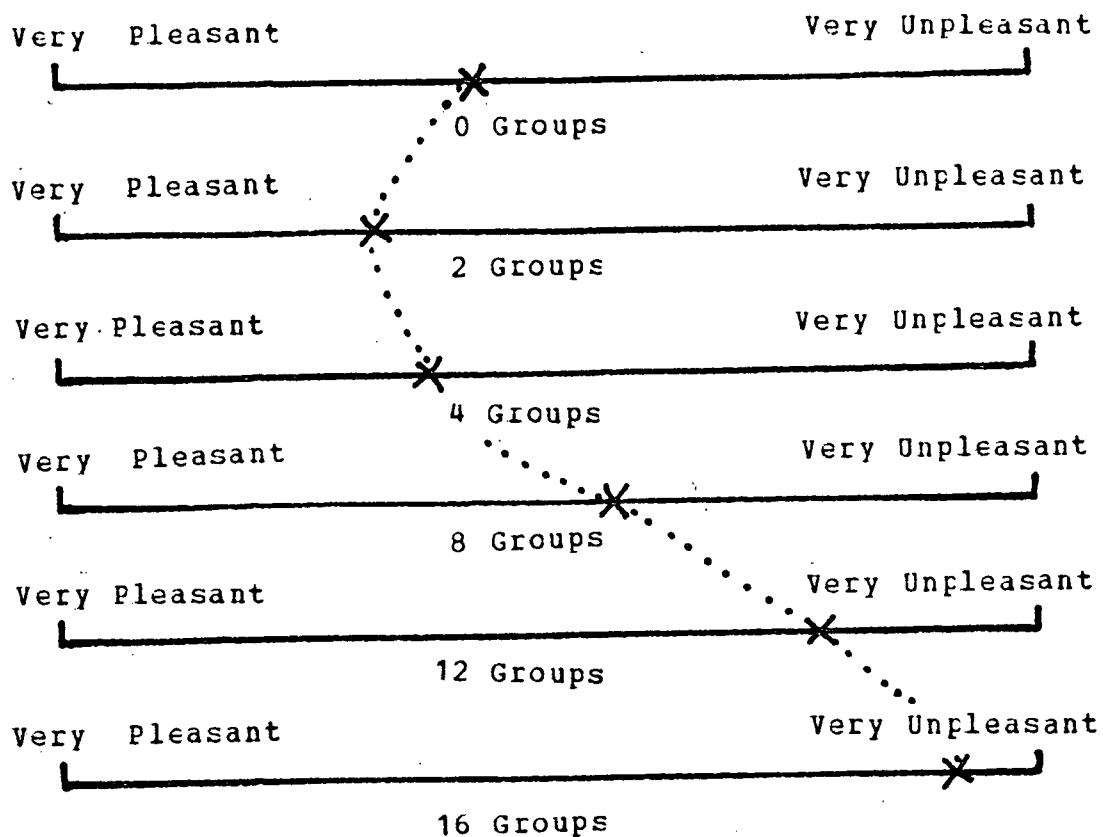


FIGURE 5. CONTINUUM SET, COMPLETED USING MEAN RESPONSES

Respondents quantified their reaction to each number separately, by placing a slash mark on a horizontal continuum, ranging from VERY PLEASANT to VERY UNPLEASANT. A new line was used for each group number, six lines in all per respondent, as in Figure 5. Thus, each respondents ratings generated a curve as the six points were connected, as in Figure 6. For data analysis the continuum was translated into eight numbered segments, where 0 = "Very Pleasant" and 8 = "Very Unpleasant," as in Figure 7. Mean

values for the six lines (graphs) are summarized graphically in Table XIV..

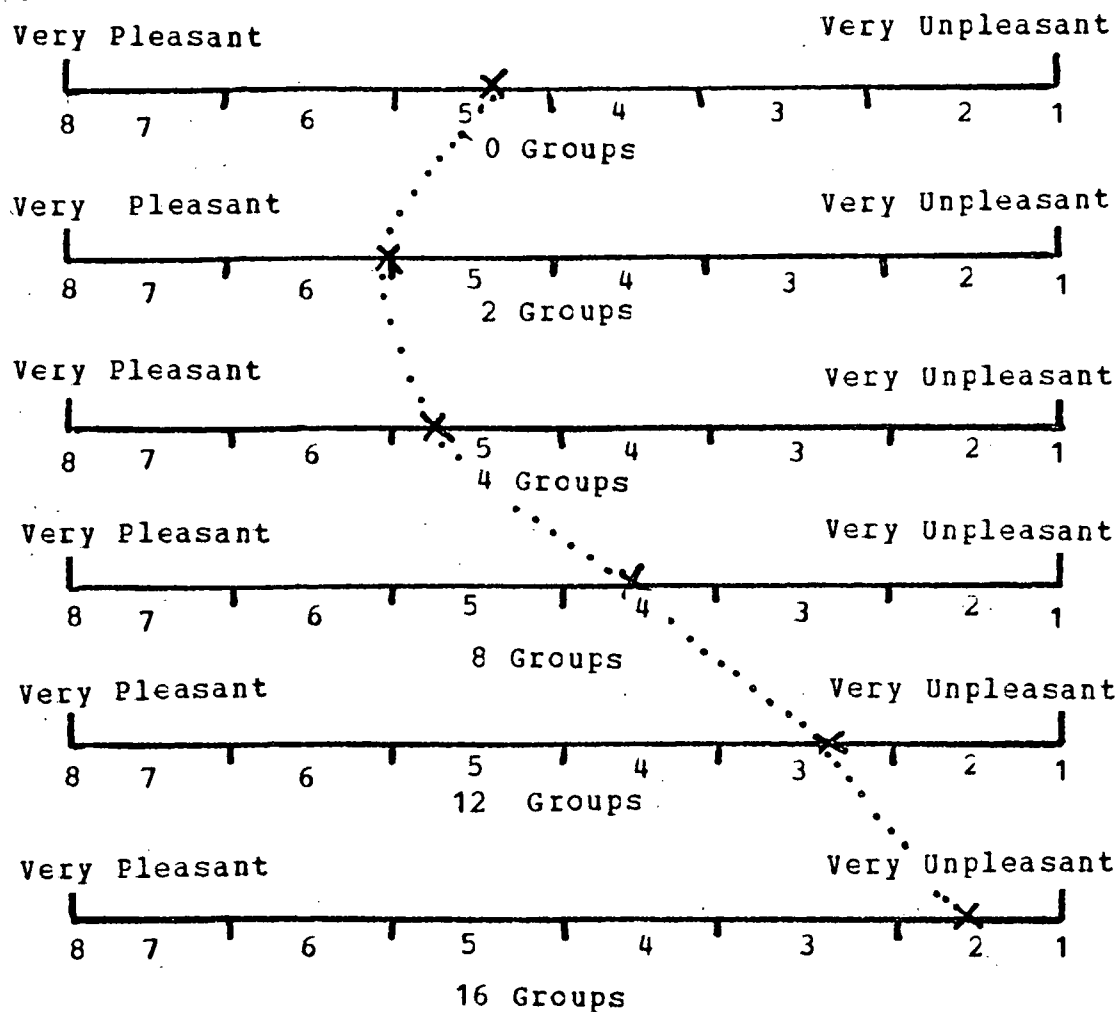


FIGURE 6. CONTINUUM SET, COMPLETED, ILLUSTRATING NUMBERING SYSTEM

In summary, most users like the idea of seeing "just a few" groups per day. Even though seeing no one at all is a more attractive prospect than is seeing eight or more groups, the idea of being completely alone makes some

visitors feel uncomfortable. Some expressed the needs to be reassured of the route and informed of conditions ahead and distances to camps. Seeing no one rated either very high (7 or 8) or very low (0 to 3), with low ratings given in particular by inexperienced and younger (teenaged) users. Complaints about high numbers were largely nonexistent, except over the holiday weekend. Yet 89% of the respondents felt the trail could someday have "too many people."

Interpretation of numbers and crowding perceptual data from other studies, and comparison of the conclusions with those pertaining to the Heather Trail is difficult. Such perceptions result from the interaction of many interconnected and poorly-understood factors: wilderness attitudes, motivations, expectations, weather and terrain conditions, use levels, and the size and behaviour of other parties. Comparing and contrasting of perceptual responses influenced by these variables, which differ greatly among study areas, would be misleading. For the purposes of charting general trends, and recording the range of attitudes probed, however, some relevant findings related to numbers and crowding follow.

Stankey (1971) found that 25% of the visitors to the BWCA and the Bridger and Bob Marshall Wildernesses and the High Uintas Primitive Area felt crowded (Stankey, 1973, pages 42-43). The majority of Thorsell's 1971 sample believed that Bowron Lake, Mount Robson, and Garibaldi Provincial Parks were becoming saturated and could not

accommodate further user population increases. Fifty percent of the Bowron Lake Park canoeists felt crowded, and 25% experienced difficulty in finding campsites (Thorsell, 1971, pages 125-127). The Mount Assiniboine study revealed that generally hikers begin to feel crowded when they meet around fifteen other groups in the park. Tolerance levels varied, though, from the few who said they would feel crowded meeting less than five to the 25% tolerating more than fifty groups (Gain and Swanky, 1975, page 13). Thorsell (1975, page 127) determined that Garibaldi users could meet 6.5 groups per day (about 23 people) before feeling crowded, while Mount Robson and Bowron Lake users had a threshold of just four groups. The latter two groups may not be accustomed to seeing as many visitors as Garibaldi Park receives.

Scmmarstrom (1966, page 24), in trying to establish a correlation between numbers seen and enjoyment gained from hiking, received a variety of responses. Twenty-eight percent said the more people they encountered, the less enjoyment they received, which would match the Heather Trail response. Twenty-five percent said that their response would depend on whether the groups were encountered on trails or in camps. Only 7% perceived a reverse correlation; that is, more people meant more enjoyment. However, one fifth of the sample did not find that their enjoyment was influenced by the number of people they encountered.

Two-thirds of Stankey's Bridger and Bob Marshall

Wilderness samples agreed that, "It's most enjoyable when you don't meet anyone in the wilderness," while one half of the BWCA and High Uintas Primitive Area users felt that way. These figures show that being alone may have been more important to users of these areas than for Heather Trail backpackers.

Stankey's findings showed that hikers were more tolerant of numbers at the outset of a trip, when encounters with other groups were expected, than in the interior backcountry sections, where other groups were seen as intruders (Stankey, 1973, pages 26-27). Along the Heather Trail this distinction did not seem to exist; only about 15% of the respondents camped at Nicomen Lake were surprised to see other groups penetrating that far into the backcountry. Stankey may have intended the term "interior" to mean twenty-five to thirty miles or more, in which case Nicomen Lake would not be an interior spot, but still on the periphery.

In Camps

A variety of responses were given to the question, "What would be the ideal number of groups besides yours, at this campsite?" Naturally, differences in terrain, vegetative cover, open space, and distances between groups may have led to different overall responses. The mean number of groups cited was 3.81, while the modal response was 6. Also frequently chosen were 4, 0, and 2, in that

order. (See Table XV.) respondents were subsequently asked, "What would be the maximum number of groups you could tolerate here before you'd move away?" Again, differences in campsite characteristics may have altered responses among the areas. The mean number was 8.9, with a modal response of 10. (See Table XVI.) several respondents qualified their answers to these questions and to the "pleasant-unpleasant" continuum by stating that group size and habits were as significant as the actual numbers in determining their satisfaction level.

It was concluded that most backcountry visitors do not like to be alone in a campsite; the presence of other humans seems to create a sense of security and communion, even though interaction may be minimal. In fact, the groups generally interacted little, with contact consisting mainly of the exchange of greetings and particulars. Kicking Horse tenting areas are fifty feet apart at a minimum, facilitating a low level of interaction but at the same time allowing groups to be aware of one another's presence. At the large open Nicomen Lake campsite, where the dozen or so camping spots are generally twenty to thirty feet apart, many examples of visitor interaction were observed. Generally, where possible people would choose to be separated by several campsites. Little inter-group activity occurred, after initial greetings had been exchanged. The 12% classified as "extremely gregarious" were not particular, but interacted with anyone who would

pay attention to them (see subsequent section on General Attitudes). The idea of separation is further enforced by the feeling of more than four-fifths of the respondents that every group should have its own fire ring. Those who did share a fire (for socializing, cooking, or warmth) wanted to do so voluntarily; they did not want to feel the sharing forced upon them.

Other studies indicated an even greater intolerance for other parties camped near the respondent. Stankey concluded that 65% overall (80% in the Bridger and Bob Marshall Wildernesses) would experience a loss of satisfaction or recreational quality if, after making camp in an isolated spot, two or three parties arrived on the scene. Only 30% said they would remain camped at that site, and just 3% actually would enjoy the presence of the newcomers (Stankey, 1973, page 27). Heather Trail respondents did not exhibit this degree of aversion to other groups, as one can see from the data presented.

BEHAVIOUR

Most conclusions about user behaviour were drawn from observations made by the author during the interviews. Whenever possible, camping parties were observed outside the interview situation, but this added insight was only gained in about one-half the total cases; that is, when a group was camped within the author's sight. Two general types of behaviour were observed: (1) behaviour relating to camping ethics, which could affect the biophysical environment, and (2) social behaviour. In general users are well-behaved. They keep to the trails and seem to be aware of the need to do this. They do not make many side trips into the bush, but this reluctance stems more from a lack of desire for exploration than a concern for trampling meadows and increasing erosion, as was noted in the section TRIP DETAILS AND PLANNING.

Depreciative Behaviour

Hikers left very little litter in conspicuous places. Six or eight pieces (cigarette butts and gum wrappers) over twenty-six miles is remarkably little, considering the fact that a clean-up crew visited the area once in early July, 1975, and not at all in 1974 (conversation with youth crew leader, 1975). At least one-fifth of the sample responded to interview questions regarding litter disposal by saying that the problem is not serious enough to require managerial

attention. Although some litter was noticed during 25% of the interviews, only 19% of the groups observed left litter in their campsites.

Visitor comments in other user studies give the impression that litter is ordinarily more prevalent and repulsive and contributes more to wilderness degradation than along the Heather Trail. The litter problem seems to be foremost in the minds of respondents and is the most significant depreciative behaviour. Priddle (1964, pages 49-53) reported that litter and other evidence of human carelessness were very crucial in determining the quality of the wilderness experience. Thorsell found "garbage" to be the most frequently cited complaint, named by one-third of the Bowron Lake and Mount Robson users (Thorsell, 1971). Stankey's sample almost unanimously (99%) expressed annoyance at finding litter, and for two-thirds of the respondents, litter was judged worse than encountering too many people (1973, page 29). Garbage was the most frequently mentioned detriment in Mount Robson Park, cited by about one-quarter of the respondents (Gain, Swanky, and Taylor, 1975, page 25). In Garibaldi Park, however, only 8% of Cheakamus visitors and none of the Diamond Head and Black Tusk users mentioned litter (Horton, 1975, pages 21-28).

The interviewers were interested in the fact that many Heather Trail users who would probably never dream of littering paper or plastic on the trail found it perfectly acceptable to leave tin cans in the firepits, after having

burned off the food remains. Conceivably this practice is simply not seen as littering, but rather as depositing the refuse where it will not annoy people, and eventually be covered with ashes. The motivations behind this behaviour unfortunately could not be explored in any depth, because the litter was always discovered after the party responsible for it had left the area.

Other forms of depreciative behaviour were observed only infrequently. Only 22% of the respondents were observed hacking trees, and nobody was seen washing dishes or clothing, or taking a bath in a stream or Nicomen Lake. Nearly everyone displayed proper campfire habits, and only three or four fires were seen burning with no one in attendance.

User behaviour is summarized in Table XVII. It should be remembered that these figures are probably on the low side, as one-half of the groups were seen only in the interview situation.

Each of the fifty-seven respondents was ranked on a behaviour continuum, which ranged from Conservationist (1) to Utilizationist (5), with Neutral or Average at (3). The ratings were based on the interviewer's observation of the respondent during the interview and whenever possible at other times. Those nine respondents (16%) for whom insufficient information was obtained received (3)'s automatically. Wood-gathering habits, campfire-making, fire-extinguishing, waste disposal, dishwashing, and

behaviour towards other groups were considered. Not only the rating procedure but also the choice of variables to be examined was highly subjective, based largely on the author's personal standards. Due to the amount of personal contact between author and respondent, frequently longer than the half-hour interview, evaluation was undoubtedly coloured by impressions not related to actual behaviour. But a conscious attempt was made to evaluate everyone by uniform standards and to avoid basing any part of the rating on statements--only behaviour. Half the respondents scored at a (2) level or "Somewhat Conservationist"; there were no "Conservationists." Only 10% were deemed "Somewhat Utilizationist" or "Utilizationist."

Use of Designated Wilderness Campsites

The small minority, 5%, who did not use the DWC's, failed to do so more often out of ignorance or poor planning than out of a desire to avoid the campsites. Visitors were generally aware that their overall impact would be less if they did not create new campsites. Many visitors were grateful for the convenience of DWC's; they did not have to tote rocks for fire rings and were assured of a relatively flat place on which to sleep.

General Attitudes

Hikers were rule-conscious, as mentioned above, but the knowledge of environmental principles did not seem to extend far beyond the memorization of a few inviolable bromides: "Don't litter," "Stay on the trail," "Take nothing but pictures and leave nothing but footprints..." Few users manifested a deeper awareness of the effects of human visitation upon the biophysical environment. Approximately 60% felt they had "little" or "no" impact on the wildland environment. A mere 5% felt they had "much" impact. Those perceiving an impact generally believed it to consist of crushing of meadows and flowers (25%), use of firewood (23%), footsteps (15%), and erosion (7%). When asked to state examples of human activity visible or audible from the trail, 11% noticed airplanes, 16% noticed firescars made beside the trail, and just 18% were aware of a large clearcut space and logging roads (as recent as 1972) across the valley, visible from a two to three mile stretch between Buckhorn and Kicking Horse.

A five-point scale, identical to the behaviour continuum, was devised for the purpose of rating user attitudes as "Conservationist," "Somewhat Conservationist," "Neutral," "Somewhat Utilizationist," and "Utilizationist." Nearly half the users scored "Neutral," another 32% scored on the "Conservation" side, or 1 and 2, and 24% were placed on the "Utilizationist" side, or 4 and 5. Respondents in their teens averaged 3.7, while the rest of the sample

averaged 2.6, slightly more Conservationist.

Hendee's findings indicated that as in the Heather Trail survey, familiarity with certain causes of pollution and environmental degradation is high, but sometimes awareness was surprisingly low. Ninety percent of the Pacific Northwest users (Hendee, 1968, page 42) believed that all evidence of visitation should be removed when one leaves a campsite, and only three out of ten felt it permissible to bathe and wash clothing in streams and lakes. But 85% believed noncombustible garbage should be buried, and one-half did not see objections to cutting live brush for beds and campfires. This typical Pacific Northwest respondent would have probably scored lower than 2.6 on the Heather Trail attitude scale. Although Heather Trail users were not asked about their attitudes towards washing and bathing in streams or cutting brush for beds and campfires, it can be assumed from the very few who did these things that a correspondingly low number would condone the practices. Several possible explanations exist, that probably explain the attitude differences between Pacific Northwest respondents and Heather Trail users. The discrepancies might be attributed to a basic difference between the two samples, but a more likely cause is the ten-year gap between the two surveys. It is probable that the same Pacific Northwest group, if sampled in 1975, would have manifested a more highly developed environmental conscience than they did in 1965.

Gain, Swanky, and Taylor (1975, page 17) also write of the gap between visitor awareness of what they should do and what they actually do.

Visitors generally kept to themselves (for more information see section on NUMBERS AND CONGESTION). When ranked on a four-point scale ranging from (1) Much interaction to (4) No interaction with other groups, 75% of the sample scored 3 or 4. For the rating process, greetings and exchange of "small talk" upon arrival, with no lasting effect throughout the stay, was considered a (3), Little interaction.

MANAGEMENT PROCEDURES TO ALTER PRESENT BEHAVIOUR AND USE PATTERNS

Altering or Restricting Behaviour

Limitations on Campfires

Restriction of campfires might be employed to lessen impact on the wildland resources. When asked if they would support a limitation on fires if the wood supply began to diminish, 75% said "Yes, definitely." An additional 11% of the sample stated a bit reluctantly that they would support such a regulation. Fewer than 10% of the remaining 14% were negative about the idea of limiting fires, usually for the reason that the evening campfire was both important and irreplaceable.

Overall, about half the Garibaldi sample surveyed in 1974 favoured limits on campfires, which would require all users to carry stoves. Percentages varied among the trails; the Diamond Head users were 54% in favour of the ban, 44% of the Cheakamus users supported it, while 48% of the Garibaldi visitors were in favour of the ban. Only along the Cheakamus Trail did more users oppose the ban than support it. Garibaldi user views, which somewhat resembled the views of Heather Trail users (see Table XVIII), were strikingly different from those of Mount Assiniboine visitors. Only one-fifth of the Mount Assiniboine sample supported a ban on campfires (Gain and Swanky, 1975, page

12). Thirty percent of the Mount Robson visitors agreed with the idea of a ban (Gain, Swanky, and Taylor, 1975, page 20), a larger figure but still less than half the number of Heather Trail visitors supporting a ban.

User Fees

Backcountry fees could discourage use while helping to cover the costs of trail and campsite maintenance. It has been argued that the users of the resource, not the general public, should bear these costs. And for low-density recreation, such as backcountry hiking, the per capita costs can be tremendous. When this argument was presented, 40% were in favour of fees, and 45% were clearly opposed. A specific amount was not suggested by the interviewers, although some respondents wondered about the amount of the fee. The response given to them was "an amount similar to that charged at the car campgrounds" (which is \$2.00 per night). Reasons for opposing a fee included, "Discrimination against low-income people," "Public lands should be free," "A fee will mean that wood and running water from a tap will be provided next year," and "Fees will only go to cover the costs of their administration." Details are provided in Table XIX.

User fees were supported by about 40% of Hendee's sample (1968, page 60). In contrast, only 23% of the respondents surveyed by Stankey, and 10% of the Mount Robson backpackers questioned by the British Columbia Parks Branch

(Gain, Swanky, and Taylor, 1975, page 20) supported user fees. It might be possible to attribute Hendee's higher response to the number of horseback riders (25%), who might as a group feel differently from hikers. Fees were favoured, however, by only 16% of the Mount Robson horseback riders, not a much higher response than that given by the hikers. Twenty-five percent of the Mount Assiniboine hikers, a larger number although not close to being a majority, responded favourably to the idea of fees (Gain and Swanky, 1975, page 12). In comparing user attitudes, it would be helpful to know how these researchers phrased and presented their questions regarding user fees.

Dogs

Approximately 11% of the respondents brought dogs on the trail, a practice which does not violate park rules as long as the animals are leashed. Respondents were asked whether dogs should be permitted on the Heather Trail. Just over 46% felt no dogs should be allowed under any circumstances. Most of the remaining respondents were divided among permitting dogs to run loose always (26%) and requiring them to be leashed in campsites but not on trails (see Table XX).

When the Garibaldi users were questioned about a ban on domestic animals, three-quarters of the Black Tusk group and one-half of the Cheakamus and Diamond Head hikers were in favour, figures which agree with the Heather Trail results.

It was noted in the Horton study (1975, pages 21-28) that the high positive response from Black Tusk users might have been a reflection of their support for the recently-inaugurated ban on domestic animals in that area.

Limits on Group Size

It was suggested to respondents that placing limits on party size might be a beneficial management step. Nearly half (45%) indicated that they would favour a limit of six per group. An additional 11% favoured a limit of twelve per group. Of this 56% majority, over one-half indicated that limits would help to reduce environmental damage, since large groups exerted greater demands on the area. Approximately one-third of this majority stated that size limits would help to alleviate crowding, while another third believed they would help reduce noise and rowdiness. Of the two-fifths opposed to limits, one-third felt that such restrictions would be impossible to enforce and therefore would be pointless. Several respondents disagreed with party size limits but were in agreement with controlling overall numbers using other means. In general people from parties of seven or more individuals did not support a limit. For a detailed breakdown of attitudes towards party size limits, see Table XXI.

Canoeists in the BWCA were equally divided on the question of restricting party size. As for backpackers, approximately half the Bridger Wilderness users wanted to

see limits instituted, yet there was virtually no support for backpacker limits in the other two western areas studied by Stankey, the Bob Marshall Wilderness and High Uintas Primitive Area. For all three western areas, the idea of limits on the size of horse parties was received more favourably than were limits on backpackers. Stankey concluded that most visitors see little benefit associated with group size limits for backpackers, whose parties average only three to four persons. On the other hand, restrictions on horse parties would affect many more individuals (Stankey, 1973, page 35). This conclusion is interesting, in light of the fact that Heather Trail users, who encounter an average group of 3.8 individuals and no horse parties, were considerably more positive in their attitudes towards party size limits. There was some range in responses for the different trails sampled in Garibaldi Park. Party size restrictions were most welcome with Cheakamus users (47% in favour and 44% opposed), and least popular with Diamond Head users (33% in favour and 53% opposed) (Horton, 1975, pages 21-29). For Mount Robson Park the responses to party size limits are more complicated and harder to interpret, because they reflect the attitudes of riders, hikers, and climbers all together. A high two-thirds of respondents felt the size of all groups should be limited, with the most popular limits being 12 or 6 (Gain, Swanky, and Taylor, 1975, pages 21-22). In Mount Assiniboine Park, 52% of the hikers supported size limits, a

figure not too far from that given by Heather Trail users (Gain and Swanky, 1975, page 12).

Hiker Registration Systems

During the personal interviews many respondents were curious to know why self-registration systems did not exist for the Heather Trail (or for the whole of Manning Park as well). Reasons behind the absence of such systems for Manning Park will be discussed in Chapter 4. It was decided to determine the amount of demand existing for such a system. Three-fifths believed one should be compulsory, and 29% did not (see Table XXII). Safety factors motivated most of those in favour; however, it was also felt that the park administration should try to amass accurate trail use statistics, and that registration would be one step to this end.

The idea of a compulsory registration system was popular with all Garibaldi groups (68% for Diamond Head, 72% for Cheakamus, and 70% for Black Tusk users) (Horton, 1975, pages 21-29).

Patrols

Respondents were asked if they believed that regular patrols along the Heather Trail were necessary, and if so, at what intervals. Only 11% did not support patrols. The most popular response was "weekly," named by one-third.

Twice-weekly patrols were favoured by about one-quarter of the hikers. See Table 23. These responses and the attitude towards compulsory registration seem to indicate that people want to be "checked up on" for safety reasons, and that they do not object to the presence of an authority figure. In the areas studied by Stankey, where United States Forest Service rangers are on duty seasonally, two-thirds favoured their presence, and users did not feel that they were being checked up on in a negative sense (Stankey, 1973, page 39).

While keeping in mind the Heather Trail user reaction to patrols, one should note that about three-quarters of the sample (see Table XXIV) felt that hikers should be held responsible for damage done to campsites. Respondents favouring patrols of one or two times a week were more likely to support this idea than were those less enthusiastic about trail patrols.

Procedures Which Would Limit Numbers

Several questions dealing with the concept of rationing were posed during the personal interviews, in an attempt to determine the degree of visitor familiarity and experience with reservation and rationing systems in other wildland areas, and to discover user reaction to rationing systems. Approximately one-quarter had visited an area where a reservation-permit system was in effect. Examples of these areas include the Bowron Lake canoe circuit (Bowron Lake Provincial Park in British Columbia), Grand Canyon, North

Cascades, and Rocky Mountain National Parks in the United States, and Jasper National Park in Alberta.

If we look at positive and negative responses to rationing from the sample as a whole, 44% supported or tolerated it, while 53% reacted negatively to the principle.

It is probably safe to say that visitors who have experienced systems elsewhere are much more tolerant of the idea for Manning Park than are those users who have never been exposed to a rationing or reservation system. About 83% of the "exposed" group reacted positively or at least tolerantly to the idea, while of the group never experiencing a system, approximately one-third were supportive. See Table XXV. Whether the tolerant and positive people possessed a particular trait setting them apart from the negative people, and at the same time motivating them to visit an area where a rationing system was in effect, is not known and would be difficult to determine. Experience with rationing systems indicates that hikers respond much more positively than is usually expected by managers (Hendee and Lucas, unpublished manuscript, pages 6-7).

The rationing-reservations question was treated in greater depth with the mailback questionnaire. Somewhat more was known about the users, use patterns and problems of the area. A related but differently phrased question elicited a similar negative response. Respondents were asked if they thought rationing was necessary on the Heather

Trail during July and August. Fifty-one percent said "no" (in contrast, 53% were not supportive of rationing during the personal interviews). Forty-five percent felt the need for rationing, with most (35%) advocating a rationing system on weekends only. Eleven percent supported rationing for seven days per week. Most people favouring rationing equated excessive numbers (as well as excessively large parties) with environmental, not psychological damage. Those opposed to rationing generally felt it was too psychologically restrictive, bureaucratic, and overly reliant on rules and regulations.

Those respondents indicating support for a rationing system, either on weekends or all the time, were then given a choice of various systems and were asked to check the one they preferred. Their selections are summarized in Table XXVI. The most acceptable form of rationing, chosen by 39% of the "positive" segment, was a combination of a first-come first-served and a mail reservation system. Thirty percent chose a first-come first-served system alone. The lottery option was not selected by anyone. This suggests that people do not like to leave their "fate" to chance, but would rather exert some control over their activities. It also appears from the response to this question, as well as from statements made at other times in the interviews that these people find it important to make last-minute plans. Many live in or close to Vancouver, and do not or cannot plan for weeks in advance (which is the amount of time they

perceive a reservation would require of them). This characteristic is not as important in other British Columbia parks mentioned in this chapter; for example, Mount Robson and Mount Assiniboine attract a higher proportion of out-of-province and United States visitors. Their trips are not as likely to be spur-of-the-moment.

Previous hiking experience on the Heather Trail may be connected with respondents' views on rationing. Over two-thirds (68.4%) of those users for whom this was not the first visit favoured rationing either all week or on weekends. Only 36% of the first time visitors to the Heather Trail supported any rationing.

When other variables were examined with respect to rationing there were slight but possibly significant differences between those respondents wanting rationing seven days per week and those wanting it only on weekends. Those wanting rationing all the time had seen on the average 7.2 groups per day on the trail, more than those wanting rationing only on weekends or not supporting it at all (whose average number of groups seen was 5.7 groups). Strangely enough, those wanting rationing seven days a week exhibited a slightly higher tolerance for people in campgrounds. Their average "ideal" number of groups in campsites was 4.7, 142% of the ideal number named by the rest of the sample.

Age and occupation did not appear to be correlated with one's opinion on rationing. There may, however, be a

connection between education level and rationing views. The more highly educated respondents were not as likely to favour rationing on a seven days per week basis as were those with less formal education. Using the education scale presented earlier in this chapter (1=some high school, 2=high school graduate, 3=some university or college, 4=college graduate, and 5=graduate work) the mean education level of respondents favouring seven-day rationing was 2.8, for weekend rationing 3.5 and for no rationing 3.7.

Geographic origin did not seem to affect one's response to rationing, although the interviewers had suspected that Lower Mainland residents would respond more favourably than Vancouver Island, United States, and other more distant users.

There was a tendency for respondents favouring rationing to also look kindly on other behaviour controls, such as limits on campfires.

The following two provisions, which could be included in a rationing system, were set before all respondents, not just those who indicated that they supported a rationing programme of some type. Users were instructed to assume in reacting to these that a rationing system of some variety had been agreed upon for the Heather Trail. When asked if they thought a rationing system should require visitors to be signed up in advance for the different campsites (Buckhorn, Kicking Horse, and Nicomen Lake) for particular days, a majority of the sample (55%) was neutral. This high

figure of undecided or uncommitted views was unexpected but not very surprising. Although nearly everyone was familiar with the concept of rationing, few had given any previous thought to its mechanics. See Table XXVII for details. An even larger percentage (two-thirds) were neutral towards the assignment of individual camping spots at the campgrounds. Fifteen percent liked the idea, and 11% opposed it (see Table XXVIII). This detail is probably even more difficult for most people to visualize, and they therefore cannot give definite responses.

Despite the high number of neutral responses, a surprising number favoured these two provisions. In the event that a procedure such as campsite assignment were ever seriously contemplated by the administration, the large number of neutral or undecided visitors might be fairly easily manipulated or "converted," if public relations programmes were carefully designed.

Respondents were also presented with several management procedures that would theoretically control behaviour and limit use without placing arbitrary limits on numbers. For example, an unlimited number of visitors might be let into the area as long as they conformed to a particular standard or exhibited certain levels of talent or prowess. In general respondents were not certain about their reactions to these controls. For example, it was suggested in the questionnaire that the presently-used access road be off-limits to overnight users. Only day hikers planning to

remain in the vicinity of the parking lot and short nature trails would then be permitted on the road. Overnighters would presumably reach Buckhorn (see Figure 2) via a nine or ten mile trail which does not presently exist. (Another option, not presented in the questionnaire, would involve blocking the road halfway up, at the Lookout Point, and cutting a trail from that spot to Buckhorn. The object of such a procedure would be to lower use by discouraging casual overnight trips and making the hike to the meadows a little more challenging. The majority (53%) were neutral, but positive outweighed negative responses. See Table XXIX. Stankey found 40% of his respondents in favour of a similar procedure (1973, pages 32-33).

Respondents were presented with the idea of requiring overnight hikers to obtain some type of certification, which would probably be granted upon presentation of proof that the visitor had completed a course or passed a test. The goal in this case would be to ensure that users possessed some basic knowledge of environmental principles and proper wildland behaviour. Response to this question was similar: 51% neutral, 29% positive, and 20% negative. See Table XXX for a breakdown of responses.

The most acceptable means for handling overuse was the most traditional and conventional solution: building more facilities to accommodate increased numbers. Over three-quarters of the sample favoured spreading out the visitors and providing better dispersal. There is a difference

between the number of people favouring this alternative and the number stating in the personal interview that more trails were needed. Perhaps the discrepancy resulted from the context in which the building of more trails as an alternative to rationing was presented. In other words, some people who might not have felt at the time of the interview that more trails in the meadows area were needed saw it later on as a viable alternative to rationing.

Heather Trail respondents seem to be somewhat more tolerant of rationing concepts than were other groups sampled elsewhere. It is possible that this difference reflects the time gap between the Heather Trail study and other earlier surveys. Additionally, after many of these surveys were made, the United States Forest Service and National Parks Service inaugurated several rationing programmes which have rapidly gained public approval. In general, other studies have not shown backpackers to be supportive of rationing systems, favouring instead educational campaigns directed at coping with overuse by reducing depreciative behaviour (Sommarstrom, 1966). Hendee as well (1968, page 60) found rationing to be unpopular. Only three out of ten users agreed that "the use of wilderness-type areas has to be restricted to limited numbers of people in a given area at a given time." Hendee feels that acceptance of controls such as rationing systems hinges greatly on an understanding on the part of users of the necessity for limitations. This understanding can be

conveyed through carefully planned publicity campaigns.

Not one of the "direct" rationing techniques proposed by Stankey (1973, pages 30-32) was accepted by a majority of the sample. Some methods, however, were considerably more popular than others. Mail reservations were favoured by 43%, while second-ranked was a first-come first-served system (18%). This breakdown was similar to that of Heather Trail respondents, if one considers that Stankey did not include the "mail reservations and first come-first served" combination option. The unpopular lottery (18%) still won more support than with Heather Trail visitors. Stankey concluded that users of the BWCA, Bridger and Bob Marshall Wildernesses, and the High Uintas Primitive Area prefer to take an active role in assuring a place for themselves in the backcountry. In the event that restrictions on numbers are deemed necessary, they, like Heather Trail users, do not want to rely on a lottery (Stankey, 1973, pages 30-31).

In more recent surveys (British Columbia Parks Branch, 1975) over 50% of the canoeists in Bowron Lake Park favoured the implementation of a reservation system. A very high 80% of the groups interviewed personally in Mount Robson Park agreed with a "wilderness permit" system, although only 10% had used such a system in the past. It is difficult to compare this figure with Heather Trail data, however, because it is not clear how the term "wilderness permit system" was defined. Fewer, but still a majority of the hikers sampled by questionnaire (57%) supported permits, but

only 20% agreed with reservations. A first-come first-served method was more popular than advance reservations, contrary to what Stankey discovered. The 60% opposing reservations felt them to be too bureaucratic and not permitting spontaneity, comments identical to those made by Heather Trail visitors (Gain, Swanky, and Taylor, 1975, pages 20-21).

Result tabulated for Mount Assiniboine users are not greatly different: 67% of hikers supported permits, but only 25% advocated a reservations system. A first-come first-served system was somewhat more acceptable than a mail reservation system (Gain and Swanky, 1975, page 12).

THE TYPICAL HEATHER TRAIL BACKPACKER

The following scenario is intended to summarize some significant and memorable characteristics, perceptions, and opinions of Heather Trail backpackers, based on the most frequent visitor responses and observations made by the interviewers. A summer traveller would be very likely to meet this "typical hiker."

We'll call him Maurice; he is twenty-three years old and Caucasian, with a university degree. A Vancouver resident, he is employed as a government social worker.

As a teenager he made frequent day and one-night trips with the Scouts, but he has only backpacked, or made trips of at least two nights in length for about two years. This Heather Trail hike is his third such excursion. Maurice has previously visited other attractions in Manning Park, such as the downhill ski area and the Beaver Pond. Additionally, he once made a day trip on the Heather Trail, as far as Buckhorn camp.

He and Jane, a friend, chose Manning Park this weekend because, leaving Friday afternoon, they did not want to spend too much time in transit. Jane had heard too that Garibaldi Park, their other choice, was expecting bad weather.

The Heather Trail was chosen especially for its alpine flowers, which, according to Exploring Manning Park (Cyca and Harcombe, 1970, page 40), were at a peak at that time, late July. Maurice's brother, who had visited the area

precisely one year earlier, added some enthusiastic words about the meadows. The couple decided against stopping at the Nature House or alpine meadows Nature Hut; they had received all the information they could possibly use from other sources. Besides, it was late in the afternoon, and they hoped to arrive at Kicking Horse before dark.

They parked in the designated lot and looked around for registration forms and a drop-off box, like they had used at Jasper National Park. Slightly disappointed not to find a place to register, they set off.

Maurice and Jane noticed only two or three pieces of litter along the trail, and commented to each other that it was a good thing people packed out what they had brought in. The trail at Garibaldi had not seemed as clean. They wondered if litter bags were handed out at the Nature Hut.

After passing several groups of dayhikers admiring the flowers, they reached Buckhorn. Jane noticed a pile of cut wood beside the panabode shelter, and remarked to Maurice that she would find it very tempting to settle down with a pile of that wood, but it would somehow take away part of the fun of "roughing it." One of the reasons she liked backpacking was that she could do things for herself like gather wood, ford streams, and maneuver her way around obstacles in the trail. She hoped there would not be pre-cut wood at Kicking Horse.

Maurice commented to Jane on the excellent condition of the trail. He was somewhat surprised that such popular and

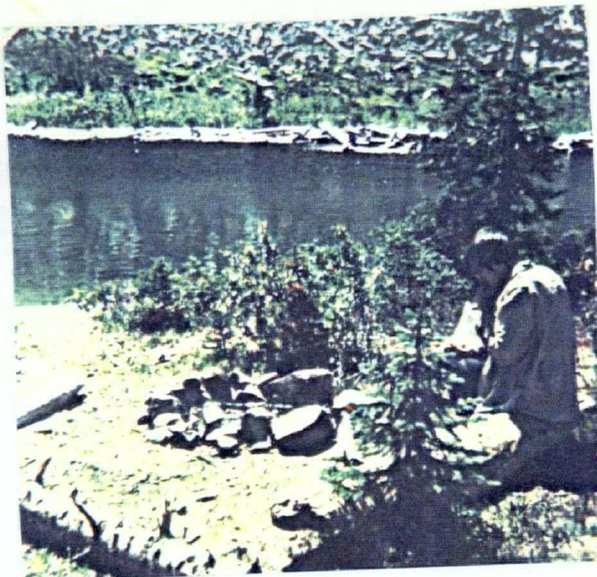
accessible trails could remain so primitive and undeveloped. He guessed that it was fortunate they had not come two weeks earlier, for it would have been a swim rather than a hike. By this time much of the wetness resulting from snowmelt had disappeared, leaving only occasional muddy patches. Bypassing these stretches was all part of the fun, Maurice felt. He realized that in deviating from the trail he inflicted some damage upon the grasses, but believed it important to keep the hiking experience as natural as possible and leave the mud as it was.

Forks in the trail did not faze Jane and Maurice; by consulting the Manning Park guidebook and following footprints, they could pick out the right way. They would rather use a guidebook or map than see signs everywhere in the backcountry, anyway. They wondered, however, if any hikers ever followed the wrong fork.

After three hours of hiking they arrived at what could have--and should have been Kicking Horse. A lovely stream divided a somewhat rustic-looking plateau into several parts. About a half dozen tenting and fire areas were cleared, but there was neither an outhouse nor a shelter, contrary to what Maurice's brother had said. They decided that this place must be the campsite, since two groups had already pitched tents and were cooking supper. After greeting the other parties, they chose a tent site about one hundred feet from them, across the stream (see Figure 7).



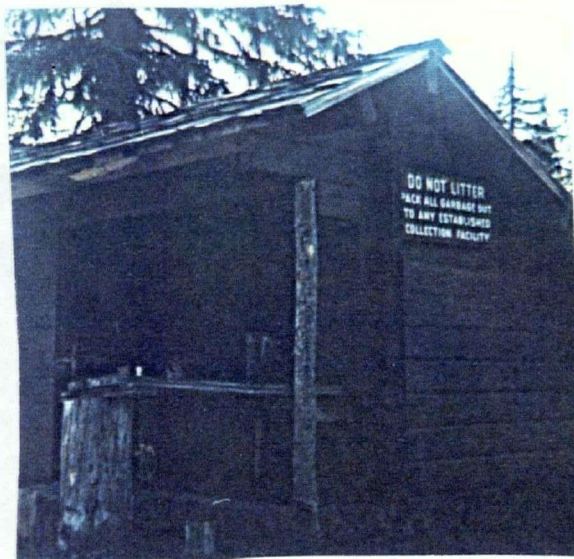
Maurice's and Jane's tent site, New Kicking Horse.



Maurice enjoys a snack At Nicomen Lake.



View of Old Kicking Horse valley, from camp's centre



Panabode shelter set behind reddish trees in left photo.

FIGURE 7

They set up their tent and cooked some dehydrated chicken stew on the stove brought along for times like this, when they were exceedingly tired and it was dark. They looked forward to enjoying a campfire on Saturday, and a quick check of the area revealed an abundance of firewood.

Maurice was struck by the lack of crowding along the Heather Trail, compared with some of Garibaldi Park's trails they had taken. On the Heather Trail they had seen only five or six groups Friday, by no means a huge crowd. With more than six or eight groups the trail would have begun to resemble a circus, but Maurice enjoyed passing a few friendly faces and exchanging pleasantries. For similar reasons he and Jane enjoyed the presence of the two other groups at Kicking Horse; however, they hoped the campsite would not fill up.

Saturday morning they packed a picnic lunch and started towards Nicomen Lake, approximately five miles away. Only about one-quarter mile from their camp they noticed a shelter, and figured it was the one Maurice's brother had mentioned. They wondered if the campsite had been abandoned, since no one appeared to be using it. Jane and Maurice enjoyed the flowers and expansive views very much, but they became a bit concerned when, after having hiked about four miles and reached the top of a ridge, they could see no sign of the lake. Could they possibly have veered off the correct trail? Maurice suggested they turn back, precisely at the moment when a group of hikers coming

towards them called, "You've only got another twenty minutes!" Sure enough, they walked fifty feet and suddenly the lake jumped at them from a half-mile below (see Figure 7).

When they returned five hours later to Kicking Horse, all the six or seven campsites were full. Although the camp was not unbearably crowded, they considered moving down the hill and out of sight of the other groups. They decided against the move, however, after realizing the impact which their tent and fire would have on the meadows. Maurice and Jane were fairly conscientious campers, knew something about man's impact on the natural environment, and tried to minimize their mark. At least, they packed out garbage, stayed on the trail, and put out their fires with plenty of water. And they didn't pick flowers.

Maurice and Jane would probably support a good many measures which might help to preserve the beauty of the Heather Trail and surrounding meadows, even though their freedom of action might be limited as a result. They would be willing to give up campfires if a wood shortage developed, even though they love an evening fire. They would favour weekly or twice-weekly patrols of the area, which would control the violations of rules and camping ethics. They would like to see backpackers, including themselves, held responsible for damage they inflicted on the area, although they are uncertain as to how such monitoring and prosecutions could be carried out. Dogs

should not be allowed on the trail, they feel, although they would certainly enjoy the company of their pet. While not wholeheartedly supporting the idea of a user fee, they would pay willingly if a fee was required. They would rather see British Columbia taxpayers subsidize the maintenance of public lands, however. Additionally, they suspect that a user fee would bring areas like the Heather Trail closer to being car campgrounds. They also expressed concern for low-income groups who might not be able to afford a fee. One thing they would like to see limited is large hiking parties, like that group of twenty-two staying at Buckhorn when they passed through the area. Jane and Maurice have noticed that larger groups tend to exert a disproportionately great impact on the environment.

Sometimes Maurice wonders if the trail will become spoiled by increasing numbers of backpackers. One couple he spoke with said they had been practically alone on the Heather Trail four years earlier, and that they noticed several fire scars this trip which had not existed on the earlier visit. Yet Maurice does not know of a satisfactory solution. Reservation systems, like those used in the States, sound terribly bureaucratic. One comes to the back-country to escape rules, regulations, and line-ups. Besides, he and Jane could not possibly plan for months, or even weeks, in advance. It would be terrible to wake up at dawn, drive three hours to Manning Park, and then not be able to get a permit.

He had heard some hikers talking about how great it would be to cut down on crowding by blocking off the access road to the meadows. His reaction was mixed. Sure, he and Jane could still make that hike, but not in a weekend, with the extra ten miles uphill to do. Would elderly people and day visitors then be barred from the nature trails if they couldn't walk ten strenuous miles? That certainly would be unfair, but the idea of a roadblock for overnighters was not as preposterous.

Maurice concluded that at least one more trail suitable for a two-to-three day hike would be needed soon in the meadows area, to accommodate some of the backpackers presently using the Heather Trail. This way, more restrictive measures like rationing could be put off for a while. The situation was nowhere near being disastrous, in his mind; the Heather Trail could definitely become overcrowded in the future, but it was quite a pleasant place to spend a July weekend in 1975.

CHAPTER 4

THE MANAGEMENT OF MANNING PARK

THE PRESENT SITUATION AND FUTURE TRENDS

Before new management policies and strategies can be recommended, it is important to understand present overall policy and procedures. The following section summarizes existing conditions, and attempts to provide an insight into the perceptions of those people in charge of managing the park and its backcountry. In order to simplify discussion, the individuals involved are divided into two groups: the administration (referring to the District Superintendent and his staff), and the naturalists (who staff the Nature House), who together comprise the management. Information about present management practices was obtained in personal interviews with Messrs. Green and Bell, District Superintendent and Park Naturalist, respectively. Further information about the former's perceptions and opinions has been taken from a mailed questionnaire administered by the author, and from his written reactions to the conceptual plan created by the Parks Branch.

MANAGERIAL ATTENTION TO PHYSICAL ASPECTS OF BACKCOUNTRY USE

The Role of Administrators

According to Mr. Green, District Superintendent, all trails are checked once each season by a maintenance crew. At this time deadfall trees blocking the paths are carried away or sawed off. Litter deposited by hikers and cross-country skiers is collected and hauled away. In 1975 the trail crews were observed working on the Lakes Chain Trail in late June, and the Heather Trail in mid July. Since the most heavily-used leg of the Heather Trail is largely in meadow, little clearing work was required.

Mr. Green appeared to know which trails are heavily used and which are not. Yet it seemed that he was not particularly well-informed about the backcountry. For example, he was not aware that Kicking Horse is not one but two campsites. The Prospector's Trail, described by Cyca and Harcombe (1970, page 82), located in the park's centre, was unknown to him. It is rumoured that the trail was rendered useless by logging operations in 1972, but the author was nevertheless surprised that its mention did not ring a bell with Green. Another possibility is that the administration does not wish to draw attention to the logged areas, and therefore does not recognize the existence of this trail. But if one assumes a genuine lack of information, it probably reflects the administration's emphasis on other areas of greater priority, felt to be more

deserving of time and money. It is easy to see that the large number of day-to-day maintenance tasks falling on the shoulders of the administration (e.g., overflow crowds at car camps, sewage disposal, and road repairs) could dwarf less pressing questions involving the backcountry. More frequent and open communication between the superintendent's office and the Nature House could probably improve the quality of information reaching the administration. But better communication would not by itself generate interest and enthusiasm regarding the backcountry, which the administration seems to now lack.

The Role of Naturalists

Park naturalists become familiar with the various trails, their conditions, and levels of use, through occasional "hiking days" and from speaking with hikers who stop at the Nature House after completing a trip. Each naturalist hikes one of the trails every two weeks, to report on muddiness, snow, litter, and apparent use levels. Reports are sent to the superintendent's office and are updated periodically.

As one should expect, naturalists seem to be better informed about trail locations and campground facilities than are administrators.

MANAGERIAL CONTACT WITH BACKCOUNTRY USERS

The Role of Administrators

The administration does not view interaction with backcountry visitors as one of its primary responsibilities, although Green states that his office does communicate with them. Contacts are of several types:

- Correspondence with prospective visitors desiring park and trail information,
- Handling complaints, suggestions, and praise.

On the whole their personal contact with backcountry visitors is minimal and most likely indirect, through the naturalists, who carry out their orders and instructions. Most visitors are probably aware of the existence of the superintendent's office, but do not give it much thought. The buildings are set back several hundred feet from the highway, and are not readily visible to hikers bound for the alpine meadows. For any visitor wanting to meet with Mr. Green (or any of the other administrators) an appointment would probably have to be pre-arranged. One can understand that the superintendent would not be able to maintain "open house" for park visitors, yet it would seem desirable that the administration to have some direct contact with them, including the backcountry hikers.

The Role of Naturalists

Nearly all backcountry hiker-manager contacts involve the naturalists. They occur at the Nature House, set in a grove of trees several hundred yards from the lodge. The Nature House provides a variety of services available nowhere else in the park. First, trail reports for most areas are kept, as described earlier in this chapter. Additionally, colourful and informative booklets of interest to hikers can be obtained, and displays of natural phenomena can be viewed.

Prospective hikers sometimes enquire about registration; that is, signing up for a trail and recording one's starting and finishing dates. The naturalists respond, according to Bell, by informing people that a registration system does not exist, and if they want to ensure that a search will be conducted in the event that they do not return on schedule, they should notify the Royal Canadian Mounted Police or a friend.

Users frequently ask which trails are crowded, states Bell. Naturalists usually describe the Heather Trail as well-used or even crowded, but do not know if this comment tends to discourage use. Naturalists as well as hikers associate the Three Brothers area with alpine meadows, and usually recommend this route to people who want to view flowers. Bell is wary about recommending the Heather Trail as easy or flat. There is apparently a possibility that a lawsuit against the park could result if a hiker were

injured after taking a trail recommended by the staff as "easy." This possibility was mentioned by the administration, naturalists, and planners from the Parks Branch.

The Nature House also receives complaints, suggestions, and general comments from returning hikers. Some visitors suggest that topographic maps be made available at the Nature House. Others ask that shelters be cleaned and repaired. Bell recalled that occasionally hikers complain about the "difficulty of the Heather Trail."

The nature education role of the naturalists receives greater emphasis with day users than with overnight backpackers, according to Bell. The fact that less than one-fifth of the Heather Trail sample visited the Nature House or alpine meadows Nature Hut, and Bell's estimate that he contacts a maximum of 30% of backcountry users would confirm this statement. Although the Heather Trail survey did not show "experienced" visitors to use the Nature House less than first time visitors, Bell believes that a difference in visitation frequency exists. He attributes the alleged aversion of seasoned backpackers to the Nature House to their relative experience, the feeling that they know all there is to know about hiking, after having made a few trips into the backcountry. In addition, the Nature House is probably not perceived as offering information and services useful to backpackers, while it appears to be geared to the needs of roadside campers and casual

strollers. This perception may be valid, to a certain extent. No topographic maps are available, as was mentioned above. The sketch map provided shows no detail and does not even include most of the Heather Trail loop.

Park naturalists are not a source merely of information, trail reports, and wildflower pamphlets, although this function is emphasized. They are in an excellent position to educate backcountry users about proper behavior and environmentally sound camping practices. Bell tries to stress certain points when talking with hikers; for example, camping in the designated areas, and keeping dogs on leashes. Yet he does not want to give people the idea that many rules are being thrust at them.

MANAGERIAL ATTITUDES TOWARDS BACKCOUNTRY USE AND POLICIES

Perceptions Of Managers Relating To Their Roles
In Affecting Use

Mr. Green believes he exerts some degree of influence over hiker behaviour and backcountry use, while Bell, speaking for the naturalists, does not believe the latter have very much impact on the way the backcountry is used. This ineffectual feeling is attributed to the lack of authority in the hands of naturalists, who have no power to enforce the rules governing camping areas, dogs, and litter. Additionally, they do not contact very many of the visitors whose behaviour they might influence. Bell feels they have more effect on the behaviour and attitudes of day users participating in the guided nature walks.

Perhaps as serious as the inability to reach backcountry visitors is the apparent lack of communication and exchange of ideas and suggestions related to backcountry management, between naturalists and administration, according to Bell. In order for the naturalists to place more attention on backcountry problems and users, the administrations's backing would be required, since naturalists are directly responsible to the District Superintendent.

Backcountry Problems Perceived By Managers

Litter

Green sees backcountry litter, deposited by both hikers and skiers, as a major problem, pointing to the many sacksfull carried out of heavily-used areas each season. Judging from the dearth of litter along the Heather Trail, it is safe to say that this statement is probably more applicable to other trails in the park. Bell, too, sees litter as a problem, but does not perceive it to be as serious as other matters.

Camping Outside of Designated Areas

This problem is raised by both Green and Bell, but Bell seems to place more emphasis on it. When he encounters groups tenting outside the DWC's, he urges them to move. Considering the naturalists' infrequent and localized visits to the backcountry and the small areas they do cover on the visits, their influence over campers is probably minor. The park administration takes very limited action to deal with this problem, probably because of the money and time inputs which would be required for patrols. It was reported, however, that the Lightning Lakes area was monitored during the 1975 hiking season, and that a patrol was seen in the Three Brothers area on at least one August weekend.

Dogs

Dogs not kept on a leash are a serious problem, in Bell's opinion. They annoy campers desiring solitude and quiet, or at least relief from city noises. They may attract bears to the campsites, harass wildlife, and be attacked by bears and coyotes inhabiting the Nicomen Lake area. Bell feels that many dog owners are either unaware of these problems or insensitive to the wishes and rights of other campers. Either way, they frequently deny that their pet could harm anyone or be harmed itself. Bell believes that corrective measures imposed from the outside are necessary, if the dog situation and the problem of tenting outside of designated areas are to be corrected, for, unfortunately "people will do what they can get away with."

The park managers are somewhat handicapped in coping with backcountry problems, because they lack the necessary information and direct contact with hikers and trails. Bell devotes only a small part of his time to investigating backcountry use and conditions. Green is responsible for the maintenance and management of many facilities, such as roadside camps, ski hills, and picnic areas, which are experiencing an average annual increase in use of 10% (British Columbia Parks Branch statistics). In a park of Manning's size and diversity these amenities are extremely valuable and must be given attention. It is easy to see how the backcountry, which receives only a fraction of the park's visitors, may take on a relatively low priority. To

place the same emphasis on backcountry management that it gives to other areas, considering that his budget and staff are limited. But the administration's absence of contact with the backcountry and apparent lack of concern for problems resulting from increased use are serious deficiencies. One consequence is that the administration has only a vague idea of the physical, biological, and psychological carrying capacities of the various areas involved. Therefore, no information has been compiled, which could form a basis for the adoption of standards against which increasing use and its ramifications can be evaluated. Management policies geared to handle current and projected use without bringing about a decline in the quality of either the biophysical or the psychological environment cannot be established.

Yet despite this present lack of information, Green has articulated a management goal for the backcountry, to "minimize the impact of human use while at the same time permitting an acceptable level of visitation." The reference to "minimizing the impact" seems rather incongruous, when it is realized that first of all, the present impact of backcountry use is not known. Second, no method exists for the evaluation of the administration's present management inputs in this area. And it is difficult to see how an acceptable use figure will be determined, when the most basic information required for such a decision, namely present use levels, does not exist.

PROBABLE FUTURE DEVELOPMENTS

Future developments affecting the backcountry of Manning Park are uncertain at this time. The Coastal Planning Division of the Parks Branch has created a conceptual plan for the park; however, several steps remain before the plan can be implemented. The plan as a whole treats almost every feature and facility in the park, including many only peripheral to the backcountry and hiking activity. These include living quarters for park employees, roadside picnicking spots, and restaurant facilities for the downhill ski area. Such topics, of doubtful relevance to the study area and problems addressed in this thesis, will not be covered here. Two areas of emphasis in the plan, hiking trails and nature interpretation, were felt to have direct bearing on the study area and its future management, and have therefore been selected for discussion in this section.

The Conceptual Plan and Hiking Trails

The plan groups Manning Park features into three classes:

(1) Preservation Features, (3) Primitive access, and (4) Easy Access. Class (2), Nature Conservancy areas, are found in some British Columbia Provincial Parks other than Manning.

Features judged to be unique, for either ecological or

historical reasons, may be classed as Preservation Features (Class 1). The Three Brothers area falls into the ecological group, for reasons of its subalpine and alpine environments, representative land systems of the Cascades. Specific factors contributing to this area's ecological uniqueness are its diversity of plant communities and geologic units. Other areas classed as ecological Preservation Features include Strawberry Flats [Fragaria spp.], Rhododendron Flats [Rhododendron macrophyllum], and the Sumallo Grove (coastal forest). Historical features considered worthy of preservation include the Dewdney and Hope Trails.

The Preservation Feature designation makes the Three Brothers meadows suitable for hiking, nature interpretation, and observation activities, with facilities provided for three primitive campgrounds. The plan foresees the Heather Trail in the same way it presently exists; apparently no changes are proposed. One Parks Branch planner indicated that no future limits on use of the Heather Trail will be considered. It is felt that the trail should remain easily accessible even if the number of hikers continues to increase. It would be difficult, politically speaking, to start "acting like an ivory tower" (personal communication, Parks Branch planner), and suddenly close off areas that have always been reachable by everybody. While the Heather Trail is designated easily accessible to all visitors, the plan identifies a proposed remote alpine trail, the

Chuwanten Loop (Class 3), to serve the needs of backpackers seeking solitude and isolation. Thus, a hierarchy of trails varying in difficulty, accessibility, and remoteness, is expected to accommodate a wide range of interests and needs.

The Conceptual Plan and Nature Interpretation

The Parks Branch planners have devoted a considerable amount of effort and space in the conceptual plan to reorganizing the nature interpretation programme. This service is felt to be extremely important in Manning Park, which receives so many visitors each year. Several changes were proposed by the planning staff:

(1) Relocation of the Nature House from its present site (several hundred yards directly west of the lodge) to the south bank of the Similkameen River, behind the lodge .

(2) Expansion of interpretive facilities and services, with an amphitheatre, more interpretive trails, exhibits and guided walks added. The resulting assemblage (and the apparent reason for the relocation of the Nature House) would be a centrally located interpretive area built along the theme "The Cascades: Meeting Place of the Coast and Interior."

Reactions of Managers

The administration and naturalists of Manning Park have reacted to these proposals and generally to future management questions in varied and interesting ways.

The administration has not raised objections to the three-part classification system, nor to the inclusion of the Three Brothers area in the Preservation Features class. Although Green does not see the need to expand the present backcountry trail system, he offered no negative comments regarding the four proposed trail additions. Green differs most markedly from the planners in his attitude towards the place of nature interpretation in Manning Park. He contends that the Nature House should be phased out and facilities other than self-guiding trails scaled down. He bases his response on costs and the fact that he does not feel present facilities are being used heavily enough to justify their maintenance, let alone their expansion. According to Green, in his written response to the plan's proposals,

It is our opinion that the present nature program is too expensive. We should have a staff member who is involved in the marking, maintenance, and care of a comprehensive self-guided nature trails system. The present Nature House system should be phased out.

He explains why he feels the Nature House is under-used:

We believe that the Nature House has never been a focal point for visitors. The focal point has always been the lodge. One has only to compare the use figures to arrive at this conclusion. Information has always been disseminated from the lodge, and we believe that the Nature House has a very minor role in this visitor service.

The use figures Green mentions reveal that the Nature House attracted 22,456 visitors in 1974, while the lodge drew about three times that number. Comparisons of the two facilities are of questionable validity, since they serve quite different purposes. First of all, most basically, should the Nature House be judged only on its capability to disseminate information? If we make the assumption that information provision by itself is a valid criterion, and if we accept Green's figures, should it be significant that the lodge attracted three times the people who visited the Nature House? First, the lodge is more conspicuous, visible from the highway, displaying flags and signs. The Nature House is surrounded by trees, is unobtrusive, and receives little if any publicity. Second, the lodge provides restaurant, washroom, and newsstand facilities, available nowhere else in the park. It is true that backcountry users do not take full advantage of the Nature House, but 22,000 people spread over a three-month season does not seem particularly low. It would mean 7500 visitors per month or 250 a day, a fairly steady flow.

We might assume, on the other hand, that a Nature House should be evaluated by criteria other than the mere provision of information. These might include its emphasis on nature appreciation and the dissemination of conservation values, for example. We must then ask if the figure of 22,456 includes visitors utilizing services provided by the naturalists without actually getting counted at the Nature

House. If this is the case, the administration's argument seems illogical, because it assumes that one must step inside the Nature House to benefit from it. Persons using the self-guiding trails, for instance, would certainly be exposed to the naturalists' nature appreciation and conservation values. It should be noted that Green's downplay of the importance of the Nature House and "live" naturalists reflects a strong bias, with which the use figures may have been interpreted, in order to justify the phasing out of the existing Nature programme.

Bell's opinions on the nature interpretation programme, which he feels are shared by the other naturalists, differ from those held by the park administration. He believes strongly in the importance of the present Nature House programmes, but does not feel that enough emphasis, personnel, and funding are devoted to backcountry use and problems. Naturalists, he states, spend limited time in the backcountry and have no authority to correct problems they see. Their influence alone on the distribution of backcountry use and hiker behaviour is not sufficient. Through more frequent and effective hiker-naturalist contacts, Bell believes that depreciative behaviour could be reduced and hikers dispersed more evenly over the area. The latter benefit could help alleviate congestion and resultant environmental degradation on presently crowded trails. Bell advocates the hiring of a "hiking naturalist," who would assess backcountry problems and environmental changes, while

determining visitor needs and preferences regarding management. He is not optimistic, however, that the nature programme will develop a backcountry orientation, since he believes the administration would not "go for it."

Bell feels also that it is important to plan now for backcountry preservation, before problems become more serious, "to compensate for the wear and tear of future years." Many users, as borne out in the Heather Trail survey, have never visited a hiking area where a rationing or reservation system was used. Some of these people regard such programmes as threats to their freedom, and consequently want nothing to do with them, although their beliefs are based on fantasy and hearsay. Bell believes that some exposure, even indirect, to such systems operating in other parks would help to erase these negative attitudes. When one considers the fact that rationing systems in the United States have consistently met with greater success and acceptance than managers originally anticipated (Hendee and Lucas, unpublished manuscript, pages 6-8, and Fazio and Gilbert, 1974, pages 754-756), this idea seems quite logical. Bell suggests a slide show featuring alternative management strategies used in coping with backcountry problems, and pamphlets explaining some of the techniques presently employed in Canadian and United States parks in order to preserve hiking areas and enhance the wilderness experience. Bell sees this new angle of the nature programme as also facilitating the implementation of certain

regulations he believes necessary, as discussed above. These restrictions include limits on party size, a ban on dogs, and strict enforcement of the designated camping areas rule which now exists.

Although the Planning Division of the Parks Branch believes that Manning Park should give more attention to backcountry use and problems, it does not view this role as appropriate for the Nature House, which is supposed to concentrate on nature education and interpretation. The Parks Branch recognizes that funds are not likely to be made available for backcountry investigations and projects, but is still unable to suggest an alternate way in which Manning Park could address these issues.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Many conclusions and implications for management can be drawn from these situations, observations, and the data gathered in the visitor survey. Several appear to be particularly relevant in the development of a management program for Manning Park's backcountry, and more specifically for the Heather Trail. The following points should be considered in planning for the next several years of hiker activity.

Absence Of Data Relevant To Management

There is very little existing data of use in planning for the management of the backcountry. Except for a ten-year-old Parks Branch study of the alpine meadows near the parking lot (Underhill, 1966), no current information exists covering use levels, biophysical conditions and changes, or user opinions regarding management.

Use of Campsites

The three campsites studied (two at Kicking Horse and one at Nicomen Lake) do not appear to be used beyond their present physical capacities; that is, the number of cleared tenting areas and fire rings. The only exception to this

conclusion would be the British Columbia Day holiday weekend in early August. More campsites, then, are probably not needed on the Heather Trail at this time, since the existing ones seem to be handling the demand. This is not meant to imply that visitors occupying previously designated spots do not exert an impact on the biophysical environment, however.

It is also probably true that the number of campers does not exceed either the "ideal" or "tolerable" use ceilings suggested by respondents (see Chapter 3). Therefore, it can be stated that campsites are not receiving more use than visitors feel they should, and their psychological carrying capacity has not been reached.

Use Of The Trail

Use of the trail by hikers is inflicting some biophysical damage on the natural environment. The meadows have been partially or completely eradicated in some spots adjacent to the trail. Intense impact concentrated in small areas is compacting the soil and may be affecting the viability of certain plant species as well as the burrowing activity of pocket gophers and meadow mice. Drainage patterns could be affected by the ponding and muckiness caused by many footsteps in wet or snowy patches. Erosion along the trail is visible, particularly in areas where snow remains until mid-summer. Here, hikers make detours around the extremely vulnerable wet or muddy areas, only causing

them to spread; at the same time the action of their boots destroys slope stability on cut banks. The fact that hiker numbers are increasing means this impact is greater every year.

That portion of the trail over which hikers were observed continually, between the Three Brothers and Nicomen Lake, does not presently attract numbers in excess of what hikers can tolerate (see Chapter 3). But no thresholds or limits based on biophysical and psychological constraints have been established for this area. Again, the visitor and environmental information, which would be prerequisite to establishment of such limits, has not been collected.

Information Distribution

Heather Trail backpackers are not receiving adequate information prior to their hikes. This deficiency could be contributing directly and indirectly to the misuse of the backcountry. The information lacking can be categorized in the following way:

Knowledge Concerning the Park as a Whole

Hikers are often unaware of alternate trails, which would offer a similar experience and at the same time disperse hikers more equally over the trails. They have learned of the Heather Trail from friends, quite frequently, and are not informed of other trail choices.

Imprecise Knowledge Of Campsites And Distances

Hikers know that there are three campsites named Buckhorn, Kicking Horse, and Nicomen Lake, but they often do not know how long a hike is required to reach them, especially Kicking Horse. The result is that probably 10% and perhaps as many as 15% of the groups cannot plan in advance to reach the campsite by dark. They pitch their tents wherever they happen to be when night falls. Even though more than two-thirds of the Heather Trail visitors consult guidebooks describing the trail and its features, this information is not really helpful to them at the time when they need it. A likely reason is that they are unable to translate "five miles" in print to "five miles" of hiking, and therefore misjudge distances. One would expect this to be common among inexperienced hikers, who form a large segment of the overnight population.

Lack Of Information on Terrain and Topography

Hikers are poorly informed about the lay of the trail: its ups, downs, and other descriptive details. Topographical maps are available outside the park but the Nature House does not stock them. Thus, since most visitors do not tote their guidebooks, the only remaining choice is the park's trail map, which contains only the first six miles of the Heather Trail loop, up to the Three Brothers (see Figure 8).

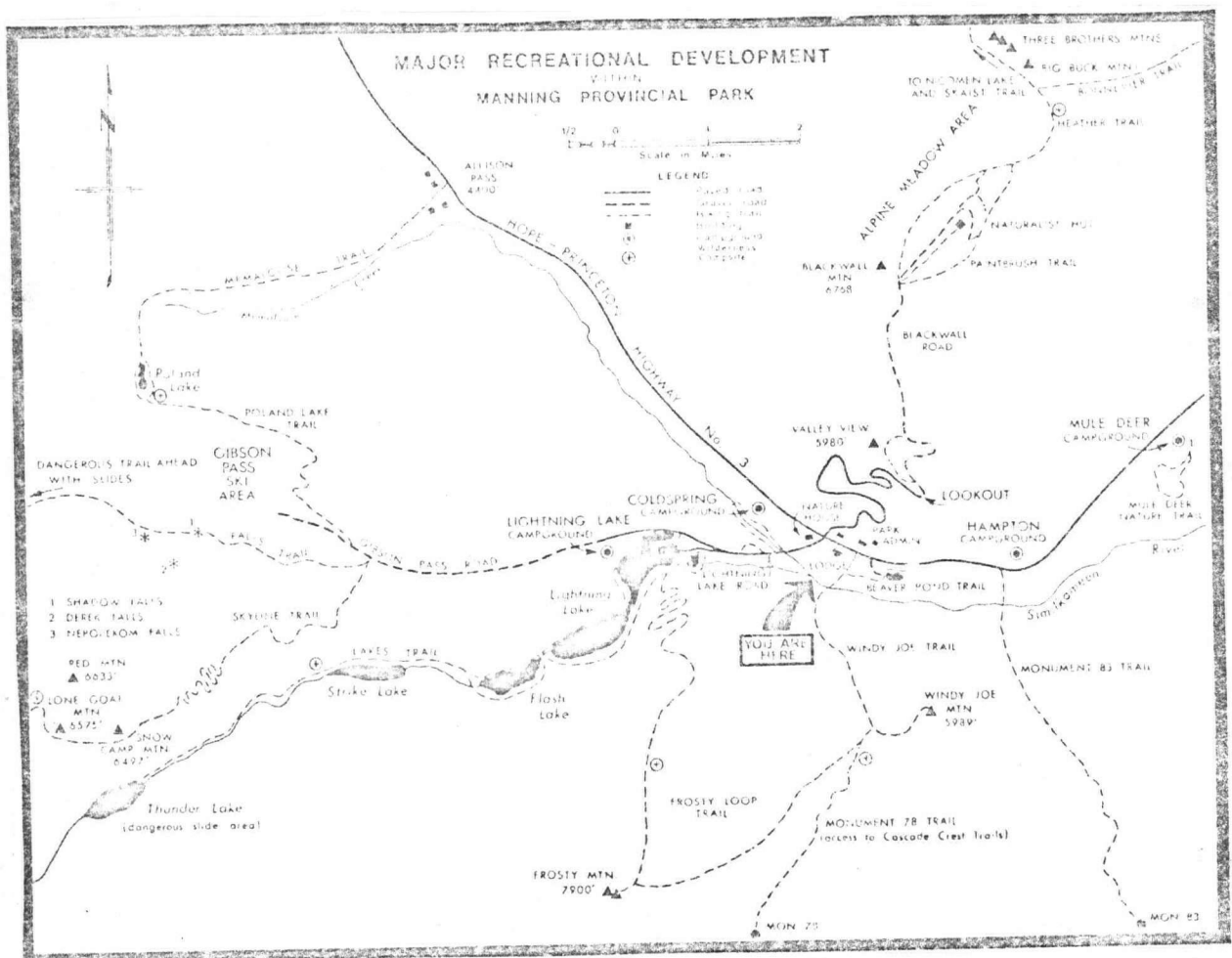


FIGURE 8. NATURE HOUSE TRAIL MAP

The resulting problem is not a danger of getting lost, for the trail is easy to follow. But people are more likely to camp wherever they get tired or when it gets dark, if they do not know where the next camp is. It is suspected, for instance, that many of the campfire scars on Nicomen Ridge would not have been made, if the hikers responsible had known they were only one mile from the Lake.

Insufficient Information About Proper Behaviour

Little emphasis is given to informing hikers of the camping practices least likely to damage the environment. Although depreciative behaviour was not as prevalent as had been expected, it was nevertheless evident: the interviewers believed this behaviour to be inadvertent, largely due to naivete on the part of first-time backpackers. Nature House staff are quite willing to discuss backcountry behaviour with visitors. Most hikers do not stop at the Nature House, however, it was discovered.

CRITERIA FOR DECISION-MAKING

Management decisions are always influenced to some extent by certain criteria or standards, against which various alternative actions are examined. At some point the decisionmaker must arrive at these guiding criteria, although they may or may not be stated explicitly. Such a statement aids in the clarification of the decisionmaking procedure in several ways. The steps taken in reaching decisions and the reasoning employed are visible and can thus be readily identified and questioned. The biases of decisionmakers are more likely to become apparent. Additionally, any departure from the stated criteria will be noticeable immediately and open to challenge. Two criteria have been established, against which it is believed future management decisions affecting the backcountry of Manning Park should be assessed:

(1) The biophysical carrying capacity of the backcountry should not be exceeded; in other words, its biophysical elements and aesthetic qualities should be preserved to the greatest possible extent.

(2) The backcountry hiking experience should be enhanced, through the consideration of hiker needs and preferences, as well as the psychological carrying capacity of the area.

RECOMMENDATIONS

Several recommendations are proposed, drawn from the study conclusions and adhering to the above two criteria. Although they were designed with the Heather Trail and its users in mind, their applicability is not necessarily limited to this situation.

(1) That a backcountry hiker registration system be implemented:

A registration system would begin to shrink the gap between managers and backcountry hikers. First, it would provide information about hiker numbers, destinations, and distribution over trails and campsites. It would also create a setting conducive to hiker-manager exchange: visitors could ask questions of naturalists, who would be in an ideal position to convey "backcountry use values" and point out the information available at the Nature House (see description of recommendation 3 below). This dialogue gains importance when it is remembered that nearly half of the Heather Trail overnight hikers are in their first two years of backpacking. Testing in Rocky Mountain National Park, Colorado, revealed it was these backpackers who gained the most from interpretive inputs. Although the Rocky Mountain system involves mandatory permits and rationing, it is felt that the proposed registration system for Manning Park could exert a comparable influence on hiker-manager communications and thus on wilderness camping interpretation. Thus, Heather

Trail managers could conceivably influence large numbers of recreationists at a point in their development when "they are especially amenable to learning how to use the wilderness in ways that will help preserve its unique qualities" (Fazio and Gilbert, 1974, page 756). The envisioned registration system could operate in a manner similar to the following:

- All backcountry hiking parties would register at the Nature House, conveniently located, adjacent to the lodge. Heather Trail visitors could alternatively register at the alpine meadows Nature Hut. Hikers starting out at times when the Nature House is not open could leave their registration in a deposit box outside the door.

- Registration information would include name, address, number in party, length of stay, and proposed route (including campsites).

- Additional registration forms and a covered wooden deposit box could be placed at trailheads, for use by visitors neglecting to stop at the Nature House, ensuring maximum compliance.

- Large signs in plain view could be erected on the highway, several hundred yards east and west of the lodge and Nature House, informing visitors of the registration policy; for example, GOING HIKING OVERNIGHT? PLEASE REGISTER AT THE NATURE HOUSE, JUST AHEAD ON YOUR RIGHT(LEFT). It is believed that the mere presence of these simple directional signs could draw registrants who would

otherwise ignore the registration policy. A Utah study (Brown and Hunt, 1969, page 80) revealed that facility use patterns, such as visitation of roadside rest areas, could be influenced markedly by signs pointing the way. Brown and Hunt believe that people do what they are told without questioning it, unless it violates their fixed beliefs or experiences.

This procedure would probably not be viewed by hikers as an inconvenience; on the contrary, over 60% of those surveyed favoured a "compulsory" registration system. The cost of a registration system cannot be estimated precisely, but it would be minimal. Assuming that Recommendation 3 was implemented, the hiking naturalist could be responsible for keeping the system in order and collecting the data.

Consideration was given to rationing systems, over the course of this study. It was decided finally, however, that a rationing system for the area in question should not be implemented at this time. Limitation of numbers would be a major and serious step, and without concrete information on present and optimal maximum use levels, environmental degradation, and carrying capacity, it would be difficult to justify the need for rationing. It is felt, however, that if use of the Heather Trail continues to increase over the next several years, rationing may have to be considered seriously. In that event, the information provided by backcountry visitor registration and the hiking naturalist's efforts (see Recommendation 3), would be extremely useful in

planning a system which would help to reduce biophysical damage, and enhance the backcountry experience, while not displeasing or alienating the public.

(2) That more extensive backcountry information be available for prospective hikers:

Much can be done to increase the quantity and quality of information geared to the needs of backcountry hikers. An existing facility, the Nature House, is seen as the primary information centre. It could provide:

- Topographic maps for the price one would pay at a map store or Information Canada,

- Sketch maps of each trail, indicating campsite location, approximate distances, and prominent features (e.g., First Brother, Nicomen Ridge). A map of the Heather Trail Loop could be drawn in about one-half hour, and reproduced at a few cents per copy.

- A small library of books concerned with backpacking, the natural history and geography of the Cascades, and trails in the area. These materials would be for use in the Nature House only, for the perusal of hikers stopping in to register or obtain information. Naturalists would be able to take advantage of this "library corner" through increased contacts with visitors. The cost would not have to exceed fifty dollars.

- A blackboard or large flannel board, displaying information about trail conditions, such as snow and excessive mud, and use levels. These displays could be

updated easily, when new information was received. Such a board would be time-saving; hikers interested only in registering and learning which trails were crowded, for example, could do so without waiting to see a naturalist. An information board would probably be less expensive, over an entire season, than printed information releases.

• A slide show, pointing out real-life pictorial examples of sensible and depreciative hiking and camping behaviour, or more simply "do's and dont's." Hikers would be exposed to evidence of overuse, such as trail erosion and chopped trees, which they might not otherwise recognize. The slide show could also include illustrations of some management strategies adopted in other parks, such as rationing. Ideally, these would be presented in a positive way, showing how all can benefit, managers from fewer maintenance and environmental problems, and hikers from an enhanced backcountry experience. Fazio and Gilbert concluded, on the basis of Rocky Mountain National Park user responses to a post-visit questionnaire, that a slide exhibit was significantly more effective than other media (e.g., brochures, statewide television broadcasts, and illustrated newspaper feature articles) in increasing visitors' knowledge of low-impact camping concepts and procedures (Fazio and Gilbert, 1974, page 755). A slide show could be quite inexpensive, if it were designed so that no narration was needed and visitors could activate it with a switch.

(3) That a "hiking naturalist" be hired, as a specialist in backcountry environmental problems and advocate of hiker needs (liaison between hikers and the administration):

The "hiking naturalist" would have three primary functions:

- To observe and document changes in backcountry conditions (e.g., erosion, deterioration of the meadows, decreased wood supply, increased litter, and the effects of dogs on the environment) monitoring these on an ongoing basis,

- To establish a rapport with backcountry hikers, determining their needs and preferences regarding management, and relaying these to the appropriate decision-makers,

- To attempt to lower the incidence of depreciative behaviour, by explaining backcountry regulations to hikers. It is felt that most violators, such as those camping outside designated areas or leaving campfires burning, are not knowingly behaving unwisely, and would probably respond willingly to suggestions made by the hiking naturalist. Hikers surveyed on the Heather Trail generally supported the idea of a "patrol," and it is thus believed that a hiking naturalist would be welcomed in the backcountry.

The hiking naturalist could operate in one of at least two ways, considering that weekend use of the Heather Trail is relatively heavy, while Monday through Thursday numbers

are low. He or she could spend Friday through Sunday periods interacting with hikers on the trail and in campgrounds, while using Mondays through Thursdays to gather biophysical data and make observations regarding environmental change, and backcountry maintenance and rehabilitation needs. Alternatively, all these tasks could be performed on weekends, and the naturalist would spend weekdays working on displays, the slide show, library, and registration data at the Nature House. Naturally, there are other possibilities.

Perhaps not one but two hiking naturalists should be hired. Not only could they divide the field work, but they might also work more efficiently and enjoy their jobs to a greater degree, as a result of each other's company. It is difficult to predict a person's emotional response to being alone in the backcountry, especially if he or she were to experience periods of complete isolation. Two hiking naturalists would provide each other with some degree of security and reinforcement, it is felt, even if they were not always working together. Cost would undoubtedly be a deciding factor in the choice of one or two, or any number of hiking naturalists. It is suggested that university students be hired, either one student trained in ecology, or two students, with at least one having a behavioural sciences background as well as some environmental expertise. The student(s) could be housed in the area where park staff live. It is estimated that a hiking naturalist paid at \$800

a month would cost the park \$3200, for one month of preparation and three of fieldwork and Nature House duties. For two students the seasonal cost would be \$6400, not an unreasonably high figure, when one realizes that not only the park but all British Columbia hikers would benefit from the expenditure.

(4) That trail maintenance be geared towards minimizing the adverse impact of hikers on the biophysical environment, particularly the alpine meadows:

It is recommended that greater attention be given to the deterioration of the alpine meadows and widening of the trail, which appears to be a problem at the present time, and may be worsening as use increases. Management attention is especially needed as snowmelt is finishing and the particularly vulnerable inundated areas are receiving human impact. An individual or small team, such as the trail crew or hiking naturalists could perform a relatively simple effort and cover the entire length of meadows trail, as far as Nicomen Ridge, in two days, three including the return trip. It is suggested that stepping-stones be placed along and in the trail over likely problem areas. Unlike corduroy or gravel, rocks would not have to be brought in from the outside, and would be a fairly unobtrusive protection measure. Care should be taken to place the rocks in an asymmetrical "haphazard" fashion, considering many hikers' sensitivity and aversion to signs of planned development in the backcountry.

(5) That a new loop trail be constructed, providing access to the tops of the Three Brothers mountains:

The recommended Three Brothers mountaintops loop trail is envisioned for day use; that is, side trips by hikers staying in a designated camping area and day users wanting a fifteen to sixteen mile trip. The provision of DWC's on this trail is not recommended, since there does not appear to be a need for more overnight camping space on the Heather Trail, and a campsite would greatly increase the adverse impact of hikers on the Three Brothers. Although the number of Heather Trail hikers climbing the Three Brothers is not particularly high (about 20%), each hiking group blazes its own route. The impact exerted and damage to vegetation is consequently spread over a large area, though it may be relatively light in any one spot. Considering that ten years ago the natural vegetation on dry ridges and exposed areas, such as the Three Brothers, was being destroyed by human activity (Underhill, 1966, page 5), and given the increased human use over this time period, it is believed that steps should be taken now to preserve a maximum amount of the meadows. Providing hikers with an opportunity to reach the tops of the Three Brothers "peaks," while limiting their impact to one two or three foot strip, is suggested as a preservation measure. This proposed trail could begin where the Heather Trail bypasses the First Brother, and rejoin the Heather Trail near Kicking Horse, approximately one-half mile beyond the Third Brother.

(6) That park managers participate in workshops and seminars dealing with biophysical and psychological carrying capacity problems in the backcountry:

These workshops are seen as necessary for several reasons. Managers lacking an understanding of backcountry problems, as well as the personnel and time required to cope with them. The workshop setting would create an opportunity for managers to improve their ability to cope with demands on the backcountry. Many managers received their training and early experience in an era when considerably less emphasis was placed on the backcountry, relative to other aspects of parks. Fewer hikers in past years meant that less pressure was placed on the backcountry environment. Unfortunately, there do not seem to be opportunities today for managers to update their knowledge and acquire a better understanding of park management priorities which have surfaced in the last ten years. In the workshop setting managers could share the problems they have faced and the solutions they have developed, while benefitting from the ideas of others who have been faced with similar situations.

Sound backcountry planning, then, must look ahead. To wait until biophysical and psychological carrying capacity problems demand immediate, intensive management input, is unwise. By this time the situation may have deteriorated to the point where the logical remedial action will be ineffective. It is felt, then, that the adoption of these six recommendations can provide a valuable foundation

required for sensible management efforts. Implementation of these recommendations would lead to greater sensitivity and knowledge for both the public and managers, with regard to backcountry problems, needs, and goals. It is likely, as well, that the measures indicated would lower the likelihood that some severe environmental problems will surface soon. Consequently, the Heather Trail environment and the backcountry experience obtained by hikers using it would be maintained at the level desired by all concerned.

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APPENDIX 1
TABLES

TABLE IAGE

"How old are you?"

<u>Years</u>	<u>#</u>	<u>%</u>
15-19	7	12.3
20-24	19	33.3
25-29	27	29.8
30-34	6	10.5
35-39	2	3.5
40-44	4	7.0
45-49	1	1.8
50+	1	1.8

TABLE IIEXPERIENCE

"For how many years have you taken backpacking
trips of at least two nights?"

<u>Years</u>	<u>#</u>	<u>%</u>
0	10	17.5
1	6	10.5
2	10	17.5
3	7	12.2
4	5	8.8
5	5	8.8
6-9	4	7.1
10+	10	17.5

TABLE IIIEDUCATION

"How many years of formal education have you had?"

	<u>Heather Trail</u> <u>Users</u>	<u>Canadian</u> <u>Population**</u>
<u>Amount Completed</u>	<u>%</u>	<u>%</u>
Some H.S.	8.8	35.0
Finish H.S.	17.5	18.9
Some Univ.	28.1	6.9
Univ. Degree	14.0	5.9
Grad. Studies	31.6	-

** Source: Statistics Canada monthly survey of the Canadian labour force, ages 14 and over, April, 1972.

TABLE IVPLACE OF ORIGIN

<u>Location</u>	<u>#</u>	<u>%</u>
Lower Mainland	36	63.2
Fraser Valley	11	19.3
Vanc'r Island	3	5.3
Thompson-Okanagan	3	5.3
Other Canada	1	1.8
United States	3	5.3

TABLE V

ATTRACTION OF MANNING PARK

"Why did your group choose Manning Park?"

<u>Reason</u>	<u>#</u>	<u>%</u>
Near Vanc'r or Fraser Valley	14	24.6
Alpine Meadows	11	19.3
Friend's Suggestion	9	15.8
New Experience	7	12.3
Variety of Trails	6	10.5
Good Weather	3	5.3
Snow Melted	2	3.5
Fishing	2	3.5
Didn't Know	3	5.3

TABLE VI

ATTRACTION OF HEATHER TRAIL

"Why did your group choose the Heather Trail?"

<u>Reason</u>	<u>#</u>	<u>%</u>
Alpine Flowers	26	45.6
Perfect Length	12	21.1
Ease of Trail	10	17.5
Friend's Advice	10	17.5
Easy Road Access	6	10.5
Three Brothers	6	10.5
Naturalist's Advice	5	8.8

TABLE VII

INFORMATION SOURCES

"Where did you get information about the
Heather Trail?"

<u>Source</u>	<u>#</u>	<u>%</u>
Friend or Family	28	57.0
<u>Exploring Manning Park</u>	25	49.1
<u>103 Hikes</u>	19	33.0
Nature House map	11	22.4
Nature House	9	18.0
Nature Hut	3	7.0
Parks Branch	0	0.0

TABLE VIIIGROUP SIZE

<u>Members</u>	<u>#</u>	<u>%</u>
1	1	2.0
2	22	43.1
3	11	21.6
4	5	9.8
5	6	11.8
6-7	3	5.9
10+	3	6.0

TABLE IXTRIP LENGTH

<u>Nights</u>	<u>#</u>	<u>%</u>
1	17	29.8
2	21	36.8
3	12	21.1
4	2	3.5
5	2	3.5
6	3	5.3

TABLE XDESIRABLE TREATMENT OF MUD PATCHES

"Should crossing through muddy areas of the trail be made easier?"

<u>Response</u>	<u>#</u>	<u>%</u>
No-Leave As Is	34	59.6
Stepping Stones	12	21.1
Bridges	4	7.0
Logs or Corduroy	7	12.3

TABLE XISIGNS REQUESTED

"Is there any information you would like to
have presented along the trail?"

<u>Response</u>	<u>#</u>	<u>%</u>
No Signs	24	42.1
Mileage Markers	12	21.1
Interpretive Information	10	17.5
Distance to Camps	9	15.7
Rules	2	3.5

TABLE XIIMANAGEMENT OF LITTER

"Would you like to see a place provided for garbage disposal in the backcountry?"

"Would you like to see litterbags given to hikers?"

<u>Response</u>	<u>Garbage Disposal</u>		<u>Litter Bags</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Yes	14	24.6	24	42.1
Qualified Yes	5	8.8	5	8.8
Neutral-Mixed	6	10.5	4	7.0
Qualified No	2	3.5	5	8.8
No	30	52.6	19	33.3

TABLE XIII

PROVISION OF FIREWOOD

"Would you like to see cut firewood provided here?"

<u>Response</u>	<u>New</u>		<u>Campsites</u>		<u>Nicomien</u>		<u>Total</u>	
	<u>#</u>	<u>%</u>	<u>Old</u>	<u>%</u>	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Yes	2	12.5	6	42.9	5	26.3	16	28.1
Qualified Yes	2	12.5	2	14.3	4	21.1	15	5.8
Neutral-Mixed	3	18.8	1	7.1	3	15.8	7	12.3
Qualified No	2	12.5	1	7.1	0	0.0	3	5.8
No	7	43.8	4	28.6	7	36.8	22	38.6

TABLE XIV

MEAN OVERALL REACTION TO HIKER NUMBERS**

(Where 8=Very Pleasant and 0=Very Unpleasant)

<u>Hiker Groups</u> <u>In Question</u>	<u>Mean</u> <u>Response</u>
Zero	5.426
Two	5.981
Four	5.722
Eight	4.556
Twelve	3.444
Sixteen	2.519

**See text pages 61-63 for a detailed explanation.

TABLE XVIDEAL NUMBER OF CAMPED GROUPS

"What would be the ideal, most comfortable number of groups in this campsite, besides yours?"

<u>Ideal Number of Camped Groups</u>	<u>#</u>	<u>%</u>
Zero	8	15.4
One	1	1.9
Two	9	17.3
Three	7	13.5
Four	8	15.4
Five	3	5.8
Six	11	21.2
Seven	1	1.9
Eight	2	3.8
Ten	1	1.9
Over Ten	1	1.9

TABLE XVIMAXIMUM TOLERABLE NUMBER OF CAMPED GROUPS

"What would be the maximum number of groups you could take here before you would move away?"

<u>Maximum Number Camped Groups</u>	<u>#</u>	<u>%</u>
Three	2	4.1
Four	5	10.2
Five	4	8.2
Six	6	12.2
Seven	3	6.1
Eight	2	4.1
Nine	2	4.1
Ten	14	28.6
Over Ten	11	22.4

TABLE XVIIDEPRECIATIVE BEHAVIOUR
OBSERVED BY INTERVIEWERS

<u>Behaviour</u>	<u>% Observed</u>
Littered	21.9
Left Untidy Camp	19.4
Made New Firepit	18.0
Left Fire Going	14.8
Hacked Trees	11.1

TABLE XVIII

LIMITATION OF CAMPFIRE

"If firewood supplies become a problem, should hikers have to carry stoves and limit campfires?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	43	75.4
Qualified Yes	6	10.5
Neutral-Mixed	1	1.8
Qualified No	2	3.5
No	5	8.8

TABLE XIXFEES

"Should backcountry hikers pay a fee to help cover
the costs of trail and campsite maintenance?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	22	38.6
Neutral-Mixed	8	14.0
No	27	47.3

TABLE XXDOGS"Should dogs be...?"

<u>Response</u>	<u>#</u>	<u>%</u>
Free Always	12	25.2
Free in Camp, Leashed on Trail	1	2.1
Free on Trail, Leashed in Camp	9	12.7
Leashed Always	4	8.2
Not Permitted	22	45.8

TABLE XXIPARTY SIZE LIMITS

"Do you think hiking parties should be...?"

<u>Response</u>	<u>#</u>	<u>%</u>
Not limited	22	45.8
Limited to 6	20	41.6
Limited to 12	6	12.5
Limited to 20	0	0.0

TABLE XXIIREGISTRATION SYSTEM

"Would you favour a compulsory registration
system for this trail?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	29	61.5
No Cpinion	6	10.3
No	14	29.2

TABLE XXIIIPATROLS

"Should the Heather Trail and campsites be patrolled
in summer (visited by a park staff member)?"

<u>Response</u>	<u>#</u>	<u>%</u>
Not At All	6	12.5
Twice A Week	14	29.2
Weekly	21	43.7
Twice A Month	5	10.5
Monthly	2	4.2

TABLE XXIVRESPONSIBILITY FOR DAMAGES CAUSED

"Should backcountry campers be responsible for damages caused, such as hacked branches and new firepits?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	35	73
No Opinion	5	10.7
No	8	16.3

TABLE XXVRATIONING SYSTEMS

"How would you feel about the implementation of a rationing system for this area?"

<u>Response</u>	<u>Had Used</u>		<u>Had Not Used</u>	
	<u>#</u>	<u>%</u>	<u>#</u>	<u>%</u>
Positive	8	14.0	2	3.5
Tolerate	4	7.0	11	19.3
Negative	3	5.3	27	47.4
Undecided	0	0.0	2	3.5

TABLE XXVI

PREFERRED TYPE OF RATIONING SYSTEM

"Which of the following rationing methods would you most prefer?"**

<u>Response</u>	<u>#</u>	<u>%</u>
1st-Come 1st-Served	7	30.4
Mail Reservation	5	21.7
1st-Come 1st-Served plus Mail Reservation	9	39.1
Lottery	0	0.0
1st-Come 1st-Served plus Lottery	1	4.3
Not Sure	1	4.3

**Only those respondents favouring rationing were asked this question.

TABLE XXVIIADVANCE SIGNUP FOR CAMPSITES

"Should rationing include signup for campsites?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	14	29.5
Neutral	27	55.2
No	8	15.3

TABLE XXVIIIADVANCE SIGNUP FOR INDIVIDUAL SPOTS

"Should rationing include signup for individual spots, such as #6 at Buckhorn?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	7	14.6
Neutral	32	66.7
No	9	18.7

TABLE XXIXELIMINATION OF ROAD ACCESS

"Should the road to the meadows be closed to backpackers, who would instead hike up from the highway?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	13	27.1
Neutral	25	52.0
No	10	20.8

TABLE XXXCERTIFICATION

"Should hikers have to pass a test covering backcountry behaviour and ecology principles before they use the trail?"

<u>Response</u>	<u>#</u>	<u>%</u>
Yes	14	29.2
Neutral	24	50.0
No	10	20.8

APPENDIX 2
QUESTIONNAIRES

MANNING PARK BACKCOUNTRY QUESTIONNAIRESection A: Previous Experience

-----How many backcountry hikes of two or more nights have you made in the last two years?

-----For how many years have you been making these trips?

-----How many visits to Manning Park have you made?

-----On this trip so far, how many nights have you spent in the backcountry?

(IF THIS IS NOT FIRST TIME) What areas in the park have you visited on earlier trips?

-----How long do you expect to be in the backcountry?

Section B: Trip Characteristics

-----Why did you choose Manning Park for this trip?

-----How did you get to the park?

-----How many people are in your group?

Why did you select this route?

Did you receive advice or suggestions as to trip and route planning? From whom? Did you follow them?

----- (IF RESPONDENT STAYED ANYWHERE FOR MORE THAN ONE NIGHT)
Why did your group stay at-----for---nights?

-----Where do you plan to go from here, to complete your trip?

-----Have you made any alterations in your route since you set out? Why?

Section C: Backcountry Facilities

-----Would you say trail conditions are excellent, good, fair, or poor?

(IF FAIR OR POOR) What are the problems you've noticed? Would you like to see anything done to the trails you've taken?

----- Have you done any bushwhacking on this trip?

(IF YES) Where did you bushwhack?

----- Would you like to see a trail cut there?

----- Are wider or sturdier bridges needed across streams?

----- Do you think that crossing through muddy areas should be made easier?

What do you suggest?

----- Are trails generally well-marked?

Where are better markings needed?

Is there information besides the trail name itself that you like to see on trails?

----- Do you like to see cut firewood provided in the backcountry? Why or why not?

----- Do you think that a place to leave one's garbage should be provided in the backcountry?

----- Would you like to see litterbags given to hikers?

----- Did you expect this campsite to be more primitive, less primitive, or about like it is?

----- Do you cook with a fire or stove?

(IF STOVE) Why do you use a stove? Do you ever use a fire anyway, for purposes other than cooking?

(IF FIRE OR BOTH) On this trip, have you had any trouble finding enough firewood?

----- How many fire pits are needed at this campsite, in your opinion?

Is there anything else regarding backcountry facilities, which you'd like to mention now?

Section D: Backcountry Interactions

----- About how many groups have you seen on the trail today?

----- About how many of these did you stop to converse with?

I would like to get an idea of how you would feel about encountering different numbers of people while you hike. Please "rate" your feelings on a continuum from "Very Pleasant" to "Very Unpleasant," by placing a slash mark at the point on the line which best matches your feelings.

Very Pleasant_____Very Unpleasant

Very Pleasant_____Very Unpleasant

Very Pleasant_____Very Unpleasant

Very Pleasant_____Very Unpleasant

Very Pleasant_____Very Unpleasant

Very Pleasant_____Very Unpleasant

-----Before you came to Manning, did you expect to see more people, fewer people, or about the same number you're seeing on trails?

-----For this campsite, what do you feel would be the ideal or most comfortable number of groups, in addition to yours?

-----For this campsite, what do you feel would be the maximum number of groups you could tolerate before you'd move away?

-----Before arriving at this campsite, had you expected to find more people, fewer people, or the same number of people you're encountering?

(IF RESPONDENT STAYED IN AN AREA NOT DESIGNATED AS A CAMPSITE) Why did you camp in an area not designated as a wilderness campsite?

Section F: Management Alternatives

-----Have you ever visited a wilderness area where a permit was required?

(IF YES) What were your feelings about the permit system used there?

(IF NO) How would you feel about writing away for a permit to hike for a specific number of days in the backcountry here?

-----Suppose that, under the permit system, you could not get a permit to use Manning Park for the time available

to you. Where would you go instead?

----- Do you think that backcountry hikers should pay a fee to help cover the costs of trail and campsite maintenance?

----- If firewood supply becomes a problem, do you think backpackers should be required to use stoves, and that campfires be limited?

----- Should more backcountry trails be cut? More campsites created on the new trail(s)?

----- Are more wilderness campsites needed on this trail?

Thank you very much for allowing me to speak with you. Your answers will be very helpful to me. I would like to ask you a couple of personal questions for the purpose of background data comparisons.

Section F: Background Data

----- What is your age?

----- How many years of formal education have you had?

----- What is your occupation?

Would you be willing to answer some further questions by mail in a couple of months?

Address_

Section G: Interviewer Observations

Date_____ Time_____ Weather_

Group composed of Family_____ Friends_____ Both_

----- Other groups in campsite

----- Fire pits in campsite

----- Much _____ Some _____ Little _____ No
interaction between respondent's group and others.

Respondent located his camp _____ Far from _____ Intermediate
----- Near other groups. ----- Was not observed.

Did respondent locate on terrain so that others could easily camp nearby?

Was respondent observed littering?

Was he observed hacking branches?

Did respondent make an effort to clean up camp?

Bury fires?

Did respondent's group make a new fire pit?
(IF YES) Were there others remaining which could have been used?

Condition of respondent's campsite:
_____Clean _____Some litter _____Much litter

Evidence of hacked branches in area:
_____None _____Some _____Much

Natural firewood supply: _____Abundant _____Some _____Little

Any problems mentioned spontaneously; e.g., litter, noise, etc.

HEATHER TRAIL FOLLOW-UP QUESTIONNAIRE

How did you get information about Manning Park and the Heather Trail for your trip? (Check all that apply.)

- ☐ Friend or family
☐ Spoke with naturalist at alpine meadows hut
☐ Pamphlet or map from Nature House
☐ Exploring Manning Park book
☐ 103 Hikes in Southwestern B.C. Book
☐ Information from the Parks Branch in Victoria
☐ Own previous experience

Before you arrived at Manning, did you know which trail you would take? ☐ Yes ☐ No

If no, how did you finally decide?

When you hiked the Heather Trail did you have any difficulty in finding a spot to pitch your tent at

- ☐ Not at all
☐ Buckhorn (first campsite)
☐ Kicking Horse (second campsite)
☐ Nicomen Lake

Do you feel that the Heather Trail should be patrolled in summer (visited by a park staff member)?

- ☐ Not at all ☐ Weekly ☐ Monthly
☐ Twice a week ☐ Twice a month

Did you bring a dog on the trail? ☐ Yes ☐ No

Do you feel that dogs should be

- ☐ permitted and not restricted in any way?
☐ permitted: leashed on trails but free in campsites?
☐ permitted: leashed in campsites but free on trails?

_____permitted: leashed or tied at all times?

_____not permitted?

Would you like to see a compulsory registration system at the beginning of the trail?

_____Yes _____No

Do you think the Heather Trail could ever have "too many people?"

_____Yes _____No Opinion _____No

Do you think that use of the Heather Trail should be limited or rationed during the "busy" months of July and August?

_____a) Yes, all the time

_____b) Yes, but only Friday-Sunday and holidays

_____c) No

_____d) No Opinion

Why?

If you answered a) or b), please check the system you favour.

_____1) A limited number of permits issued at the park on a first-come first-served basis.

_____2) A limited number of permits given out in a lottery.

_____3) A limited number of permits given out in a mail reservation system.

_____4) A limited number of permits given out in a geographic quota system (for example, a certain number given to Vancouver residents, to the Island, Okanagan, etc.).

_____5) 1) and 2)

_____6) 1) and 3)

Assume for a moment that the park has adopted a rationing system of some type. How would you feel about the following:

Signing up for one of the designated campsites along the trail in advance of your trip?

_____Favour _____Neutral _____Oppose

Being matched with a specific camping place within a larger campsite; e.g., #6 at Buckhorn?

_____Favour _____Neutral _____Oppose

Being held responsible for any damage done to that area; e.g., branches hacked off trees, litter, new fire scars, etc.?

_____Favour _____Neutral _____Oppose

There are ways of limiting use on a particular trail, by making it harder to use, without actually excluding anybody. Please indicate your feeling about the following:

People who want to hike the Heather Trail would begin their hike down the mountain, and would have to hike several miles uphill to reach the meadows (all of the road to the meadows would be open only to people using the short nature paths).

_____Favour _____Neutral _____Oppose

People wanting to use the Heather Trail would have to pass a test, demonstrating an understanding of the forest and alpine meadows environments and ways of lessening man's impact on them.

_____Favour _____Neutral _____Oppose

Building more trails in the alpine meadows of Manning, which would not go near the Heather Trail, so human use would be more evenly spread around the area.

_____Favour _____Neutral _____Oppose

Do you think hiking parties should

_____not be limited

_____be limited to 6 people

_____be limited to 12 people

_____be limited to 20 people?

Why?

Please feel free to make additional comments about these questions, or to add any other opinicns on related topics.
THANK YOU VERY MUCH FOR YOUR COOPERATION AND INTEREST.