EVALUATING THE SUSCEPTIBILITY TO CONFLICT OF OUTDOOR RECREATION ACTIVITIES: A CASE STUDY OF BACKCOUNTRY SKIING, HELICOPTER SKIING, AND SNOWMOBILING IN THE REVELSTOKE REGION OF BRITISH COLUMBIA, CANADA

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ABSTRACT

Powder snow is becoming an increasingly sought-after resource in the backcountry areas of British Columbia. This thesis focuses on conflicts between backcountry skiing, helicopter skiing, and snowmobiling in British Columbia, with particular emphasis on the social-psychological causes of the conflicts. The relative susceptibility to conflict of each activity is addressed through an examination of the literature on outdoor recreation conflict, and a series of statements are developed which are aimed at identifying the social-psychological causes of conflict for each individual activity.

The statements developed out of the literature are applied to a case study based on research done in the Revelstoke region of British Columbia. Surveys were distributed to backcountry skiers, helicopter skiers and snowmobilers and, in this thesis, the survey data is presented and analysed with a view to developing an understanding of the differences between the demographic profiles and attitudes of participants in each of the three winter activities.

In the case of backcountry skiing, helicopter skiing, and snowmobiling, it is evident that there exists a sort of "hierarchy of conflict" with backcountry skiing being much more susceptible to conflict than either of the other activities. This difference in susceptibility is explained through an examination of the qualities of each activity which make it more or less susceptible to conflict, and it is demonstrated that the susceptibility to conflict of

outdoor recreation activities can be predicted through the examination of a set of particular characteristics inherent to each individual activity.

Finally, the policy governing commercial recreation in British Columbia is examined in terms of its efficacy in identifying and preventing potential conflicts. Some suggestions are made for improving policy and policy development. The conflicts between backcountry skiing, helicopter skiing, and snowmobiling can be seen as a microcosm of the kinds of conflicts which arise between competing users of any natural resource. Some of the findings of this thesis have very broad implications, including the demonstration of the following: the apparent dichotomy between environmental impact and economic interests; the globalisation of the economy; the importance of public participation in the development of policy; the inadequacy of zoning as a means of conflict prevention; the need for an evolution from a "frontier" mentality to future planning; the importance of responsibilities, as well as rights; the need for more tools for managing conflicts.

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I. INTRODUCTION

A. Objectives

The principal objectives of this thesis are to identify the social-psychological causes of recreation conflict, based on the literature which addresses such conflict and to determine whether these causes are present in the three winter recreation activities which were studied: backcountry skiing, helicopter skiing, and snowmobiling. Also the relative susceptibility to conflict of each activity is addressed and recommendations made in terms of policy development for the regulation of these activities, given their specific characteristics and susceptibility to conflict.

In order to achieve these objectives, the literature on outdoor recreation conflict is reviewed and a series of statements are developed which address the susceptibility to conflict of outdoor recreation activities. A case study of these three activities is presented, focusing on the region around Revelstoke, in eastern British Columbia. The nature, history of development, and growth outlook of all three activities is discussed. The results of a survey project examining the activities are provided and the survey results are analysed using the statements developed out of the literature.

Having determined the characteristics of backcountry skiing, helicopter skiing, and snowmobiling which make them more or less susceptible to conflict, the recently-released Commercial Backcountry Recreation Policy of the Province of British

Columbia is evaluated in terms of its effectiveness for the prevention of inter-activity conflicts.

Finally, recommendations are made for future policy development. These recommendations are based on a recognition of the social-psychological sources of conflict which must be considered in the management of recreation resources. Areas for future research are also suggested.

B. Definitions

While conflict can have many different definitions, for the purpose of this thesis, the definition used is that which was presented by Jacob and Schreyer (1980) in their seminal work on recreation conflict.

> For an individual, conflict is defined as goal interference attributed to another's behaviour. (Jacob and Schreyer 1980)

This places the causes of conflict within the social-psychological realm and avoids viewing recreation conflict as simply an inter-activity phenomenon. (Jacob and Shreyer 1980)

The specific activities addressed in this thesis are: backcountry skiing, heliskiing, and snowmobiling. For the purposes of this thesis, the following descriptions are used to define each activity:

Backcountry skiing is skiing which takes place outside of established ski areas (either downhill or cross-country) where the backcountry skiers rely on self-propulsion for ascending slopes. Backcountry skiers may use several types of ski equipment including cross-country skis, telemark skis, mountaineering skis or regular downhill skis. Backcountry skiers may use some mechanised means of transportation (e.g., helicopter, snowmobile) to reach a remote ski area, but they do not rely on mechanised transport for ascending slopes.

Helicopter skiing is skiing where the participants rely on a helicopter for ascending slopes. Groups of up to twelve skiers are shuttled to the top of ski runs by a helicopter. Skiers then ski down the slope and are picked up at the bottom of the run by the helicopter. Skiers may use downhill skis, telemark skis, special powder skis, or snowboards.

Snowmobiling involves the recreational riding of snow machines. These one or two person machines can be used on groomed trails specifically created for snowmobiles or they can be used to venture into remote wilderness areas.

All three activities can be undertaken on either a commercial basis or independently, but the reality is that heli-skiing is rarely undertaken on an independent basis, and there is relatively little commercial snowmobile activity. Commercial backcountry ski operators do provide access to remote wilderness cabins for backcountry skiers, so

there are quite a few backcountry skiers who are participating in the activity through commercial operations, however, there is a also a strong tradition of independent backcountry skiing in British Columbia.

In this thesis, all the activities discussed are taking place on Crown Land, outside of provincial or national parks. Crown Land is the publicly owned and publicly managed land within the Province of British Columbia. Two provincial ministries are chiefly responsible for managing this land: the Ministry of Forests and the Ministry of Environment, Lands and Parks. The Ministry of Environment, Lands and Parks is the ministry which has control over commercial and public recreational uses of Crown Land.

C. Context

In order for recreation resource managers to be able to effectively plan for conflict prevention, it is critical that they understand the sources of conflict (Owens 1985). If the chief objective of public management of recreation areas is to ensure a quality experience for recreationists, then it is a primary responsibility of managers to avoid the degradation of the experience because of the occurrence of conflicts (Schreyer 1990, Gramman and Burdge 1981). Truly effective managers must be able to "understand and anticipate conflict, rather than simply react" (Owens 1985).

Using winter recreation activities - two motorised, one non-motorised - as the focus of a case study, this thesis uses the literature on social-psychological causes of conflict to

propose recommendations for developing policy governing the recreational uses of public lands in British Columbia. Particular importance is placed on defining the relative susceptibility to conflict of the activities. Some recreation activities are more likely to be adversely affected by the presence of or interaction with other recreationists. Too often recreation conflicts are seen as problems of "crowding" or competition for resources. This thesis emphasises the importance of determining the qualities of the experience which recreationists are seeking and demonstrates how resource managers need to be aware of the "hierarchy of conflict" which exists between different recreation activities.

D. Significance

There is very little information about backcountry skiing, heliskiing, or snowmobiling in British Columbia, and yet, all of these activities are growing in popularity. When this growth is combined with predictions of population increases for BC, it becomes apparent that there are many potential conflicts brewing in BC's backcountry areas. The information presented in this thesis adds to the body of knowledge which exists about these winter activities. In addition, through the application of recreation conflict theories to a specific case study, there is a contribution to the literature on the subject of recreation conflict.

E. Methodology

In order to develop an understanding of the sources of recreation conflict, a review of the literature is undertaken. Particular emphasis is placed on the literature which

addresses social-psychological causes of conflict. From the literature, a number of statements are developed which address the susceptibility to conflict of outdoor recreation activities. These statements are then applied to the case study.

The case study addresses backcountry skiing, heliskiing, and snowmobiling which is taking place on the periphery of two National Parks in eastern British Columbia: Mount Revelstoke National Park and Glacier National Park. Throughout the thesis, this area is referred to as the Revelstoke region. The area is in the heart of the Columbia Mountain range and it is a very popular destination for winter recreationists. The popularity of the area is primarily based on its climate and geography combining to produce perfect powder snow. The area is within the "interior wet" belt between 300 and 400 kilometres inland from the Pacific Coast. The climate of this interior wet belt is moderated by Pacific air masses which bring a lot of moisture to the area providing an annual snowpack of between three and five metres in depth. The Pacific air masses provide enough moisture for a good snowpack, but the area is far enough inland that there is very little winter rain. Also, the relative proximity to the coast prevents the extremely cold temperatures found further east in the Rocky Mountains. In addition, the treeline is quite high in the Columbia range (approximately 7500 feet) which is an advantage because the trees serve as important visual references for recreationists using the area and for helicopter pilots transporting skiers. At the same time, the skiing elevations are relatively low (below 11,000 feet above sea level), this means that no oxygen is required for flying and the air is dense enough to allow helicopters to operate efficiently.

The Revelstoke region is also of particular interest because it is an area which has already seen quite serious conflicts between heliskiers and backcountry skiers, and there have been some less serious problems between heliskiers and snowmobilers. This makes the area particularly useful as a case study of the nature of the conflicts which can arise between these activities. Over the past few years, there has been increasing pressure on the winter recreation resources of the Revelstoke region. There are several reasons for this increasing pressure. Firstly, due to increased population density and environmental concerns, helicopter skiing has been severely restricted elsewhere in the world, most notably in Europe. Although British Columbia has long been the centre of world-wide heliskiing, these restrictions have made BC even more popular with those seeking the unique thrill of heliskiing.

As well, there has been an increase in the number of people participating in both backcountry skiing and heliskiing. This is probably a result of many factors including increasing population and a greater public interest in engaging in wilderness recreation activities. Many of the skiers who come to British Columbia are from Europe or the United States where greater population density makes it more difficult to enjoy a true wilderness experience. The number of people participating in recreational snowmobiling is also growing extremely rapidly. Changes in technology have made these machines more powerful and more reliable. This makes it very easy for almost anyone to participate in this sport and thus there has been a great increase in its popularity. In both Canada and the United States, snowmobilers are banding together to become a powerful lobby, and

organised groups are working with governments to establish snowmobile trail systems, complete with groomed trails. All of these factors indicate a trend towards growth in the popularity of the activities and thus a trend towards increasing conflict between these three types of activities. All three activities are competing for the same limited resource - powder snow.

As part of a larger study on resource conflict which was undertaken by the Forest Economics and Policy Analysis group at the University of British Columbia, the author was involved in the design and implementation of surveys which were distributed to participants in all three activities: backcountry skiing, heliskiing, and snowmobiling. Due to some differences in the format of the surveys, only the data collected on backcountry skiing and heliskiing can be directly compared. A limited comparison of the snowmobile data is undertaken, using only those questions which were asked of all three groups. The survey data are used to present a profile of the participants in all three activities and to identify their motivations for participation and their perceptions of conflict. The statements developed out of the literature are then applied to determine the susceptibility to conflict of each activity.

Finally, a review is made of the current government policy governing the use of Crown Land for recreational purposes, commercially and independently. The weaknesses of the policy in terms of conflict avoidance or prevention are highlighted and recommendations are made for future policy development which take into

consideration the causes of recreation conflict, with particular emphasis on the activities presented in the case study.

F. Scope and Limitations

This thesis focuses on the social-psychological causes of conflict as presented in the literature and presents a case study of backcountry skiing, heliskiing and snowmobiling in British Columbia. The following limitations are acknowledge by the author:

Limited Literature - In undertaking a review of the literature on recreation conflict, it became obvious that this literature is somewhat limited. This problem seems to be widely recognised and is reflected in the fact that the seminal work on recreation conflict to date is still Jacob and Shreyer (1980), and it is almost universally quoted in articles on recreation conflict.

Focused on Specific Activities - While this thesis specifically addresses backcountry skiing, heliskiing, and snowmobiling in the Revelstoke region of eastern British Columbia, some generalisations can be made about these activities in other areas and about other activities with similar characteristics.

Activities on Crown Land Only - All of the activities discussed in this paper are taking place on Crown Land. The paper does not address conflicts which may occur on privately owned lands or within parks.

Focus on Inter-Activity Conflict - While some attempt is made to discuss the interrelationships between the three activities and other resource users (e.g., forest industry) , the focus of this paper is the conflict between the backcountry skiing and heliskiing, with a more limited discussion of the conflicts with snowmobiling.

Limitations in Survey Design - The surveys used to collect information about backcountry skiing and heliskiing were designed by the author in such a way as to facilitate the comparison of the responses; however, the surveys were not designed with the specific objective of using it to discuss inter-activity conflicts, thus some of the conclusions reached are based on personal communications with experts in the industry, or on the expert knowledge of the author[1]. The survey which was distributed to snowmobilers had a significantly different format and therefore snowmobilers were not asked to answer all of the same questions as the skiers. This means that it is impossible to undertake a comprehensive comparison of the three activities, although there are several questions which permit a limited comparison of demographic and attitudinal information.

G. Organisation

The first chapter addresses the objectives, definitions, context, significance, methodology, scope and limitations, and organisation of the thesis.

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[1] The author has been employed as a consultant to the helicopter ski industry since 1990.

The second chapter is a review of the literature on recreation conflict, with a special emphasis on the literature which is concerned with the social-psychological causes of conflict. From the literature review, a series of statements are developed which aim at facilitating a determination of the susceptibility to conflict of recreation activities.

The third chapter is a case study of backcountry skiing, heliskiing, and snowmobiling in British Columbia. The historical development and predictions of future growth for each activity are discussed, along with their relationships with other resource-based activities.

The fourth chapter presents the survey data collected on these activities in the Revelstoke region of British Columbia. The survey is analysed with respect to the susceptibility to conflict factors developed in chapter two.

The fifth chapter consists of an evaluation of the past and present provincial policy governing the recreational use of Crown Land. Also, the current policy is evaluated in terms of its efficacy in addressing the susceptibility to conflict of outdoor recreation activities. Recommendations for future policy development and future areas of research are discussed.

II. CAUSES OF RECREATIONAL CONFLICT

A. The Importance of Identifying the Causes of Conflict

Recreation conflict is not a new problem, researchers have been writing about it for over thirty years, but the problem is intensifying with growing populations and increased pressure on natural resources. In British Columbia, there is an increasing demand on recreation resources for several reasons. Firstly, in the past 25 years, British Columbia's population has grown from 2.25 million in 1971 to 3.76 million in 1995 (Stats BC 1995), and projections indicate an increase of 49% over the next twenty five years to 5.61 million in 2020 (Statistics Canada 1995). This population growth obviously places increased pressure on the natural resources used for recreational purposes, especially when it is coupled with the growing popularity of outdoor recreation activities (Ourom 1993).

The growing popularity of outdoor recreation is an indicator of some very important attitudinal changes which are occurring. North American studies indicate that a broader range of people are becoming involved in outdoor activities (Schreyer 1990). Within the last generation, outdoor recreation participants have expanded from the traditional base of rural residents involved in activities such as hunting, fishing and camping. As North American society has become increasingly urban, the use of the outdoors is changing to reflect urban values and lifestyles (Schreyer 1990). A more diverse population is utilising the backcountry for a wider range of activities. This means that there is a greater likelihood of non-compatible activities coming into contact with one another.

The increasing popularity of outdoor recreation has had an economic impact, as well. Many small communities in British Columbia which have previously been entirely dependent on resource extraction industries are trying to diversify their economic base by capitalising on the boom in tourism and outdoor recreation (Revelstoke Chamber of Commerce 1995). This, coupled with an increase in the tourism industry throughout the province, means that recreational resources are likely to come under even greater pressure in the years to come.

Improvements in technology have also contributed to the increase in recreation conflict. For instance, mountain bikers and hikers have been in conflict in some provincial parks in BC (Thompson 1994). Mountain bikes only really became popular in the last ten years when the technology permitted manufacturers to design and build bikes which allow for easy access to rugged terrain. Prior to the introduction of mountain bikes, this particular conflict did not exist. In the case of snowmobiling, rapid technological improvements in the last decade have completely changed the nature of the sport. In 1975, Allan (1975) concluded that any conflict between snowmobilers and backcountry skiers could be avoided by dividing the conflict area into flats and slopes. At that time, snowmobilers were only capable of running their machines on flat terrain or gentle slopes. In 1995, the situation is completely different. In the past seven years, snowmobiles have become significantly more powerful and the new machines are easily able to climb 30 degree slopes (Fulford 1995). This puts the snowmobilers into direct conflict with skiers, as they are able to gain access to previously inaccessible wilderness areas.

All of these factors - increased population, growth in participation, technological improvements - make it more important than ever for resource managers to manage conflict. In order to ensure that quality recreation experiences are made available to the public, it is very important for these managers to understand the sources of conflict between different activities and to acknowledge the differences between activities in terms of their susceptibility to conflict (Schreyer 1990, Gramman and Burdge 1981, Jacob and Schreyer 1980). A failure to recognise the causes of conflict can lead to poor management of publicly-owned lands (Jacob and Schreyer 1980). According to Gramman and Burdge (1981):

> One of the widely held objectives of public management of recreation areas is to maximise the flow of benefits to people through provision of quality recreational experiences. If, as seems likely, the quality of the recreational experience is reduced through user conflicts, a management problem will exist in that the objective of maximised public benefits will not be fully achieved (Gramman and Burdge 1981).

A failure to address conflict between recreational activities may lead to a reduction in the quality of the experiences offered. Recreationists who find themselves continually in conflict with participants in other activities will either discontinue their use of the area or they will change their expectations to reflect the lower quality of experience available to them (Owens 1984). To avoid this degradation of resources, managers must "understand and anticipate conflict, rather than simply react to established conflicts which may not be easy to eliminate" (Owens 1984).

B. Sources of Conflict

In order to be able to anticipate conflicts, resource managers need to be able to recognise their source. Too often, conflicts are defined in terms of the symptoms of the problem. For instance, fights, vandalism, litter, etc. are identified as conflicts and efforts are made to deal with these problems, but many times there is a failure to identify the causes of the problems (Lindsay 1973, Jacob and Schreyer 1980). There is also a tendency to define conflict as confrontations between participants in different activities (Jacob and Schreyer 1980). This too fails to address the true sources of conflict. In order to be able to make good resource management decisions, it is essential to determine the characteristics of the recreation experience which put activities into conflict with one another.

Several studies have focused on crowding or density as a cause of conflict (Gramman 1982). This is an inadequate explanation for many conflict situations because conflict can occur even when one group fails to come into contact with another activity group. In the case of conflict between snowmobilers and cross-country skiers, many skiers felt that there was a conflict situation merely because there was the possibility of meeting snowmobilers (Jackson and Wong 1982). Even the sight or sound of a helicopter can negatively effect the quality of the recreation experience for backcountry skiers (Beglinger 1993). This means that different groups can have different perceptions of conflict and they are not based simply on competition for resources. The perception of conflict involves recreational orientations and motivations for participation (Jackson and Wong 1982).

Other studies identified different sources of conflict. In their work on conflicts between snowmobilers and cross-country skiers, Knopf and Tyger (1973) explained the conflicts in terms of differing environmental attitudes and preferences for different public land management policies. Driver and Bassett (1974) described conflicts between different river users as being caused by incompatible goals in terms of the type of psychological satisfaction desired by the various groups, as well as differences in definitions of appropriate social behaviour, and crowding. Heberlein and Vaske (1977) looked at fishermen, canoeists, and inner tube floaters and found that each group had very different ideas of what constituted a desirable recreation experience.

1. Goal Interference

Jacob and Shreyer (1980) reviewed studies done in the sixties and seventies, and developed a theory which focuses on the social-psychological causes of recreation conflict. The basic tenet of their theory is that conflict is caused by "goal interference." They define conflict for an individual as "goal interference attributed to another's behaviour" (Jacob and Schreyer 1980). This is based on the assumption that people recreate to achieve outcomes and goals and has a basis in "expectancy-value theory" (Ajzen and Fishbein 1973) and "goal directed and need satisfaction models of leisure behaviour" (Driver and Tocher 1970). Recreation is seen as a means for achieving valued psychological goals or needs, with a goal being defined as:

> any preferred social, psychological or physical outcome of a behaviour that provides incentive for that behaviour (Gramman and Burdge 1981).

Within "goal interference," there are two important concepts. First, goal interference does not imply goal incompatibility. Two groups may have the same goal, but they may come into conflict because they disagree over the way to attain the goal, or opportunities for goal attainment may be limited (Jacob and Shreyer 1980). Secondly, the key component of "goal interference" is the attribution of the interference to some other person or group. A recreationist may not achieve his leisure goal because of a failed piece of equipment or a crowded campground, but he will not necessarily experience conflict, unless he feels that someone else is to blame for the problem (Jacob and Shreyer 1980). Another person's behaviour can lead to him experiencing conflict if that person's behaviour actually alters the desired components of the recreation experience, or if feelings of frustration or failure are blamed on the other person, even if they are not responsible (i.e., scapegoating) (Allport 1958, in Jacob and Schreyer 1980).

> Conflict as goal interference is not an objective state but must be understood as an individual's interpretation and evaluation of past and future social contacts (Jacob and Schreyer 1980).

Ruddell and Gramman (1994) elaborated on the idea of "goal interference" by addressing "goal orientation." "Goal orientation" refers to the difference in importance attached to various components of the recreation experience. Ruddell and Gramman (1994) found that these differences affected the likelihood that an individual would experience conflict. For instance, recreationists whose goals include nature enjoyment (Gramman and Burdge 1981), solitude (Driver and Bassett 1975) and tranquility (Jackson and Wong 1982) are more likely to perceive conflict than individuals pursuing goals such as exercise, thrill

seeking or social recognition (Ruddell and Gramann 1994). Ruddell and Gramann (1994) propose that in actuality, "goal orientation" is likely to be a more important indicator of susceptibility to conflict than "goal interference" alone. They also found that an individual is more vulnerable to conflict when the achievement of a particular goal is dependent on factors beyond the individual's control.

2. Social Contact

A necessary condition for recreation conflict is "social contact," which is defined as "knowledge of another's behaviour" (Jacob and Schreyer 1980). It is not necessary for recreationists to come face-to-face to come into conflict. Just the knowledge that snowmobilers may be in an area is enough to negatively affect the quality of experience for cross-country skiers (Jackson and Wong 1982). And, as mentioned earlier, the mere sound of a helicopter is enough to perturb backcountry skiers (Beglinger 1993). While "social contact" is a necessary condition for conflict, Jacob and Schreyer (1980) also outlined four major factors in conflict. They are:

- activity style
- resource specificity
- mode of experience
- tolerance of lifestyle diversity.

Differences in any or all of these factors does not necessarily mean that a conflict exists between two groups of recreationists because the different recreation groups may not

meet the necessary condition of social contact, but the degree to which differences in these factors are present in any situation can indicate the potential for conflict (Jacob and Schreyer 1980).

3. Activity Style

Activity style refers to the "various personal meanings assigned to an activity" (Jacob and Schreyer 1980). The characteristics of an activity style include: the intensity with which a participant is involved in the activity; the type of style (private vs. status conscious); and the individual's definition of a quality experience.

a) Intensity

According to Jacob and Schreyer (1980):

> The more intense the activity style, the greater the likelihood a social interaction with less intense participants will result in conflict.

The intensity with which people participate in activities can range from a very casual or "one time" involvement in an activity, to strong commitment to the leisure activity to the point of it being a "central life interest" ("preferred behaviour and behavioural settings manifested when a person is given a choice - a critical source of rewards outside of work." (Jacob and Schreyer 1980))

The impact of intensity of involvement was demonstrated by Driver and Bassett (1975) in their study of canoeists on the Au Sable River. One third of the canoeists surveyed were

undecided as to whether there were too many boaters on the river. Nearly half of all the canoeists surveyed were first time users of the river, so it is likely that they were either unaware or indifferent to the controversy which existed on the river and they were unlikely to find the river too crowded as they had no previous experience on the river to compare it with.

At higher intensities of involvement, a person's satisfaction in life is intimately linked with his involvement in the recreation activity. Interpersonal relationships, social values and skills are all part of the activity. People with less intense activity styles are less likely to experience conflict because if they find their goals are not being attained in the activity, they can more easily substitute something else. They have much less invested in the activity. People with a higher intensity activity style are less likely to be satisfied with a substitute activity. According to Jacob and Shreyer, this would mean that skiers who are regular participants in their sport are more likely to perceive conflicts than people who come into the area for a short vacation. The recreationists who are less intensely involved in their activity will not be as sensitive to the impact of the other activities, and if they do perceive a negative impact, they may be more likely to find another activity with which to be involved.

At the same time, intensely involved recreationists are likely to have very strict standards for appropriate behaviour within the context of their activity. This too makes them more prone to conflict because it is likely that only a small number of people will be cognisant of and abide by the same behavioural guidelines (Jacob and Schreyer 1980). There is also a

possibility of conflict when one participant perceives another participant as evaluating the activity as less important. This may come through a perceived "casual involvement" by the less intensely involved recreationist (Jacob and Schreyer 1980). For instance, in the case of winter recreation in the Revelstoke region, many backcountry skiers are local area residents; they may perceive that the heli-skiers, nearly all of whom are from other parts of the world, are less intensely committed to the activity and to the resource because they are not local, regular users of the area.

b) Private vs. Status Conscious

Another factor in activity style is in the status orientation of the participants. Some participants have a private activity style which focuses on the intrinsic rewards of involvement in the activity. Others place an emphasis on status and seek extrinsic rewards (Jacob and Shreyer 1980, Hammitt 1988). When the private activity style confronts the status conscious activity style, conflict may result because the private activity style's disregard for status symbols negates the relevance of the other participant's status hierarchy. Also, intra-activity conflict can arise when people who either have different status hierarchies, or are higher or lower on the status hierarchy must interact (Jacob and Schreyer 1980).

Status hierarchies in recreation are often based on equipment and expertise (Jacob and Schreyer 1980). Within an activity, the status hierarchy may be fairly easy to identify. For instance, a person involved in heliskiing who is status conscious would want to have the newest and best equipment. Between activities it becomes less easy to discern the

hierarchies. For instance, a backcountry skier will probably place a great emphasis on skiing ability. Even a person on old equipment will be acknowledged for his prowess as a skier. If heliskiers are more concerned about having expensive clothing and equipment, they may not recognise the backcountry skier's hierarchy. Obviously these two status hierarchies are valid within their particular activity, but they can be irrelevant to participants in other activities.

c) Expectations

> The more specific the expectations of what constitutes a quality experience, the greater the potential for conflict (Jacob and Schreyer 1980).

People with an intense activity style or at least a great deal of experience in a particular activity or in a particular area are more inclined to come into conflict with other recreationists because they have very specific expectations in terms of defining a quality experience. Determining the quality of an experience requires making comparisons. Participants who have had limited experience in the activity or area are less likely to see others as having a negative impact on their experience. For instance, skiers with less knowledge of an area (i.e., tourists) are less likely to perceive conflict than local users. In their study on canoeists on the Au Sable River, Driver and Bassett (1975) found that less experienced participants were less conflict prone. Also, people with more generalised expectations are more likely to ignore potential conflicts (Jacob and Schreyer 1980).

4. Resource Specificity

A recreationist's relationship to the land base can also play a factor in the development of conflict situations, particularly when a person who places a high value on the resource interacts with a person whose behaviour indicates a lower evaluation (Jacob and Schreyer 1980). Resource specificity is defined as

> the importance an individual attaches to the use of a particular recreation resource (Jacob and Schreyer 1980).

While some estimations of the value of resources may be shared by a whole culture, other relationships are more personalised (Tuan 1974). A personal evaluation of a resource leads to the development of certain personal expectations of appropriate use of the resource (Lee 1972). The same resource can be viewed in many different ways by different users. In Driver and Bassett's (1975) study, two different groups of users saw the river very differently. Fishermen and cottage owners valued the peace and tranquility of the stream, while canoeists saw their trips as opportunities to socialise. Obviously, these two groups would have very different norms of behaviour and when they came into contact, there would be a conflict. This is similar to the difference between backcountry skiers and snowmobilers. The skiers value their tranquility and enjoy recreating in small groups. Snowmobilers value the opportunity to socialise with other people as part of their recreation experience.

The importance attached to a particular place or resource varies with a person's past experience, the degree to which they feel a sense of possession of the place, or the status

associated with knowledge of the place. Studies have found that past experience has a great influence on the evaluation of a place's physical attributes (Fitch 1965). In the Driver and Bassett (1975) study, canoeists with little experience on the river were unlikely to notice any degradation. Also, a person with a long history of participation in a particular area will develop a sense of possession of the place (Lee 1972). They will have very specific expectations about the type of experiences to be found in a certain area and they will have well-defined standards of appropriate behaviour for users of the area (Lee 1972). Regular users of an area may even begin to feel that they have a right to be involved in the management of the resource (Leary 1976). "Outsiders" are not seen as being qualified to manage the resource and should not displace traditional users (Driver and Bassett 1975)

This "possession by knowledge" was seen in the Driver and Bassett (1975) study where the fishermen who objected the most strongly to the use of the river by canoeists were those who spent the most time on the river. This situation could also arise where local area residents are competing for a resource with recreationists from further away. In the case of backcountry skiing and heliskiing in the Revelstoke region, many backcountry skiers are local residents who feel a very strong sense of ownership or right of traditional use of their terrain. Heli-skiers who are frequently from Europe or the US are definitely viewed as "outsiders."

Just as there is a status hierarchy in terms of activity style, there is a status hierarchy based on knowledge of the area. Those who have a more intimate and perhaps heretofore

exclusive relationship with an area are likely to come into conflict with users who do not know the area and who are therefore seen as devaluing the resource (Jacob and Schreyer 1980). Even within an activity, status can be based on the knowledge of the area, in terms of knowing the best places to go, etc. (Jacob and Schreyer 1980).

5. Mode of Experience

There is a range of possible ways of experiencing the resource, in terms of the sensory interaction with the natural environment. In Jacob and Schreyer (1980), they place the modes of experience along a continuum from "unfocused" to "focused." These designations are similar to those of Tuan (1978) who determined that there are two basic ways of experiencing the natural environment - as "space" or as "place." An unfocused or "space" experience is an

> experience of environmental generalities, overall spatial relationships, the lay of the land but not its particulars. Movement, fleeting images and broad sweeping impressions characterise this mode (Jackson 1957, in Jacob and Schreyer 1980).

In an unfocused experience, specific sensory inputs are relatively unimportant. The movement involved in the activity makes it difficult to appreciate details of the environment. The primary goals in an unfocused activity are to move through the environment and to view the scenery. The movement itself may be the primary goal in an unfocused recreation experience; so as long as movement is unimpeded, such activities would not come into conflict with other users.

A focused activity requires an emphasis on "place," an appreciation for the specific details of the surroundings (Tuan 1978). While movement may be involved in a focused activity, there must be an opportunity for participants to stop and closely examine the natural environment. Focused recreationists are looking for an intimate experience with the resource and this relies upon the perception of a complex array of details and specific inputs. This makes focused activities very susceptible to conflict because it is easy for the presence of other recreationists to negatively affect the focus of their experience.

A classic example of a conflict based on focus is that between backcountry or cross-country skiers and snowmobilers. Jackson and Wong (1982) found that the noise of snowmobilers prevented skiers from achieving their recreational goals. Movement is a large part of the snowmobiling experience and it is likely that snowmobiling is a much less focused activity, whereas cross-country skiers, because of their slow movement and the ease with which they can interrupt their activity to enjoy the natural environment, are much more focused.

Participants in focused activities are more likely to have clear ideas of acceptable stimuli in the environment and they are generally more likely to perceive conflicts (Jacob and Schreyer 1980). To participants in unfocused activities, it is relatively unimportant to establish an intimate relationship with the natural environment. They are much more concerned with movement, so unfocused recreationists are less likely to perceive conflicts. Jackson and Wong (1982) found that most snowmobilers did not feel that there was a conflict with cross-country skiers, while the skiers were very concerned about the conflict

they felt existed. There are instances when unfocused recreationists may feel conflict. For instance, because they place a lot of importance on freedom of movement, regulations which restrict their access to areas (i.e., zoning) can cause conflicts (Jacob and Schreyer 1980).

Perhaps the most important aspect of focused vs. unfocused activities is the fact that some elements of the recreation experience are much more sensitive to interference than others (Jacob and Schreyer 1980). For instance, if cross country skiers value tranquility (i.e., silence is an important element of their experience), they will definitely be negatively affected by the presence of noisy snowmobiles. Tranquility is a highly susceptible quality of their recreation experience, making cross country skiers more prone to conflict. In fact, the greater the distance between two activities in terms of the unfocused to focused continuum, the higher the likelihood that those two activities will come into conflict (Jacob and Schreyer 1980).

6. Tolerance for Lifestyle Diversity

Another factor in the development of conflicts can be the difference in lifestyle of the participants, either within one activity or in different types of activities. People tend to associate with other people who have similar characteristics. They share the same values and they provide a source of affirmation in terms of lifestyle (Burch 1969). When two groups meet who are very different and if these differences are seen as undesirable or as potential threats to the achievement of recreation goals, conflict can result (Jacob and Schreyer 1980). This unwillingness to share recreational resources with members of other

lifestyle groups is an important source of conflict in outdoor recreation (Jacob and Schreyer 1980). This may be particularly acute in the future as there appears to be a tendency for people to increasingly rely on their recreation activities as a means of expressing their individuality (Schreyer 1990).

The identification of a person with a particular recreation activity is known as "recreation-related stereotyping" and like any form of stereotyping it can lead to generalised judgements being made about a person based on his or her involvement with a specific activity. It can also lead to judgements about the relative value of the person or the activity; for instance, some activities are seen as more "worthwhile" than others (Jacob and Schreyer 1980). Snowmobilers tend to be perceived as lower class, less educated, more consumer oriented and having less sympathy with environmental objectives (Owens 1985). Backcountry skiers with a stronger environmental orientation may see themselves as superior. This could be a source of conflict if the two groups meet.

In their study of snowmobiling and cross country skiing, Jackson and Wong (1982) found that there were clear delineations between recreation groups based on their socio-economic attributes (Jackson 1980, Knopp and Tyger 1973), their environmental attitudes (Driver 1976), and the internal consistency within the recreation group in terms of their choice of recreational activities (Holecek 1973). People who participate in one type of mechanised recreation activity (e.g., motor-boating), will tend to participate in other mechanised activities (e.g., trail-biking, trailer camping). It is the same for people who

tend to prefer self-propelled forms of recreation. Their choice of other activities will be consistent (Jackson and Wong 1982).

One of the clearest means of differentiating recreation groups can be in terms of their attitude towards the use of machines for recreational purposes (Jacob and Schreyer 1980). Some recreationists are specifically seeking an escape from the technology and the stress of everyday life. They are searching for a return, if only transitory, to a simpler existence in a pristine wilderness environment (Driver and Knopf 1977). For these people, the presence of machines is a reminder of what they are trying to escape (Martin and Berry 1974). The most intense conflicts occur between participants in mechanised and non-mechanised forms of recreation (Bury et al, 1976, Lucas and Stankey 1974, Sheridan 1979). The two sets of recreationists tend to have very different values. Machine-oriented recreationists have been found to have more traditional values, along with "confidence in technological solutions to problems, a utilitarian view of resources" and an emphasis on "rugged individualism" (Knopp and Tyger 1973, Martin and Berry 1974).

One of the classic examples of a conflict between mechanised and non-mechanised forms of recreation is the conflict between snowmobilers and cross country skiers. In their 1973 study, Knopp and Tyger found that cross country skiers have very different orientations in terms of resource consumption. Jackson and Wong (1982) found that cross-country skiers prefer "self-propelled, low-impact activities which reflect their desire for solitude, tranquility and a relatively undisturbed natural environment." Snowmobilers, on the other hand, were found to prefer "machine-oriented and extractive activities which provide an

outlet for adventurousness and sociability." Even the knowledge that they may meet with snowmobilers was sufficient to negatively impact the quality of the recreation experience for cross-country skiers (Butler 1974).

Other sources for recreation-related stereotyping can be: place of residence (urban vs. rural); occupation; ethnic, racial and social class distinctions (Jacob and Schreyer 1980, Driver and Bassett 1975). The level of tolerance for these lifestyle differences is dependent on the degree to which people perceive the differences between their group and the other group, and how the differences are evaluated (Jacob and Schreyer 1980). A greater intolerance of such differences leads to greater conflict. With the increasing diversity of North American society in terms of ethnic influences, this could prove to be a factor in future conflicts over recreation resources (Schreyer 1990).

C. Evaluating the Susceptibility to Conflict of Activities

After reviewing the literature on recreation conflict, there appear to be ten key statements based on the theory which address the susceptibility to conflict of outdoor recreation activities.

- Conflict is caused by the non-achievement of recreational goals, with goals such as nature enjoyment, solitude and tranquility being particularly susceptible to interference from other activities.

- A true conflict includes the attribution of blame for this non-achievement to some other person or group.

- Conflict is more likely when the achievement of the recreation goal is dependent on factors beyond the individual's control.

- Social contact (i.e., the knowledge of another's behaviour) is a necessary condition for conflict.

- Recreationists with more intense activity styles are more prone to conflict.

- When recreationists with private and status conscious activity styles interact, conflict occurs.

- Recreationists with more specific expectations are more prone to conflict.

- Recreationists with a long history of activity in an area or with greater knowledge of an area are more prone to conflict.

- Recreationists with a more focused mode of experience are more prone to conflict.

- Recreationists with less tolerance for lifestyle diversity are more prone to conflict.

Based on these statements, it is possible to develop a series of indicators which can be applied to recreation activities to determine the relative susceptibility to conflict of various activities. The degree to which each indicator is present for participants in a particular activity would indicate the likelihood of those participants experiencing conflict.

The following indicators will be used to analyse the susceptibility to conflict of winter recreation activities in the Revelstoke region:

a) Non-Achievement of Recreational Goals

As the non-achievement of goals is considered to be one of the fundamental causes of conflict, it is necessary to determine whether participants have achieved their recreational goals and to what degree they have achieved them.

b) Attribution of Blame

For an individual to experience conflict, there must be an attribution of blame for the non-achievement of the recreational goals to another person or activity.

c) Knowledge of Others' Behaviour

To be able to attribute the cause of non-achievement to another person or activity, participants must have knowledge of the existence of the person or group.

d) Control over Experience

Participants who view the locus of control of the experience as being beyond their control are more likely to experience conflict than those who feel they have control over the elements which make up the experience.

e) Intensity of Activity Style

Because recreationists with intense activity styles are more likely to experience conflict, an evaluation of the intensity of participants' activity style will assist in predicting the likelihood of conflict occurring.

f) Degree of Status Consciousness

Participants who have a status conscious activity style are likely to come into conflict with participants with a more private activity style. Also, people with differing degrees of status consciousness can experience intra-activity conflicts. The degree of status consciousness is a measure which can be used to compare the relative levels of status consciousness between groups. A large difference between groups can indicate a higher likelihood of conflict.

g) Specificity of Expectations

Very specific expectations on the part of participants can make them more prone to experiencing conflict. The degree of specificity of expectations can indicate which participants are more likely to experience conflict.

h) Knowledge of Area

Participants with extensive knowledge or familiarity with an area are more likely to experience conflict. The degree to which participants are familiar with an area can indicate a likelihood of conflict.

i) Focus

Participants with a more focused mode of experience are more likely to experience conflict.

j) Lifestyle Differences

Participants with differences in demographic profiles e.g., age, gender, income, socio-economic, education, are more likely to experience conflict.

These measures can be applied to any recreational activity and if two or more activities are involved, the measures can be used to compare the relative likelihood of conflict occurring between participants in each activity. In the case study section of this thesis, backcountry skiing and heliskiing in the Revelstoke region will be examined using these measures. A partial examination of snowmobiling will also be included. As conflict definitely exists between these three activities, it will be possible to see if these measures truly indicate the susceptibility of conflict for different activities.

III. BACKCOUNTRY SKIING, HELICOPTER SKIING, AND SNOWMOBILING IN BRITISH COLUMBIA

Powder snow would seem to be an infinitely renewable resource and yet it is increasingly becoming the focus of conflict between winter recreationists in British Columbia. In this chapter, the nature and development of backcountry skiing, helicopter skiing, and snowmobiling in British Columbia are addressed, along with projections of expected growth. The nature of interrelationships between the activities are analysed and the impact of and inter-relationships with other resource activities are also addressed in a limited manner.

A. Historical Development of Backcountry Skiing, Heliskiing, and Snowmobiling in British Columbia

Backcountry Skiing

In Scandinavian countries, skiing has been used for hundreds of years as an efficient means of travelling over snow. Originally used primarily for hunting and fishing, skiing eventually developed into a popular recreational activity (Bjorklund 1995). The history of skiing in British Columbia centres on regions which were settled by Scandinavian immigrants. These immigrants brought their skis and enthusiasm for the sport, and quickly discovered areas for skiing (Wright and Wright, 1983). The first official record of skiing in BC was in 1891 when a miner from Revelstoke, Ole Sandbert, started using skis, or

"Norwegian snowshoes" as they were then called, to travel to and from his mine (Rudd 1993). A local Revelstoke merchant then sent away to the States for some skis for himself and a few friends. These men formed the Revelstoke Ski Club and in 1892 five members of the club undertook a 70 kilometre ski traverse which marked the first recreational long distance ski trip in Canada (Rudd 1993).

By the 1920's, there were several ski clubs in British Columbia, including three in Vancouver (Wright and Wright, 1983). The skis used in the early days were made of wood and they were slightly narrower than modern downhill skis. The boots were similar to sturdy light hiking boots and the binding consisted of a toe piece and cable to hold the boot in place (Baldwin 1983). The heel was not fastened to the ski to make uphill travel easier. Wax or skins were also applied to the base of the skis to assist in climbing. While the equipment was very simple, it was also versatile and skiers were able to move over gently rolling terrain or ski relatively steep downhill runs (Baldwin 1983).

Until the 1930's, there was no division between downhill and cross country or backcountry skiing. Skiers participated in all forms of the sports. In the mid 1930's, alpine or downhill skiing and cross country/backcountry skiing began to diverge. Skiers who were interested in downhill skiing began to demand stiffer, heavier boots which were unsuitable for touring. Alpine skis were built with sharper, upturned tips, which were better for packed slopes. Skiers who were primarily interested in cross country skiing were also interested in seeing improvements in the equipment. Boots became lighter and softer, and changes in technology enabled the construction of lighter, narrower skis

(Baldwin 1977). The difference between the two forms of skiing was formalised in 1936 when downhill and slalom ski racing were added to the Winter Olympics as alpine events. This recognition of downhill skiing led to increased interest and support for alpine skiing, while cross country became less popular (Baldwin 1977).

The decrease in popularity for cross country or backcountry skiing made it very difficult to purchase cross country touring equipment in North America from the 1930's to the 1950's (Baldwin 1977). As a result, ski tourers began to use downhill or alpine skis with a cable binding. Skins were used on the skis to aid in ascending slopes and the boots were stiff (Baldwin 1977). In the late 1940's, metal edges were added to downhill skis and backcountry skiers also adopted this improvement which gave the skiers better control on icy slopes (Baldwin 1983). Also in the 1940's, mechanical lifts began to replace the small rope tows which had been used since the 1930's. While downhill skiing became even more popular, there were still people who were avid ski tourers, and the 1940's saw the construction of cabins in the mountains which became popular destinations for ski tourers (Baldwin 1983).

The popularity of backcountry skiing continued to grow slowly through the 1950's, although most skiers were still of European or Scandinavian descent (Bjorklund 1995, Baldwin 1983). The growth of backcountry skiing was partially fuelled by technological improvements developed in Europe. The new skis and boots were much lighter, and they became very popular in the Rockies, although there was some concern that they were not

strong enough for the rugged Coast Mountains and many backcountry skiers from the Vancouver area persisted with their heavier gear (Baldwin 1983).

Cross country or backcountry skiing became generally more popular during the 1960's. The enthusiasm for the sport spread from the European immigrant population, to be more readily accepted by a wide population (Wright and Wright 1983). Some of the reasons for this growth in popularity include the improved access to mountain areas which was afforded by logging activities. Also, the lightweight ski equipment was becoming much stronger and more reliable. Camping equipment was much lighter, as well, so ski touring became more popular (Baldwin 1983). In addition, the increased popularity of downhill skiing meant that people had higher levels of skiing ability and easier access to mountain areas (Baldwin 1983).

By the 1970's, there was another change in backcountry equipment and the sport diverged once again. Backcountry ski tourers began to use wider fibreglass skis with metal edges and their ski boots were similar to sturdy leather hiking boots with Vibram soles. In fact, the equipment for ski touring became similar to the equipment used in the thirties prior to the divergence of cross country and downhill skiing (Baldwin 1983). Cross country skiers were taking advantage of new technology by using the lightest gear possible. Thus, at this point, cross country and backcountry skiing diverged into two separate sports, although there was still a great deal of crossover between the two groups. Even today, lightweight cross country skis are frequently used for less challenging backcountry tours.

In the late 1970's, backcountry skiing split into two more groups. The telemark turn was introduced to British Columbia and this new technique required lighter, more flexible equipment, so telemark skiers turned to the new lightweight cross country equipment (Baldwin 1983). By the early 80's, skis specifically designed for telemark skiing were available on the market and telemarking became a popular alternative to the heavy cumbersome backcountry gear which was used in the past. There were still some skiers who preferred the security and stability of the heavier gear, so ski mountaineering equipment continued to develop with wide, light, and relatively short fibreglass skis and stiff boots which provide a lot of support (Bjorklund 1995).

Helicopter Skiing

Heliskiing began in British Columbia in the mid 1960's. A young Swiss mountain guide, Hans Gmoser, was a pioneer in the heliski industry. In 1962, Gmoser began guiding clients on glacier ski trips using fixed wing aircraft equipped with skis to access the high alpine terrain of the Bugaboo Mountains in eastern BC (Ski Consultants 1980). The skiers would be deposited at the top of a glacier and they would then ski down and climb back up again. While this approach offered much easier access to glacier skiing, there were some serious limitations. It took a long time to climb back up the slopes and the fixed wing aircraft had very restrictive landing and takeoff requirements.

In 1964, Gmoser switched to helicopters as the means of accessing the glacier skiing terrain. During that year, he offered the first commercially organised helicopter skiing packages, based in the Bugaboo Mountains of the Columbia range (Ski Consultants 1980). It was not a new idea to use planes and helicopters to access glacier terrain, but no one else in the world had ever organised ski vacations which used helicopters exclusively and had remote lodges as their base of operations.

In addition to being a mountain guide, Gmoser was also a filmmaker and he used this talent to market heliskiing in BC. During the 1960's and 70's, Gmoser produced many films which featured heliskiing and he travelled across North America showing his films. Very quickly, heliskiing came to be considered the ultimate skiing experience and BC's Bugaboos became world renowned and synonymous with incredible powder snow. Gmoser's company, Canadian Mountain Holidays, quickly became the largest heliski company in the world (Ski Consultants 1980, Gmoser 1993).

As the demand for heliskiing increased, other operators began to develop heliski areas. In the early 1970's, Mike Wiegele began Cariboo Helicopter Skiing. Wiegele's operation offers skiing in the Cariboo Mountains and was based out of the small town of Blue River. In the mid 70's, Peter Schlunegger, a former employee of Canadian Mountain Holidays, started an operation based out of Revelstoke called Selkirk Tangiers Helicopter Skiing. Schlunegger's clients ski the Monashees and Selkirk Mountains. These are the three largest operators in the industry but there are a total of 14 operators throughout the province who are running commercial heliski operations in 1995.

Snowmobiling

> One of the major reasons for the popularity of the snowmobile as a recreation vehicle is that it expands recreational opportunities and extends the recreation season for many people heretofore unexcited about traditional winter recreation activities. The snowmobile has made snow something to be eagerly anticipated by thousands who have traditionally considered it something to be shoveled, stuck in or cursed at. (Interior Off Road Recreation Vehicle Task Force, 1971)

Attempts to develop a mechanized means of moving over snow date from the turn of the century. The first commercially produced "motor toboggans" were sold in Wisconsin in 1927 (Butler 1982)[2]. In Canada, Armand Bombardier of Quebec was working on developing motorized snow vehicles throughout the 1920s. His first commercial vehicle went into production in 1936 and in 1937 he sold fifty vehicles. The first Bombardier vehicles carried 4 to 7 people and used a basic Ford automobile engine. The original snowmobiles were used as buses or medical vehicles. The first recreational use of these vehicles may have been in Yellowstone National Park where they were used for sightseeing. During World War Two, over 150 versions of Bombardier's snowmobile were used in the war effort. By 1948, Bombardier's annual production had reached nearly one thousand machines.

In the 1950s, Bombardier started to produce small two-person machines. The original intent was to develop a machine which trappers could use in place of dog teams. The first small machines were called "Ski Dogs." In 1959, 250 of these machines were marketed at

a price of a little over one thousand dollars. The potential for snowmobiles as recreational vehicles was quickly recognised. Advertisements from the early 1960s focus on appealing to ice fishermen looking for dependable transportation, but there is also an emphasis on the thrill of simply riding the machine. By 1963, Moto Ski referred to their machine as "The Most Modern Winter Sport Vehicle."

The first snow machines were heavy cumbersome vehicles made of wood. Over the years, technology has permitted these machines to become much faster and more reliable. The original wood has been replaced by plastic and lightweight metals, and there have been significant improvements in the mechanisms used for steering and braking. As the machines improved, so did their popularity. For Bombardier alone (the largest producer of snowmobiles in the world), sales of snowmobiles rose from 235 machines in 1959 to sales of 235,000 in 1971. In the snowmobile industry overall, 495,000 machines were sold in 1970-71. Nearly 600,000 machines were produced in 1971-72. (See Figure III-1.)

Sales and production dropped in the late 1970s. The North American economy was in a downturn and many riders had become frustrated by the noise, discomfort and unreliability of the machines. By 1982-83, only 86,000 machines were sold anywhere in the world. In 1994-95, sales are still below the peak of 1971 with total industry sales of 212,000 machines (Di Clemente 1995). There has also been a significant change in the number of

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[2] Unless otherwise stated, the historical information about snowmobiling is based on Butler 1982.

snowmobile manufacturers. By the mid 1970's there were nearly 200 manufacturers producing snowmobiles, now there are only four with Canada's Bombardier having the biggest market share.

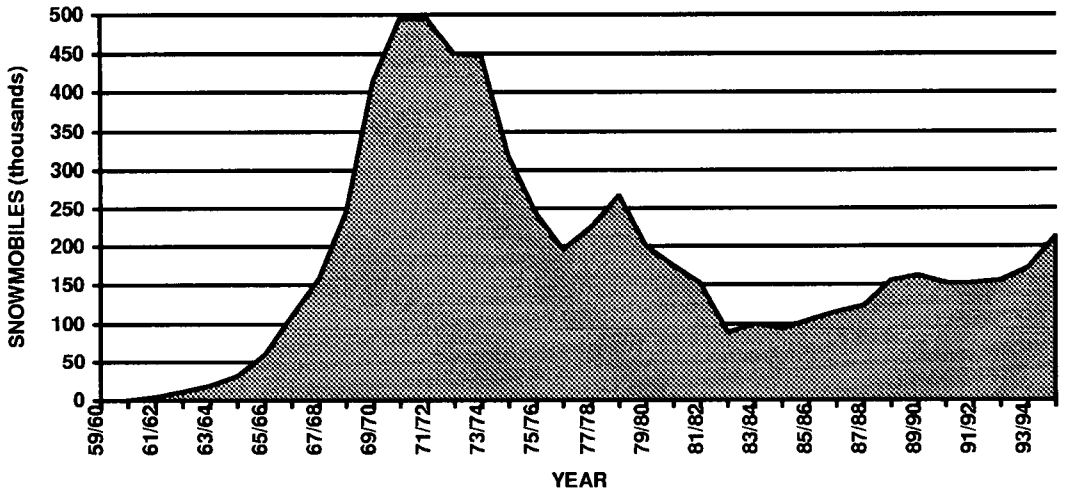

Figure III-1: Worldwide Retail Sales of Snowmobiles - 1959 to 1994[3]

[3] Based on figures provided by Franco Di Clemente, Marketing Manager, Bombardier Canada.

B. Current State of Backcountry Skiing, Heliskiing and Snowmobiling in British Columbia

Backcountry Skiing

It is very difficult to estimate the number of people involved in backcountry skiing in British Columbia. Backcountry skiing has always been a relatively unorganised sport undertaken by individuals or small groups of people. In a recent survey undertaken by the Greater Vancouver Regional District, 7.7% of the respondents indicated that they had participated in backcountry skiing at least once during the 12 months prior to the date of the survey. This would mean that between 85,000 and 295,000 people[4] from the Lower Mainland area participated in backcountry skiing during 1992/93 (Greater Vancouver Regional District 1993).

Ski equipment retailers in the Vancouver area report a lot of growth in the backcountry market during the mid to late eighties, with sales levelling off from 1992 to 1995 (Bjorklund 1995). In 1995, cross country skiing is still much more popular than backcountry skiing with retail sales of backcountry skis accounting for only ten percent of total sales of cross country equipment. This is in marked contrast to Europe where telemark skis outsell cross country equipment by ten to one (Bjorklund 1995). The

[4] The GVRD indicated a high and low estimate for the responses. The GVRD survey consisted of a random sample of the residents of the Greater Vancouver Regional District, Fraser Cheam Regional District, Central Fraser Valley Regional District, Squamish Lillooet Regional District, and Dewdney Alouette Regional District. The total population of the study area was 1,812,374. The survey results were based on 1,126 responses and have an accuracy of plus or minus 2.9% with a 95% confidence level.

popularity of telemark skiing in Europe may be an indication of the potential growth of the sport.

Another indication of the possible growth of backcountry skiing may be the relatively recent development of commercial backcountry ski operations. Since the mid 1980's, there have been several operations established in the province, primarily in the Columbia Range in the eastern part of the province. Most of these operations consist of a cabin located in a remote area which is accessed by helicopter. Some of the commercial operators will provide guiding and instruction for their clients, as well as food and accommodation. Other operators will allow groups to rent the cabin and the groups will provide their own food. Currently in British Columbia there are 8 companies offering these commercial packages. While the number of clients is not large (approximately 200 guests per annum for each operation), there has been steady growth over the last five years and all the companies are continuing to make capital investments to improve their facilities.[5]

Helicopter Skiing

British Columbia's heliskiing is world famous. Every year, nearly ten thousand people from around the world make their way to BC to experience the thrill of heliskiing (British Columbia Heliski and Snowcat Skiing Operators Association 1994). BC is not the only place to heliski in the world; there are a total of 61 operations world-wide, but nearly half of these are in Europe and they offer a very limited heliski experience (Gmoser 1993).

The heliskiing offered by the 14 BC operations is considered to be the ultimate experience in terms of terrain and powder snow. Canadian Mountain Holidays is the largest single operator in British Columbia accounting for 59% of the skier days reported in 1993[6]. Overall, the heliski industry has seen an increase of 83 % in the past 14 years. (See Table III-1.) The heliski industry expects to see slow but steady growth over the next few years (Bruns 1993).

BC's unique position in the heliski industry is a result of a combination of several physical and socio-economic characteristics. First of all, BC has extensive mountainous and glaciated terrain and, as discussed earlier, the climate and topography of the Columbia Range results in high quality powder snow. BC also has a good supply of helicopters. Helicopters are used in the summer for firefighting, seismic exploration, construction and other activities. The helicopters are not generally used in the winter except for heliskiing, so there are large numbers of aircraft available. Also, BC is in a politically safe, industrialised country. This means heliskiers can expect relatively high maintenance standards for the aircraft, good health care and an acceptable diet. Language is also not a barrier for most heliski clients (Ski Consultants 1980, Gmoser 1993).

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[5] This information was collected by the author as part of the Revelstoke Survey Project.

[6] A skier day is the unit of measurement which is used by heliski operators in their annual reports to BC Lands. Each day of skiing for an individual skier is called a skier day. Heliskiers ski an average of 5 days per visit, so an individual client will account for 5 skier days.

Table III-1: Skier Days and Percentages for BC Heliski Operators[7]

Skier Days & Percentages for BC Heliski Operators[8]				
Operator	**1978/79**		**1992/93**	
	Skier Days	**% of Total**	**Skier Days**	**% of Total**
CMH	20,482	74	29,883	59
Crescent Spur	---	---	200	<1
Great Canadian	---	---	570	1
Kootenay	405	1	2,020	4
Mike Wiegele	4,325	16	6,349	13
Mountain Helisports	---	---	354	1
Purcell	1,683	6	2,000	4
RK	---	---	2,041	4
Robson	---	---	24	<1
Selkirk Tangiers	269	1	3,613	7
Tyax	---	---	1,894	4
Tyax Lodge	---	---	414	1
Valkyrie	75	<1	---	---
Whistler	545	2	1,500	3
TOTAL	27,784	100	50,862	100

Snowmobiling

In British Columbia, organised snowmobiling in the form of snowmobile clubs has been in existence since 1966 when the British Columbia Snowmobile Federation was established. Most locally based snowmobile clubs were organised during the same era. Right now there are a total of 68 snowmobile clubs in British Columbia, with 54 of them being members of the British Columbia Snowmobile Federation (BCSF). Most clubs have been

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[7] Ski Consultants 1980.

in existence for over twenty-five years, with the majority of them having been established in the mid to late 1960's (Weid 1993).

While there are a lot of snowmobile clubs, the majority of snowmobilers are not club members. There are an estimated twelve to fifteen thousand recreational snowmobilers in BC, only 2,200 of those are members of BCSF clubs. According to estimates, there are five million snowmobilers in North America, with fifty percent of those in Canada (Weid 1993). Recreational snowmobiling is a predominantly North American activity, but the BCSF is finding that European tourists are starting to come to BC to participate in snowmobile tours. In 1993, there were 10,000 paid snowmobile tour trips in British Columbia. In the late 1980's, there were practically no commercial tour operations (Weid 1993).

Snowmobiling as a sport is being actively promoted by the BCSF, individual commercial tour operators, the International Snowmobile Council, and communities who are located in areas suitable for snowmobile touring. The BCSF alone puts out 35,000 copies of their snowmobiling magazine each year. The growth in the popularity of snowmobiling is also being encouraged by technological improvements to the equipment. The latest snowmobiles can easy ascend thirty degree slopes and they can reach speeds of up to one hundred miles an hour. This means these new machines can gain access to almost any

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[8] --- indicates operation not in existence at time of report.

terrain, whereas previously they were restricted to flatter areas. Even the names used by snowmobile manufacturers reflect the change in the nature of the activity. For example, Bombardier (one of the largest manufacturers of snowmobiles) produces a series of machines known as the "Summit" models, a recognition that snowmobile riders are now using their machines to climb to the tops of mountains, rather than simply traveling on flat terrain.

Almost all snowmobile activity in British Columbia takes place on Crown Lands. Snowmobiling is not permitted in parks, but otherwise there are very few restrictions on snowmobile activity. Snowmobiles are supposed to be registered under the provincial Motor Vehicle Act, but anyone over the age of 16 is permitted to operate a snowmobile, and children under the age of 16 may operate a snowmobile with their parent's consent. There are some small areas where snowmobile activity has been restricted under the Wildlife Act because of the impact of snowmobiles on wildlife, and Section 105 of the Forest Practices Code allows for the Ministry of Forests to restrict snowmobile access if there is a legitimate reason to do so. Otherwise, there is no legislation specifically addressing the operation of snowmobiles.

C. Description of the Backcountry Skiing, Helicopter Skiing, and Snowmobiling Experience

Backcountry Skiing

Backcountry skiing in British Columbia is predominantly undertaken by individuals on a non-commercial basis. The majority of backcountry ski trips are either organised by individuals or through non-profit organisations such as the Federation of Mountain Clubs of British Columbia, the British Columbia Mountaineering Club, the Alpine Club of Canada, the Varsity Outdoors Club or other similar groups. Backcountry ski trips may consist of an easy day trip or a lengthy wilderness excursion. The Alpine Club of Canada and the BC Mountaineering Club own and operate several remote cabins throughout the province which are made available to club members at a nominal cost. There are also several cabins which are operated by provincial and national parks. These cabins are often the destination of weekend skiers or they may serve as the base for multi-day trips. Hardier skiers may decide to camp in the snow.

Commercial backcountry skiing operations offer somewhat more luxurious accommodations and most operators provide food and meal preparation as part of the package. There is also usually the option of being guided or instructed by an experienced mountain guide. The cost for such packages can range from $600 to $1200 for a week. Most cabins are located in remote areas which are only accessible by helicopter and the cost of the packages includes the cost of the helicopter flight.

A typical day of backcountry skiing varies depending on the time of year. During the latter part of the season, skiing must be done during the early part of the day to avoid the possibility of avalanches caused by solar warming. At Selkirk Mountain Experience, a backcountry operation near Revelstoke, a typical day might include 6 hours of hiking and skiing, with three peak ascents. While backcountry skiers are interested in finding good skiing in a tranquil, wilderness setting, the average vertical skied in a day is probably about one tenth of the vertical skied by heliskiers because there is no mechanical means of ascending slopes. Backcountry skiers may ski as few as three slopes a day. Much of the appeal of backcountry skiing is the opportunity to be out in the wilderness and away from the everyday stresses of modern life.

Helicopter Skiing

While there are no restrictions on non-commercial heliskiing, the reality is that virtually the only heliskiing taking place in British Columbia is done on a commercial basis. Because heliskiing caters to a very wealthy clientele, the emphasis is on luxury when it comes to food and accommodation, at a price of approximately $5,000 per week. Most heliskiers will purchase a multi-day package which includes food and accommodation. About half of the heliski operations in BC are based out of remote lodges which are accessible only by helicopter or logging road. These lodges, while they are remote, are luxuriously furnished and have amenities such as shops for ski clothes and ski equipment, hot tubs, massage therapists, live entertainment, and gourmet cuisine. Operations based out of towns still endeavour to provide a high quality of accommodations and food.

A typical day of heliskiing starts at eight in the morning. Usually a single Bell 212 helicopter will be responsible for shuttling four separate groups of 11 skiers plus a guide throughout the day. Due to the high operating costs of helicopters (approximately $900 per hour), it is important for a heliski operation to use the helicopters as efficiently as possible. The first group will be taken from the base lodge to the top of a ski run, and then the helicopter will return to pick up the next group. By the time the fourth group has been picked up, the first group will be at the bottom of the run, ready to be shuttled to the top of the next run. Lunch is eaten on the slope and usually there is no opportunity to return to the lodge before the end of the day because the helicopter is so strictly scheduled. Heliskiers will usually ski eight to ten runs a day, averaging between 15,000 and 20,000 vertical feet per day of powder skiing. In most operations, there is a big emphasis on maximising the amount of vertical skied.

Snowmobiling

There are many different ways of using snowmobiles for recreational and work purposes and these different approaches to snowmobiling are reflected in the six market segments which have been identified by the snowmobile industry. According to the marketing director of Bombardier, Franco Di Clemente, snowmobilers can be divided into the following groups:

- **"Muscle" Riders** - These riders are interested in having very powerful machines. The machines in this class can reach speeds of up to 140 miles per hour and the machines

cost between ten and twelve thousand dollars, roughly double the average price for snowmobiles.

- **Sport riders** - The largest segment of snowmobile riders, these people are looking for fast, light machines. The average cost of a sport machine is between five and six thousand dollars.

- **Touring riders** - The machines aimed at this market segment emphasise comfort. Touring is a family activity, so these machines are built to carry more than one person and they are slightly heavier than sport machines and not as fast.

- **Mountain riders** - This is a relatively small segment representing only ten per cent of all snowmobile sales, but it is a rapidly growing segment and it is the most popular type of machine for riders in the mountainous areas of BC. These machines are specially designed to function efficiently on steep slopes and at high altitudes.

- **Work-utility riders** - In Canada's northern regions and colder area, snowmobiles are very important machines for traveling and working. This segment still represents an important market for snowmobiles.

- **Sport-utility riders** - Less rugged than the work-utility machines, sport-utility machines are designed to be more sturdy than sport machines, but still fun to ride for recreational purposes.

By far the largest number of snowmobilers would fall into the sport or touring segments. For these people, snowmobiling is a very social activity which is undertaken with family, friends or members of a snowmobile club. These people will load their snowmobiles onto

trailers or into the backs of trucks and will meet at an access area. The group will travel to a central staging area where there may be a cabin or some other permanent facility. The group will then make trips in and around that area. If there are groomed trails, most people will stay on the trails. Trails are generally more comfortable for riding, and in eastern Canada there are thousands of miles of groomed snowmobile trails which are maintained by snowmobile clubs and, in some cases, the provincial governments (Di Clemente 1995). In British Columbia, some clubs have purchased grooming machines to develop trail systems, but there is no significant established trail system. Most clubs, however, have some sort of cabin in the most heavily used snowmobile areas and much of the social activity of the snowmobile experience will centre on this cabin.

More adventurous and more experienced snowmobilers will venture into more remote areas and the high alpine. These areas have become increasingly accessible with improved technology and also some snowmobilers are seeking an escape from the more crowded snowmobile areas. This has led to some concern about the safety of snowmobiling. Several snowmobilers have died in avalanches over the past few years in British Columbia. This is largely due to the fact that snowmobilers are going into areas which were previously inaccessible to them. There is a great need for increased education regarding avalanche avoidance and this has been recognised by the British Columbia Snowmobile Federation and by the snowmobile manufacturers.

People who snowmobile with commercial tour operators are generally beginner or intermediate snowmobilers. Most of the commercial operations take place in areas where there are groomed trails. In Quebec, the provincial government and commercial snowmobile tour operators are working together to actively promote snowmobile tours, particularly in the French market. Using the extensive trail systems in Quebec, operators offer multi-day packages. Preliminary studies have shown that the average French tourist who participates in a snowmobile package will spend $3,000 over a 3-day period (Di Clemente 1995). The economic importance of commercial snowmobiling is being recognised in British Columbia as well and tour operators in BC report significant growth over the past two years.

D. Growth of Backcountry Skiing, Heliskiing, and Snowmobiling in British Columbia

Backcountry Skiing

It is likely that backcountry skiing will continue to grow in popularity. Backcountry skiing was identified as being in the top twenty outdoor recreation activities by respondents to the GVRD survey in 1993 (GVRD 1993). The GVRD survey also predicts a significant increase in the number of people participating in backcountry skiing. By the year 2008, the GVRD survey predicts that between 126,000 and 421,000 people will participate in backcountry skiing at least once a year (GVRD 1993). That is an increase of nearly 50% in terms of the numbers of people participating. Commercial backcountry operators are planning based on 5% growth per annum (Schaeffer 1993). However, the numbers alone

do not reflect the pressures facing the industry because the amount of terrain which is suitable for such operations is limited and thus any increase in numbers can have a negative effect on the quality of the ski experience.

Heliskiing

It appears that the heliski industry is also likely to continue to grow over the next few years. Operators are basing their business plans on a conservative growth estimate of between three and five percent (Bruns 1993). This growth is likely a result of many different factors. Changing demographics may have some impact on growth. Most heliskiers are somewhat older and more affluent than the average downhill skier, so the ageing population may be a boon to the heliski industry. Also as the demographics of the population overall are changing, the demographics of heliskiers are changing too. More women are starting to go heliskiing and it appears that heliskiing is appealing to a broader range of people in terms of income and age (Bruns 1993)

Heliskiing may also benefit from the fact that it offers such a high quality ski experience. Downhill ski areas are becoming busier and more expensive, making heliskiing a reasonable alternative for some skiers. People may prefer to have a fabulous week of powder skiing in a beautiful wilderness setting rather than spending two weeks fighting the crowds at a busy downhill resort. Another important growth factor for Canadian heliski operators may be the increasing restrictions being placed on heliskiing in Europe. Concerns about noise pollution and the impact of helicopters on wildlife have resulted in the banning of heliskiing in most European countries. Limited heliskiing is available in

France and Italy (Gmoser 1993). As operations in the European Alps shut down, more people will inevitably make their way to BC for a heliski experience.

Other factors which may promote the growth in the heliski industry include technological improvements in aircraft and skis. As a result of safety concerns, helicopters are continually being modified to make the aircraft safer and more reliable. This may encourage more faint-hearted skiers to try heliskiing. Also, avalanche transceivers are becoming easier to use and much more efficient. That may make heliskiing seem slightly less daunting. The biggest technological breakthrough, however, may be in the design and construction of skis for powder skiing. In the past few years, new skis have been developed which are wider and lighter than traditional downhill skis. These "fat" skis enable less skilled skiers to enjoy the thrill of powder skiing. This could open up the heliski market to people with lower skill levels, and it may encourage more women to participate in the sport.

There is also a great growth in the adventure tourism market in general and heliskiing could benefit from the increased interest in enjoying remote wilderness experiences. While heliskiing is not an ecotourism activity, it does offer people the opportunity to be exposed to the natural beauty of British Columbia's backcountry regions, and heliskiers have indicated an interest in viewing wildlife and enjoying the natural setting as part of the heliskiing experience.

Based on the fact that growth in the heliski industry seems inevitable, it is of extreme importance to assess the relationships between heliskiing and the other activities which are taking place in the backcountry. Because so many operators claim to be operating close to their carrying capacity in terms of heliskiing, growth in other activities or changes in government policy can bring about major changes in the heliski industry.

Snowmobiling

Significant growth is projected for the snowmobile industry in Canada. In 1994-95, Bombardier saw a 22 per cent increase in sales, and indications are that this type of rapid growth will continue for at least the next few years. In British Columbia, there were 2000 snowmobiles registered with the provincial government in 1991. This figure doubled in one year, with 4000 machines registered in 1992. There are several reasons for the increasing popularity of snowmobiling. Technological improvements have meant that snowmobiles are much more powerful and reliable, also changes in the suspension of the machines has made riding much more comfortable. In 1995, Bombardier has 29 different models of snowmobiles available, each model is specifically designed to address the needs of a particular segment of the snowmobiling population, with the largest growth projected in the sport, touring and mountain segments.

Along with the growth in the number of local snowmobilers, there is significant growth projected in the number of people who are coming to Canada to snowmobile. In areas near the Canada-US border, there have always been a large number of American snowmobilers who will come to explore the Canadian terrain, but there is also an increase

in the number of foreign tourists who are coming to Canada specifically for a snowmobile trip or who will participate in a snowmobile tour as part of their visit to Canada. As mentioned earlier, Quebec is actively promoting snowmobiling as a destination activity for European tourists. It is likely that other areas which offer quality snowmobiling experiences will take advantage of this growing market.

E. The Relationship between Heliskiing and Backcountry Skiing

Backcountry skiers and helicopter skiers are both seeking the thrill of skiing untracked powder snow, but there is another important component to the backcountry ski experience - the opportunity to enjoy a tranquil wilderness experience. This desire for tranquility on the part of backcountry skiers can put them into a direct conflict with heliskiers. The helicopters used by most heliski operations (Bell 212's) are particularly noisy aircraft. They can be heard very loudly within a range of 5 to 10 kilometres, reaching volumes of 70 to 90 decibels (Helicopter Association International, n.d.). Atmospheric conditions such as high winds, humidity and temperature can increase the range of the noise even further. This noise can be extremely detrimental to the quality of experience for backcountry skiers.

Commercial backcountry operators are also concerned that the noise from helicopters could trigger avalanches in unstable snowpacks (Beglinger 1993). Although there is no research to indicate that this occurs, one commercial backcountry operator has endeavoured to lay charges of criminal negligence when he claimed that a helicopter

leased to a local heliski company had triggered a potentially dangerous avalanche. The charges were never laid, but the backcountry operator maintains that it is a legitimate concern (Beglinger 1993).

Another more concrete concern is the fact that heliskiers can very quickly track out areas that backcountry skiers were planning to ski. There have been instances where a group of backcountry skiers with a guide have arrived just below the peak of a mountain, only to see a group of heliskiers land at the peak and track out all the powder snow on the only safe route of descent. One such instance resulted in a physical confrontation between the heliski guide and the backcountry guide (Beglinger 1993).

In most parts of the province, this conflict can be avoided because backcountry skiers can simply avoid areas where there are heliski operations. Unfortunately, the Columbia Range is among the most popular destinations for both heliskiers and backcountry skiers and in the Columbia Range, it is virtually impossible for backcountry skiers to find areas which are not used by commercial heliski operations, except within park boundaries. Conflicts between heliskiing and backcountry skiing in the Revelstoke area have historical causes. While backcountry skiing is as old as skiing itself, there was traditionally little backcountry skiing in the Columbia Range outside of the National Parks. It is only in the past eight to ten years that commercial operators have begun to establish remote lodge facilities in the Revelstoke region. Prior to the establishment of these commercial backcountry operations, basically all of the skiable terrain in the Columbia Range was tenured out to

heliski operators. This means that backcountry operators have been forced to establish their lodges within heliski tenure areas.

The potential for conflict was not recognised by the provincial ministries who authorised the use of the area for both activities and, admittedly, there were no real conflicts until the early 1990's. Once the conflicts were identified, it became obvious that the land use policy of the day was inadequate to address the intricacies of recreation conflict. This was one of the factors which led to the development of the Commercial Backcountry Recreation policy which will be addressed below.

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It should be noted that while the relationship between backcountry skiers and heliskiers in the Revelstoke region is currently conflict-ridden, it was not always that way. Most heliski guides are certified mountain guides who have a vast amount of experience as backcountry skiers. They are very sensitive to the concerns of the backcountry skiers (Corrigan 1993). In the past, backcountry operators and heliski operators have shared the use of helicopters and radio frequencies, they have assisted each other in avalanche rescues, and they have shared their knowledge and information about weather conditions and avalanche activity (Schlunegger, 1993). Both backcountry operators and heliski operators are concerned about the preservation of the environment and the protection of wildlife, because these are things which are important to their paying guests (Corrigan, 1993, Beglinger 1993). The recent escalation in conflict is doubtless due to the increased popularity of both activities.

F. Relationships between Backcountry Skiing, Heliskiing, and Snowmobiling

The growth in the popularity of snowmobiling is probably the single biggest factor in terms of conflicts with backcountry skiing and heliskier, but the technological improvements to snowmobiles have also contributed to the conflicts between snowmobilers and other recreationists. In the past, there were frequently conflicts between snowmobilers and cross-country skiers who were sharing relatively flat accessible terrain (Jackson and Wong 1982). Now the nature of the conflicts has changed. The machines are more powerful so they can gain access to steeper terrain, and they have larger fuel capacities which mean they can travel to more remote areas. In addition, the proliferation of logging roads gives snowmobilers improved access to alpine areas.

All of these factors combine to bring about increased interaction and conflict between snowmobilers, backcountry skiers, and helicopter skiers. In some cases, snowmobiles have entered heliski areas and tracked out all of the ski terrain. In one instance, a heliski operator was unable to use one of his tenured areas until the next snowfall replenished the supply of powder snow (Corrigan 1993). Backcountry skiers have been in collisions with snowmobiles, and commercial backcountry ski operators say the presence of snowmobiles in their operating areas significantly reduces the quality of the wilderness experience which they are able to offer (Fulford 1995, Leeson 1993). There are also reports that snowmobiling has the strongest negative impact on wildlife of any of these three activities (Kliskey 1993).

In 1993, most helicopter operators reported having either had a conflict situation with snowmobilers or they expressed concern over the potential for conflict. The seriousness of the problem is reflected in the fact that in the fall of 1993 the British Columbia Helicopter and Snowcat Skiing Operators Association invited the president of the British Columbia Snowmobile Federation to make a presentation at their annual meeting. Many individual operators have attempted to develop relationships with local snowmobile groups in an effort to prevent or resolve conflicts. Backcountry hut operators are also very concerned about the situation. One backcountry operation has been so severely impacted by snowmobile activity that they have considered converting their wilderness backcountry ski hut into a hut for snowmobilers (Leeson 1993).

Part of the problem in dealing with these conflicts is the fact that they have developed so quickly and there is no legislation or policy in place which governs the activity of snowmobilers outside of parks[9]. Any regulation of snowmobile activity is undertaken on a voluntary basis by snowmobile club members. In the Revelstoke area, club members have agreed not to use certain areas where snowmobiling may have a negative effect on wildlife. Also, actions such as removing certain trails from snowmobile trail maps have limited the use of sensitive areas. Unfortunately, the majority of snowmobilers are not club members, therefore problems arise with snowmobilers who may not be aware of voluntary guidelines or restrictions.

G. Relationships with Other Resource Activities

While there is a small amount of mining in the Revelstoke region, logging is the only other resource activity which has any impact on backcountry skiing, heliskiing, and snowmobiling. The relationship between logging and the two skiing activities is essentially a negative one. In contrast, logging can have a positive impact for snowmobilers. Some of the impacts of logging include:

- *destruction of ski runs* - Winter logging leaves tall stumps which can make ski runs unusable in the early part of the season.

- *reducing aesthetic value of scenery* - Foreign skiers in particular find clearcut logging slashes to be very unaesthetic.

- *improved access by snowmobiles* - Logging roads can provide snowmobilers with easy access to previously unreachable areas. This can be very desirable from the snowmobilers' perspective, but it can negatively affect the quality of the ski experience and increase the likelihood of conflict between snowmobilers and skiers.

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[9] Some attempts have been made to resolve conflicts between mechanised and non-mechanised forms of recreation. The Kootenay-Boundary Land Use Plan addressed the issue and there are also a number of groups working on a local level to resolve winter recreation conflicts (Butler 1995).

On a positive note, there is potential for logging companies and ski operations to work together to meet the needs of heliskiers and backcountry skiers. Canadian Mountain Holidays is currently working with a logging company in the Goldstream area, north of Revelstoke, to come up with a logging plan which would enable the logging company to log the area in such a way that the cutting opens up new runs for heliskiers (Corrigan 1993). This kind of co-operative approach could be taken in other areas where logging threatens to have a negative impact on the quality of skiing.

Summary

Backcountry skiing, heliskiing, and snowmobiling in British Columbia have developed in very different ways. While the development of all three activities has been closely linked to technological improvements, backcountry skiing has been in existence in BC for over 100 years and it has traditionally been an activity which was undertaken by individuals in a fairly unorganised fashion. Heliskiing, on the other hand, is less than 30 years old and it has always been undertaken on a commercial basis. This has meant that heliski operators have been far more organised and there has been much more emphasis on commercialism. Heliski operators have aggressively marketed their product around the world and the industry is very important to the economy of some of the small towns where there are heliski operations. Snowmobiling has developed in a largely unorganised manner, but it has by far the largest number of participants of the three activities and it too has important economic impacts for communities near popular snowmobiling areas (Kliskey 1993).

The heliski operators have always been in a good position to lobby for the right to tenure on Crown Lands. Because of the commercial nature of heliskiing, the heliski operators have been consistently better organised, they have developed a strong industry association, and they have focused on specific issues such as tenure and safety concerns (Butler 1995). Because backcountry skiing and snowmobiling are usually undertaken on an independent basis, backcountry skiers and snowmobilers have less influence on policy makers. There is very little information available about backcountry skiing or snowmobiling and there is no single organisation which represents backcountry skiers. This difference between the three activities has an effect on the way in which land policy has been administered in the past. The development of land tenure policy will be discussed in Chapter Five. In the next chapter, backcountry skiing, heliskiing, and snowmobiling in the Revelstoke area are examined in some detail.

IV. CASE STUDY OF BACKCOUNTRY SKIING, HELISKIING AND SNOWMOBILING IN THE REVELSTOKE REGION

A. Revelstoke Survey Project

1. Survey Rationale

The area around Revelstoke in eastern British Columbia is an especially popular destination for many winter recreationists. The excellent snow conditions in the Columbia Range, the variety of terrain and the large numbers of glaciers have made this area very popular with backcountry skiers, heliskiers, and snowmobilers. As these sports have grown in popularity, the instances of conflict between the activities have become more frequent. Where previously helicopter skiing took place in areas which were far removed from popular backcountry ski areas, now the growing popularity of backcountry skiing and the development of commercial backcountry skiing operations have resulted in conflict between the two activities. In the Revelstoke area, all of the commercial backcountry skiing operations are within the land tenure areas of helicopter skiing companies. At the same time, the increased number of snowmobilers has meant that snowmobile enthusiasts are more likely to come into contact with heliskiers and backcountry skiers. Also, technical improvements to snowmobiles have allowed the machines to gain access to previously unreachable areas which have been traditionally used by skiers.

There are two national parks in the Revelstoke area, Mount Revelstoke National Park and Glacier National Park. No heliskiing or snowmobiling is permitted within the boundaries of either National Park, but as the pressure has grown on the recreational resources surrounding the Parks, there has been increasing concern about possible trespasses into the Parks, as well as concern about the activities taking place on the periphery of the two parks which may have a negative impact on the wildlife in the Parks.

In the fall of 1992, Parks Canada contracted Dr. Hans Schreier of the University of British Columbia to examine the uses of resources in the transboundary region of the two National Parks. Of particular interest was an examination of the interactions between forestry activities, recreation, and wildlife, with the goal of using Geographical Information Systems (GIS) and simulation modelling to develop a decision support tool for evaluating conflicts (Thompson et al, 1994). As part of this research, the author was instrumental in the design, development and administration of surveys which were aimed at gathering information about backcountry skiing and heliskiing in the Revelstoke region. A separate survey was designed by another researcher to gather information about snowmobiling in the same area. The results of all three surveys are presented here, with an emphasis on the results of the backcountry skiing and heliskiing surveys. Due to some differences in design, it is impossible to compare all of the results of the snowmobile survey.

2. Survey Design

Four separate surveys were designed to be distributed to the following groups: heliskiers (in English and German), commercial backcountry skiers, independent backcountry skiers, and snowmobilers. The three surveys for helicopter skiing and backcountry skiing were designed by the author, in consultation with individuals in the department of Resource Management Science and the Forest Economics and Policy Analysis Unit at the University of British Columbia. The snowmobile survey was designed by another researcher, with consultation from the author.

Prior to distribution, all of the surveys were reviewed by individuals with expertise in the fields of economics and wildlife biology, as well as by representatives from the Ministry of Environment, Lands, and Parks, the British Columbia Helicopter and Snowcat Skiing Operators Association, the British Columbia Backcountry Hut Operators Association, and the British Columbia Snowmobile Federation. Comments from these representatives were reviewed and incorporated into the survey design. Each of the skier surveys was pilot tested using a small group of backcountry and heliskiers prior to the production of the final surveys.

The four major objectives in the design of the participant surveys were:

1. To develop a profile of the participants in each activity.

2. To determine the importance of particular features of each activity.

3. To estimate the economic value of the recreation activity.

4. To evaluate each group's perceptions of conflict with other resource users, including logging operators and wildlife.

The questionnaires for the two skiing groups were designed to elicit similar information about the participants in each activity to make it possible to compare the responses of the participants in the two different activity groups. Some of the questions on the snowmobile survey were the same or similar to the questions asked of the skiers and the responses to these selected questions have been included in the analysis presented here.

3. Survey Distribution and Response Rates

During the period from February to April of 1993, the questionnaires were distributed in several different ways.

a) Heliskiing

The questionnaires for helicopter skiers were distributed through three commercial heliski operators. 251 questionnaires were distributed and 141 were completed and returned for an effective response rate of 56%. (For a complete summary of survey distribution and response rates, see Table IV-1.)

b) Commercial Backcountry Skiing

Questionnaires for commercial backcountry skiers were distributed to the skiers by four commercial operators. Of the 170 packages distributed to commercial backcountry skiers, 128 were completed and returned for a response rate of 75%.

c) Independent Backcountry Skiing

The questionnaires for independent backcountry skiers were distributed through the Parks Canada Information Centre at Rogers Pass. 100 questionnaires were distributed through the office and 32 were completed and returned for a response rate of 32%.

Table IV-1: Summary of Participant Survey Response Rates

	# Distributed	# Returned	Return Rate
Independent Backcountry Skiing	100	32	32%
Commercial Backcountry Skiing	170	128	75%
Helicopter Skiing	251	141	56%
Snowmobiling	892	209	22%
TOTAL	1,413	510	36%

d) Snowmobiling

The questionnaires for snowmobilers were distributed in several different ways. Some were handed out to snowmobilers or placed on car windows in the parking lots of popular snowmobiling areas. Others were distributed through motels in the Revelstoke area which cater to snowmobilers. The largest number of surveys were distributed through snowmobile clubs in the Revelstoke region and other parts of British Columbia. (See Table IV-2.)

Table IV-2: Distribution of Snowmobile Surveys

Mode of Distribution	# Distributed	# Returned	Return Rate
Placed at snowmobile areas in region	10	2	20%
Placed at motels in region	140	31	22%
Mailed to club members in region	267	72	27%
Mailed to club members in BC and Alberta	475	104	22%
TOTAL	892	209	23%

B. Survey Results[10]

In order to examine the interactions of the three winter recreation activities, it is necessary to develop an understanding of the three groups of participants. To this end, the survey results were used to address the following areas:

- demographic profile

As "lifestyle diversity" is one of the conflict factors identified in the literature, it is important to establish if there are significant demographic differences between the participants in the three activities.

- choice factors and features of the experience

By analysing the responses to the questions regarding reasons for choosing the Revelstoke area and the features of the recreation experience which are identified as important, it is possible to

[10] The survey results presented here were first analysed by the author in August 1993 in a report for Parks Canada entitled "Preliminary Report on the Results of the UBC Revelstoke Survey Project". Some of the survey data

develop an understanding of the different recreational goals of the three groups. As the non-achievement of recreational goals is a fundamental cause of conflict, the identification of the recreational goals of each group is an important component of any attempt to understand the interactions between the different activities.

- perception of conflicts

Based on the statements developed from the recreation conflict literature, some activity participants are more likely to experience conflict than others. An examination of the survey responses regarding the perception of conflict makes it possible to see if the statements are supported by the survey research.

1. Demographic Profiles of Activity Participants[11]

There are marked differences between the three activity groups, both in terms of demographics and attitudes (see Table IV-3). Backcountry skiers are younger than heliskiers and they are more likely to be female. They are well-educated and have relatively high levels of income, although they earn less than heliskiers. Backcountry skiers report preferring to recreate in small groups, but there is no significant difference in the group sizes of backcountry skiers (4.77 people) and heliskiers (6.43 people). Backcountry skiers have the smallest average household size (2.49 people) in comparison

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(particularly demographic and economic information) has subsequently been included in other reports written about this project (see Thompson et al. 1994, Loewen 1994).

[11] The responses were analysed using SPSS and the Mann-Whitney U Test. P-values of less than 0.05 were considered to be significant. Because the activity groups were found to be very homogeneous in nature, it was not

to heliskiers and snowmobilers. Backcountry skiers are almost all from North America - 54.4% from Canada and 38.0% from the United States. More backcountry skiers rated themselves as beginners or intermediates, than either of the other two activities, and backcountry skiers reported the lowest average number of years of participation in their particular activity.

Heliskiers are predominantly male (86.8%) and they are older, on average, than either backcountry skiers or snowmobilers. They are also the highest income earners with over 30% of heliskiers reporting annual household incomes of over $180,000. Like backcountry skiers, heliskiers are highly educated. One of the largest differences which sets heliskiers apart from either backcountry skiing or snowmobiling is the large proportion of Europeans who make up this group. Over half of the heliskiers came from Europe (52.1%), with Americans making up the second largest group (42.1%). Only 2.5% of heliskiers reported being Canadian. Heliskiers were the most likely to rank themselves as advanced in terms of ability.

The snowmobilers in this study were nearly all Canadian (98.5%)[12]. The snowmobile group has the smallest number of female participants (6.7%). Snowmobilers are relatively

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necesary to undertake any multivariate or variance analysis. If the groups had been more heterogeneous, such analysis would have been undertaken.

[12] This may have been partly as a result of the method of survey distribution, but based on information provided by the British Columbia Snowmobile Federation, British Columbians still make up the vast majority of snowmobilers in BC.

young - about the same age as backcountry skiers. Due to differences in survey design, it is difficult to compare the income information about snowmobilers, but they appear to have much lower levels of income (see income comparisons above). They also have significantly fewer years of education. Snowmobilers like to travel in larger groups than either backcountry skiers or heliskiers. This ties in with the more social nature of the activity. Snowmobilers also ranked themselves as being predominantly advanced in terms of ability. They reported an average of 15.49 years of participation in their sport, as compared to 11.67 years for backcountry skiers and 29.67 years of downhill skiing for heliskiers.

Overall, in terms of demographics, there are distinct differences between the three activity groups. Heliskiers are older, well-educated, wealthy, and come from the US or Europe. Backcountry skiers are younger, still well-educated, relatively wealthy, primarily from North America, and more likely to be female than either of the other groups. Snowmobilers are younger, have lower levels of education and income, and they almost all come from within Canada. These differences certainly represent lifestyle diversity and thus the potential for conflict based on such difference. The two factors which are significantly different across all three activity groups are income and place of residence. These two factors will be explored in more depth below.

2. Attitudes of Activity Participants

The difference in demographics of the three groups is matched by differences in attitudes (see Table IV-3). It is impossible to compare all of the choice factors and experience features because of the differences between the skier surveys and the snowmobile survey, but it is possible to develop some general ideas about the attitudes of the three groups by comparing those features which are addressed by all three groups.

As might be expected given the non-motorised nature of the experience, backcountry skiers appear to be much more concerned about being able to enjoy the natural environment and conserving wildlife. In comparison to heliskiers and snowmobilers, backcountry skiers wanted to see more wildlife and to have more wildlife habitat preserved. They were also more likely to provide negative evaluations of other activities (i.e., heliskiing, snowmobiling, logging). The proximity of the area to their place of residence was more likely to be a factor in their choice of destination than for heliskiers. This makes sense given the fact that most backcountry skiers were from Canada or the US.

Heliskiers appear to be much less demanding in terms of their environment. While heliskiers are more likely than snowmobilers to place importance on seeing wildlife and enjoying the natural setting, the priority for heliskiers seems to be powder snow. Heliskiers are more likely than snowmobilers to view other activities as having a negative

impact on their experience, but they are significantly less concerned about environmental and conservation factors than the backcountry skiers. As discussed above, heliskiers are older and have higher incomes than either of the other two groups and this is manifested in greater total trip expenses and longer trips.

Snowmobilers are very concerned about the kind of terrain available for their sport. In comparison to both skier groups, snowmobilers gave higher rankings to factors addressing terrain (e.g., alpine terrain, forested terrain). They also placed a higher value on the opportunity to view wildlife than either backcountry skiers or heliskiers. The proximity of the area was a key factor in their choice of the Revelstoke area as a destination. This reflects the fact that nearly all of the snowmobilers surveyed were from BC and Alberta. Meeting people was given higher rankings by snowmobilers than by any other group, indicating the social nature of the activity. As mentioned above, the snowmobilers also reported recreating in larger groups.

Table IV-3: Comparison of All Respondents by Activity

		Compared to Backcountry Skiers	Compared to Heliskiers	Compared to Snowmobilers
BACKCOUNTRY SKIERS	**preferred:**		↑ wildlife habitat ↑ wildlife visible View wildlife Natural setting Wilderness No logging No snowmobiling Alpine terrain Area proximity Adventure Risk	↑ wildlife visible Natural setting No heliski Trip length
	ranked higher on:		% female	Education Income % female
HELISKIERS	**preferred:**	Powder Steep slopes		↑ wildlife visible Natural setting No backski No logging Powder
	ranked higher on:	Ability Age Income Total expenses Trip length Willing to pay		Ability Age Education Income
SNOWMOBILERS	**preferred:**	View wildlife Alpine terrain Type of terrain Forested terrain Steep slopes Area proximity Adventure Meeting people	View wildlife Alpine terrain Type of terrain Area proximity Remote area Adventure Meeting people	
	ranked higher on:	Ability Group size Household size # of trips/year Willing to pay	Group size	

3. Comparison of Groups by Income

In order to evaluate the impact of household income levels on the profile and preferences of recreationists, each group was divided into different income groups and their responses were compared to identify any significant differences. Backcountry skiers and heliskiers were divided into four income groups:

- Lower Income - < $40,000 per annum
- Medium Income - $40,000 - $100,000 per annum
- High Income - $100,000 - $180,000 per annum
- Very High Income - > $180,000 per annum

Due to differences in survey design, it was only possible to divide the snowmobilers into two income groups:

- Lower Income - < $40,000 per annum
- Medium Income - > $40,000

It is interesting to note that there are relatively few attitudinal differences between the income groups within each recreation activity (see Table IV-4, Table IV-5, Table IV-6, and Table IV-7). The groups appear to be quite homogenous across the whole range of incomes, except for some minor differences. Within the two skier groups, the higher

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[14] Due to the method of reporting income on the snowmobile survey, 100% of snowmobilers fall into the Lower and Medium Income groups. 76.5% of the backcountry skiers fall into the Lower and Medium groups, 23.5% are in the High and Very High Income groups. Only 37.1% of heliskiers have a household income of less than $100,000 p.a., 62.8% of heliskiers fall into the High and Very High Income groups.

income earners are older and have higher levels of education. They also report spending more money on their trip. Higher income ("High" and "Very High") backcountry skiers have larger households than Lower and Medium Income groups. Higher income backcountry skiers are more likely to identify snowmobiling as having a negative impact, but the only significant difference in perceptions about heliskiing is between the Medium Income group and the Lower Income group.

Higher income heliskiers are more likely to perceive snowmobiling as having a negative impact than Lower Income heliskiers. Lower Income heliskiers are more likely to perceive backcountry skiing as having a negative impact on their experience. There are very few differences between the two groups of snowmobilers. Medium Income snowmobilers have higher levels of education. Lower Income snowmobilers indicate placing more importance on the proximity of the area in terms of choosing a destination and they also report making more trips per year.

While the differences between income levels within the activity groups are less significant, there are very dramatic differences when the responses of all recreationists are compared based on income. In comparison to the higher income groups, the Lower and Medium Income groups consistently preferred the preservation of wildlife habitat and the opportunity to view wildlife. They were also more concerned about the proximity of the area in terms of deciding on a recreation destination and they valued the remoteness of the area. They also placed more emphasis on adventure and on meeting people.

High and Very High Income groups were older and had more years of education. They reported spending more on their trip and they stayed in the area for a longer period of time. They also reported having bigger households. These groups were much less likely to indicate strong preferences in terms of terrain and environment, although both groups placed more value on powder snow than the lower groups.

It is likely that the dramatic differences in responses between the income groups is brought about by the fact that the three recreation activities in this study are undertaken by significantly different populations in terms of income. Backcountry skiers and snowmobilers have lower incomes than heliskiers and they also both tend to place more importance on the terrain and on wildlife, as well as on the proximity of the area. Snowmobilers are more likely to value their recreation activity as an opportunity for socialising. This dominance of the lower income groups by backcountry skiers and snowmobilers could account for the importance placed on these issues by the Lower and Medium Income groups[14]. The High and Very High Income groups are dominated by heliskiers. This could account for the importance placed on powder snow by these groups. It is noteworthy, however, that the higher income groups do appear to be more likely to perceive the negative impacts of other activities, despite the fact that they are less concerned about environmental considerations.

Table IV-4: Backcountry Skiers by Income

		Compared to Lower Income	Compared to Medium Income	Compared to High Income	Compared to Very High Income
LOWER INCOME (<$40,000)	**preferred:**		Forested terrain	Area proximity	
	ranked higher on:			# of trips/year	% female
MEDIUM INCOME ($40,000-100,000)	**preferred:**	Natural setting No snowmobile No heliskiing Alpine terrain		View wildlife No snowmobile	
	ranked higher on:				
HIGH INCOME ($100,000-180,000)	**preferred:**	No snowmobile			
	ranked higher on:	Age Education Household size	Household size Trip length		Group size
VERY HIGH INCOME (>$180,000)	**preferred**	No snowmobile	Forested terrain	No snowmobile Forested terrain	
	ranked higher on:	Age Education Household size Total expenses	Ability Household size Total expenses	Total expenses	

Table IV-5: Heliskiers By Income

		Compared to Lower Income	Compared to Medium Income	Compared to High Income	Compared to Very High Income
LOWER INCOME (<$40,000)	**preferred:**		No backcountry ski No snowmobile	No backcountry ski	No backcountry ski
	ranked higher on:				
MEDIUM INCOME ($40,000-100,000)	**preferred:**	No snowmobile			Proximity
	ranked higher on:	Age Household size			
HIGH INCOME ($100,000-180,000)	**preferred:**	No snowmobile Forested terrain	Forested terrain		
	ranked higher on:	Age Education Total expenses	Education Total expenses		Group size
VERY HIGH INCOME (>$180,000)	**preferred**	No snowmobile Forested terrain	Forested terrain Powder		
	ranked higher on:	Age Education Total expenses Trip length	Education Total expenses	Education Total expenses	

Table IV-6: Snowmobilers by Income

		Compared to Lower Income	Compared to Medium Income
LOWER INCOME (<$40,000)	**preferred:**		Area proximity
	ranked higher on:		# of trips/year
MEDIUM INCOME ($40,000-100,000)	**preferred:**		
	ranked higher on:	Education	

Table IV-7: All Respondents by Income

	Compared to:	Lower Income	Medium Income	High Income	Very High Income
LOWER INCOME (<$40K)	**preferred:**		Alpine terrain Area proximity	↑ wildlife habitat ↑ wildlife View wildlife Alpine terrain Area proximity Remote area Adventure Meeting people	↑ wildlife habitat ↑ wildlife View wildlife Alpine terrain Type of terrain Area proximity Remote area Adventure Meeting people
	ranked higher on:		# of trips/year	Group size # of trips/year	Ability # of trips/year
MEDIUM INCOME ($40-100K)	**preferred:**	No snowmobile		↑ wildlife habitat ↑ wildlife View wildlife Wilderness Alpine terrain Area proximity Remote area Adventure Meeting people	↑ wildlife habitat ↑ wildlife View wildlife Wilderness Alpine terrain Type of terrain Area proximity Remote area Adventure Meeting people
	ranked higher on:	Age Household size Total expenses		Group size # of trips/year	Group size # of trips/year
HIGH INCOME ($100-180K)	**preferred:**	No heliski Powder	Natural setting No logging No snowmobile Powder		
	ranked higher on:	Age Education Household size Total expenses Trip length	Age Education Household size Total expenses Trip length		
VERY HIGH INCOME (>$180K)	**preferred**	No backski Powder	Forested terrain Powder		
	ranked higher on:	Age Education Household size Total expenses Trip length	Ability Age Education Total expenses Trip length	Total expenses	

4. Comparison of Groups by Place of Residence

In order to evaluate the impact of the place of residence on the profile and preferences of recreationists, each activity group was divided into four groups:

- Canadians
- Americans
- Europeans
- Others (including participants from Japan, New Zealand, etc.)

Once again, there were relatively few differences in the perceptions of the different groups within each activity (see tables below). Canadian backcountry skiers had few differences from skiers from Europe and other countries, but American backcountry skiers were much more concerned than Canadians about environmental considerations such as terrain, natural setting, wildlife habitat. Despite their interest in the natural environment, the American backcountry skiers were less interested in viewing wildlife than any other group. There was no significant difference in income between any of the groups.

The heliskiers are an even more homogeneous group. The only real differences were between American and European heliskiers. Americans were much more concerned about environmental considerations (wildlife habitat, seeing wildlife) and they were also more likely to perceive other activities as having a negative impact (logging, snowmobiling). The Americans also had higher levels of income and more years of education than the

Europeans. Canadian heliskiers had no significant differences with any of the groups, but that may be partly as a result of the small number of Canadian respondents.

Once again, there were few differences between the two groups of snowmobilers. There were only Canadian and American respondents and the only differences reported were a preference for more wildlife habitat on the part of American snowmobilers and an increased importance being placed on the proximity of the area by Canadians. Canadians also reported taking more trips per year.

Table IV-8: Backcountry Skiers by Place of Residence

		Compared to Canadian Responses	Compared to American Responses	Compared to European Responses	Compared to Other Responses
CANADIAN BACKSKIERS	**preferred:**		View wildlife Area proximity	Alpine terrain Forested terrain	NO SIGNIFICANT DIFFERENCES
	ranked higher on:				NO SIGNIFICANT DIFFERENCES
AMERICAN BACKSKIERS	**preferred:**	↑ wildlife habitat Natural setting Steep slopes Type of terrain Adventure		Alpine terrain	Type of terrain
	ranked higher on:	Education Total expenses			Education
EUROPEAN BACKSKIERS	**preferred:**		View wildlife		Type of terrain
	ranked higher on:				# of trips/year
OTHER BACKSKIERS	**preferred**	NO SIGNIFICANT DIFFERENCES	View wildlife		
	ranked higher on:	NO SIGNIFICANT DIFFERENCES			

Table IV-9: Heliskiers by Place of Residence

		Compared to Canadian Responses	Compared to American Responses	Compared to European Responses	Compared to Other Responses
CANADIAN HELISKIERS	**preferred:**		NO SIGNIFICANT DIFFERENCES	NO SIGNIFICANT DIFFERENCES	NO SIGNIFICANT DIFFERENCES
	ranked higher on:		NO SIGNIFICANT DIFFERENCES	NO SIGNIFICANT DIFFERENCES	NO SIGNIFICANT DIFFERENCES
AMERICAN HELISKIERS	**preferred:**	NO SIGNIFICANT DIFFERENCES		↑ wildlife habitat ↑ wildlife visible No logging No snowmobile Forested terrain Adventure	
	ranked higher on:	NO SIGNIFICANT DIFFERENCES		Income Education	
EUROPEAN HELISKIERS	**preferred:**	NO SIGNIFICANT DIFFERENCES			↑ wildlife visible No snowmobile
	ranked higher on:	NO SIGNIFICANT DIFFERENCES	Group size		% female
OTHER HELISKIERS	**preferred**	NO SIGNIFICANT DIFFERENCES			
	ranked higher on:	NO SIGNIFICANT DIFFERENCES	Total expenses		

Table IV-10: Snowmobilers by Place of Residence

		Compared to Canadian Responses	Compared to American Responses
CANADIAN SNOWMOBILERS	**preferred:**		Area proximity
	ranked higher on:		# of trips/year
AMERICAN SNOWMOBILERS	**preferred:**	↑ wildlife habitat	
	ranked higher on:		

Table IV-11: All Respondents by Place of Residence

	Compared to Canadians	Compared to Americans	Compared to Europeans	Compared to Others
CANADIANS preferred:		↑ wildlife habitat View wildlife Alpine terrain Area proximity Remote area Adventure Meeting people	↑ wildlife habitat View wildlife Alpine terrain Forested terrain No snowmobile Area proximity Remote area Adventure Meeting people	↑ wildlife habitat View wildlife Type of terrain Remote area Area proximity
ranked higher on:		Group size # of trips/year	# of trips/year	Ability # of trips/year
AMERICANS preferred:	Natural setting No logging Powder		↑ wildlife habitat View wildlife Wilderness Natural setting Forested terrain No logging No snowmobile Meeting people Adventure	Type of terrain Area proximity
ranked higher on:	Age Education Income Longer trip More expenses		Education	Ability Income
EUROPEANS preferred:	Powder			Area proximity Powder
ranked higher on:	Age Ability Education Income Longer trip Total expenses	Ability Total expenses		Ability Income
OTHERS preferred:	↑ wildlife visible Natural setting	↑ wildlife visible View wildlife	↑ wildlife habitat View wildlife Natural setting Wilderness Adventure No snowmobile Forested terrain	
ranked higher on:	Age Education % female Total expenses		% female # of trips/year	

5. Summary of Group Comparisons

There are obviously some very strong differences in both the demographic profile and the preferences of the participants in the different activities. Backcountry skiers are concerned with having the opportunity to enjoy the natural environment, without the interference of other activities. Snowmobilers are also quite concerned about the natural environment, but they do not see other recreationists as a threat to the enjoyment of their activity. Heliskiers seem to be focused on the very narrow goal of skiing powder snow, although the higher income groups in both backcountry skiing and heliskiing are more likely than the lower income groups to express concern about the negative impacts of other activities.

Based on the comparison across the groups and within the groups, it appears that participants in each of the three activity groups have a very distinct set of attitudes which is relatively consistent among group participants in a particular activity, despite differences in socio-economic factors such as income and nationality. Having said this, however, it is important to note that while the group members appear to have fairly consistent attitudes despite these socio-economic differences, the socio-economic differences between the different activity groups are much more significant, and the attitudinal differences of the activity groups could be related to the socio-economic differences between the groups. The implications of the differences, and similarities, between the groups will be addressed below in terms of its impact on the occurrence of recreational conflicts.

C. Application of Susceptibility to Conflict Measures To Revelstoke Survey Data

In this section, the survey data are discussed with respect to the susceptibility to conflict measures which were developed out of the literature on outdoor recreation conflict.

1. Non-achievement of recreational goals

As discussed earlier in this thesis, recreation is seen as a means of achieving valued psychological goals or needs, and a goal is defined as:

> any preferred social, psychological or physical outcome of a behaviour that provides incentive for that behaviour (Gramman and Burdge 1981).

It is also accepted that recreation conflict arises from the failure to achieve these goals. This is referred to as "goal interference." In the case of backcountry skiing, heliskiing, and snowmobiling, the three activities have some very different goals, making the occurrence of conflict quite predictable

a) Social Outcomes

Backcountry skiers and heliskiers were more likely to prefer to ski in small groups of less than six people, and neither group placed much importance on socialising as part of their activity. Snowmobilers, on the other hand, were likely to participate in larger groups of people and meeting people and socialising were ranked as important parts of their recreation activity. This difference in approach to recreation as an opportunity for social encounters could have an impact if snowmobilers come into contact with backcountry

skiers or heliskiers. The snowmobilers might see the encounter as an enjoyable part of their day, whereas the skiers might view the presence of the snowmobilers as an intrusion.

b) Psychological Outcomes

Both skier groups saw their recreation activity as an opportunity to relax, but backcountry skiers placed more importance on achieving a sense of adventure and enjoying the exposure to risk which is afforded to them by their activity. The backcountry skiers were also more concerned about having an opportunity to view wildlife and enjoying the natural setting. Heliskiers were more likely to desire contact with the rest of the world through telephones and fax machines. Snowmobilers were not asked to rank the importance of relaxation, but they placed a higher value on "adventure" than either of the other two groups. In order to determine the impact of interaction on psychological outcomes, it would be important to establish a clearer definition of relaxation for the backcountry skiers and heliskiers. If relaxation for backcountry skiers includes a tranquil environment, the presence of noisy helicopters or snowmobiles could have a very negative impact.

c) Physical Outcomes

Backcountry skiers viewed their activity as a means of improving their physical condition. Heliskiers placed a lot of emphasis on skiing untracked powder and steep slopes. Backcountry skiers were more interested in skiing in alpine areas and having long runs. Snowmobilers placed less emphasis on untracked powder, but they were more interested than either of the skier groups in utilising alpine terrain for their activity. The fact that snowmobilers do not place a high value on untracked powder could contribute to conflict

because it may be difficult for snowmobilers to understand the negative impact which their tracks can have on the quality of experience for a heliskier or backcountry skier.

d) Implications of Goal Interference for Possible Conflicts

For backcountry skiers who view their activity as an opportunity to get away from it all and enjoy the natural environment, it is easy to see how the presence of helicopters and snowmobiles can cause goal interference. Backcountry skiers who want to see wildlife may be perturbed by the presence of noisy helicopters or snowmobiles which scare away wildlife. Also, the noise can detract from the sense of remoteness and tranquility which are characteristic of the natural setting. In terms of having a sense of adventure and feeling exposure to risk, backcountry skiers may find it difficult to achieve these goals with helicopters and snowmobiles in the area.

Heliskiers appear to be less likely to experience conflict as a result of the presence of backcountry skiers or snowmobilers, although heliskiers place a lot of importance on skiing untracked powder, so they could experience goal interference if backcountry skiers have previously skied a slope or if snowmobiles have left tracks.

Snowmobilers are unlikely to experience any conflict at all as a result of the presence of backcountry skiers and heliskiers. Snowmobilers are predominantly concerned with the physical features of their environment - terrain, snow quality, access to alpine. Neither heliskiers nor backcountry skiers can impede the quality of their experience, although

some snowmobilers have expressed concern that complaints from skiers about snowmobile activity could eventually result in restrictions on their activity (Weid 1993).

These survey findings are consistent with the literature on goal interference and goal orientation. When components of the recreation experience are valued differently by different groups of recreationists, they are said to have differences in "goal orientation" (Ruddell and Gramman 1994). As noted earlier, recreationists whose goals include nature enjoyment (Gramman and Burdge 1981), solitude (Driver and Bassett 1975) and tranquility (Jackson and Wong 1982) are more likely to perceive conflict. These goals are similar to those of backcountry skiers, so it is predictable that backcountry skiers should be more likely to perceive conflict. This is borne out by the survey results presented earlier which indicate that backcountry skiers are far more likely to perceive conflicts with other activities.

2. Attribution of Blame

Jacob and Schreyer (1980) define conflict for an individual as "goal interference attributed to another's behaviour." It is difficult to establish the attribution of blame from the survey results, however backcountry skiers identified snowmobiling, heliskiing and logging as having a negative impact on their experience. Backcountry skiers were also much more willing to pay to exclude other activities from the area. Heliskiers were much less likely to perceive other activities as having a negative impact. In fact, they identified backcountry skiing as having a slightly positive impact on their experience. Snowmobilers did not place much importance on the exclusion of other activities from their recreation area.

They were more likely to place importance on the development of logging roads and the protection of wildlife habitat.

Comments written by backcountry skiers and heliskiers seem to bear out these findings.[15] Backcountry skiers were very likely to mention their concerns about the presence of helicopters and heliskiers. Heliskiers were more likely to express concern about logging practices. The heliskiers did not generally consider the backcountry skiers to be a problem. Basically, the heliskiers do not seem to perceive conflict as frequently or as intensely as backcountry skiers.

3. Knowledge of Others' Behaviour

Having knowledge of another's behaviour ("social contact") is a necessary condition for recreation conflict. From the survey data, it would appear that all three groups are aware of each other's activities because each group readily rated the impact of the other activities on the quality of their experience. If the respondents had been unaware of the other activities, it would be reasonable to expect that they would not express an opinion about the impact of the other activities. As most respondents expressed an opinion about the impact, it would appear that the condition of having knowledge of another's behaviour is met by the three groups, establishing a foundation for conflict. However, in discussions with backcountry skiers, they would almost inevitably express their concern about the presence of heliskiers and snowmobilers, whereas heliskiers were less likely to mention

[15] The author did not have access to comments made by snowmobilers.

backcountry skiers, and some heliskiers were even unaware that backcountry skiing was taking place within the heliskier area. Thus, backcountry skiers appear to have a higher degree of knowledge of the others' behaviour. As mentioned earlier, snowmobilers were willing to rate the impact of other activities but placed little importance on the presence of other recreationists in the area.

4. External Controls over Quality of Experience

The literature indicates that recreationists who feel that the locus of control over their experience is external are more likely to experience conflict. There are no survey data which address this issue, but based on discussions with participants in both heliskiing and backcountry skiing, it would appear that backcountry skiers feel much more helpless to control the elements of their experience. Heliskiers are very mobile due to the efficiency of helicopter transportation. If they land in an area which is unsuitable for skiing for some reason, they can simply fly somewhere else. Backcountry skiers are much more limited in terms of leaving an area if they find it unsuitable. This may indicate that the locus of control is more likely to be external for backcountry skiers.

Snowmobilers are much more independent than either of the skier groups because an individual can make choices about his or her destination, whereas the backcountry skiers have less mobility and the heliskiers are dependent on the decisions of their guide. This may give snowmobilers a greater sense of control over their experience, lessening the likelihood that they would experience conflict.

5. Intensity of Activity Style

The survey results do not support the assertion that recreationists with more intense activity styles are more prone to conflict. Heliskiers and snowmobilers both report having participated in their activity for a significantly longer period of time Heliskiers and snowmobilers also rate themselves as having higher levels of ability. Heliskiers also report skiing more days each year than backcountry skiers, although that figure is misleading because it refers to downhill skiing, not specifically heliskiing. The average number of days heliskied is between 5 and 7 days, so in reality it is likely that backcountry skiers ski in the backcountry more often than heliskiers heliski. Snowmobilers report having made more trips per year than either heliskiers or backcountry skiers.

Overall, the survey results would suggest that heliskiers and snowmobilers have a more intense activity style. They have been participating in their sport for a longer period of time, they report higher ability levels and more days of participation on an annual basis. According to the literature, it would appear that the heliskiers and snowmobilers would be more likely to experience conflict, but this is not borne out by the survey data.

6. Degree of Status Consciousness

When recreationists with private and status conscious activity styles interact, conflict occurs. Recreationists concerned with status are more likely to place an emphasis on equipment and outward signs of status. Heliskiers spend significantly more on ski equipment and ski clothing ($1518.92) than did backcountry skiers ($1068.75). This may indicate that heliskiers have a much more status conscious activity style. If this is so, then

the interaction of the two groups could predictably lead to conflict. Snowmobilers, too, are more likely to spend money on equipment for their activity with an average of nearly $9,000 invested in snowmobile equipment. This might make snowmobiling a more status conscious activity.

7. Specificity of Expectations

Looking at the factors which determined the selection of the Revelstoke area for their trips, backcountry skiers' responses were consistently more polarised. This may indicate that the backcountry skiers had much more specific expectations, making them more prone to experiencing conflict. On the other hand, heliskiers come from greater distances (98% of heliskiers are from outside Canada vs. 46% for backcountry skiers). People who have travelled great distances may have higher expectations, although that does not say anything about the specificity of those expectations. Certainly, the primary concern of heliskiers was to have the opportunity to ski powder snow, a very specific expectation.

Backcountry skiers appear to be more concerned about the experience as a whole, made up of many factors, so they have a greater number of expectations which means that there is an increased likelihood of these expectations not being met. It is difficult to compare the snowmobile data, but it would appear that although snowmobilers have quite specific expectations about the type of terrain which they prefer, they have less specific expectations about the type of experience they are looking for. This might make them less prone to conflict because the quality of their experience is based more on physical factors, rather than psychological ones.

8. Knowledge of Area

While it is difficult to ascertain from the data whether the respondents had particular knowledge of the Revelstoke area, a much higher percentage of backcountry skiers and snowmobilers are from Canada. In fact, 98% of snowmobilers are Canadian and 92% of backcountry skiers are from North America, as opposed to only 44% of heliskiers. As backcountry skiers and snowmobilers were more likely to identify the proximity of the area as an important factor in choosing the Revelstoke area, it is likely that they have had some prior experience in the area. This could make both of these groups more prone to experiencing conflict when they interact with recreationists with less knowledge of the area.

9. Focus

Based on the definition of focused vs. unfocused modes of experience, it is immediately clear that backcountry skiers operate in a focused mode, while heliskiing and snowmobiling are unfocused activities. This is borne out by the fact that heliskiers report having skied much more vertical footage (107,850 vertical feet vs. 17,160 for backcountry skiers). Obviously, heliskiers are much more concerned about skiing as much powder as possible. For both heliskiers and snowmobilers, the emphasis is on movement. Heliskiers move at a much quicker pace than backcountry skiers and they ski a lot more runs on a daily basis. Backcountry skiers take much more time to enjoy the natural surroundings as borne out by the fact that they place a higher value on the desire to be in a wilderness setting and enjoying the natural setting. For snowmobilers, movement is the whole basis

of the sport, so although the snowmobilers place importance on the natural setting, they are more likely to be experiencing their surroundings in an unfocused manner.

10. Lifestyle Differences

Differences in characteristics between two groups can increase the likelihood of conflict. It is clear from the demographic profiles of the three groups that they are made up of very different people. First of all, they come from different countries. Nearly all of the snowmobilers in this study are Canadian. Nearly half of the backcountry skiers come from outside of Canada, while the overwhelming majority of heliskiers are from the US and Europe. As discussed earlier, there are significant differences in age, sex, education and income, ability and experience. All of these factors indicate strong differences in the lifestyles and backgrounds of the participants in these three activities and these differences could contribute to conflicts when the groups interact.

D. Susceptibility to Conflict Profiles

Based on the survey results, it is possible to estimate the relative level of each of the ten factors which have been identified as increasing the likelihood of inter-activity conflict. By placing a value on each factor for each activity, relative to the levels in the other two activities, it is possible to determine the susceptibility to conflict of each activity when there is interaction with the other activity groups. In the table below, estimated values of "high," "medium," of "low" are applied to each factor for all three activities. As noted above, these estimates are based primarily on the survey results, with additional insights

from personal communications with recreationists, and the author's experience with each activity.

Table IV-12: Conflict Factors

Conflict Factor	Backcountry Skiing	Heliskiing	Snowmobiling
1. Non-achievement of recreational goals	Medium	Low	Low
2. Attribution of Blame	High	Medium	Low
3. Knowledge of Others' Behaviour	High	Medium	Low
4. External Control Over Experience	High	Medium	Low
5. Intensity of Activity Style	Medium	High	High
6. Degree of Status Consciousness	Low	High	High
7. Specificity of Expectations	High	High	Medium
8. Knowledge of Area	Medium	Low	High
9. Degree of Focus	High	Low	Low
10. Lifestyle Differences	High	High	High

Based on the estimates of the level of the conflict factors, it would appear that backcountry skiers are the most susceptible to experiencing conflict. There was no question on the survey which directly addressed the achievement or non-achievement of recreational goals, but based on the responses to questions about the negative impact of other activities, it is likely that the backcountry skiers in the study were the most likely of the three groups to fail to achieve their recreational goals due to the presence of other activities. This finding is also borne out by the literature on motorised vs. non-motorised activities. Participants in the non-motorised activities are generally more likely to experience conflict when they come into conflict with motorised recreation activities. Of the three groups, heliskiers appear to be the next most likely to experience conflict, with

snowmobilers being the least likely to experience conflict. These results are consistent with the responses from both these groups about the impact of other activities.

It is possible to use the estimates of each conflict factor to develop a graphic representation of each activity's "susceptibility to conflict profile." Such a graphic representation can make it easy to compare the susceptibility to conflict of any two activities. In the figures below, backcountry skiing, heliskiing, and snowmobiling are compared and it is immediately obvious that backcountry skiing is likely to be much more susceptible to conflict than either of the other two activities. Obviously, in order for these profiles to be accurate, a more quantitative measure of each factor is required,[17] but the idea of developing a graphic representation of the susceptibility to conflict would appear to be an effective way to make comparisons between two activities.

[17] The development of more accurate means of measurement will be discussed later in the thesis as part of the discussion on areas of future research.

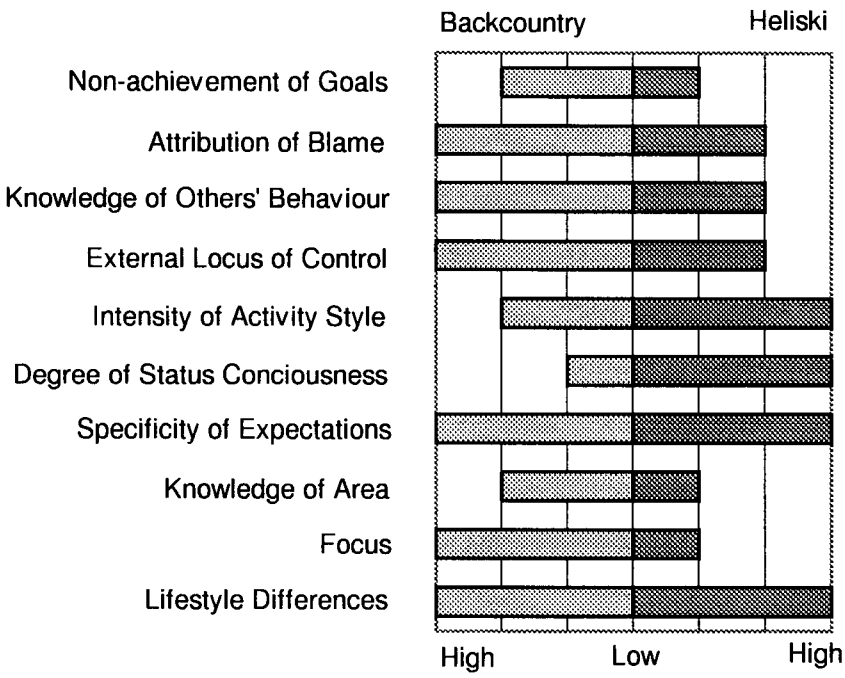

Figure IV-1: Susceptibility to Conflict Profile - Backcountry Ski vs Heliski

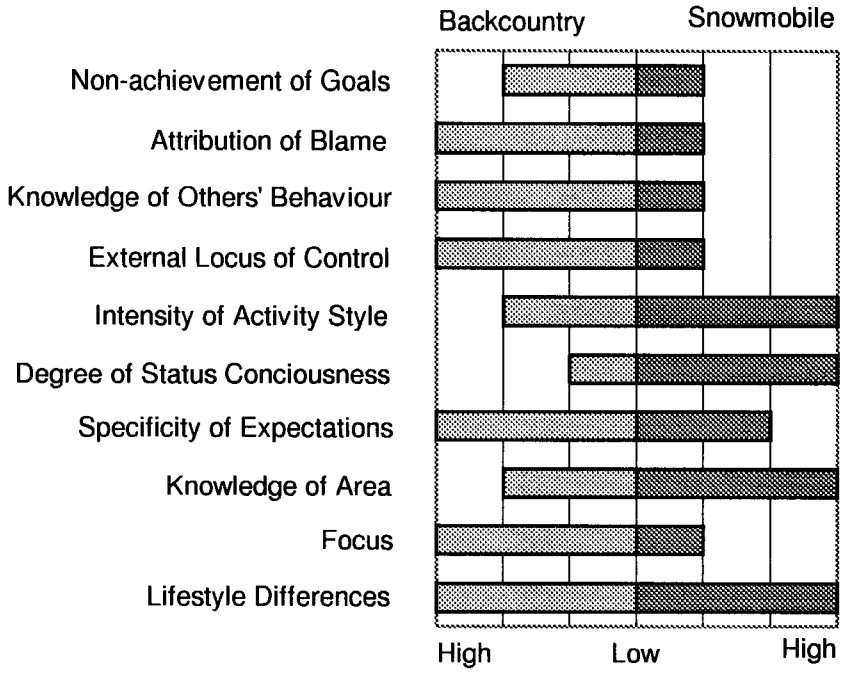

Figure IV-2: Susceptibility to Conflict Profile - Backcountry Ski vs. Snowmobiling

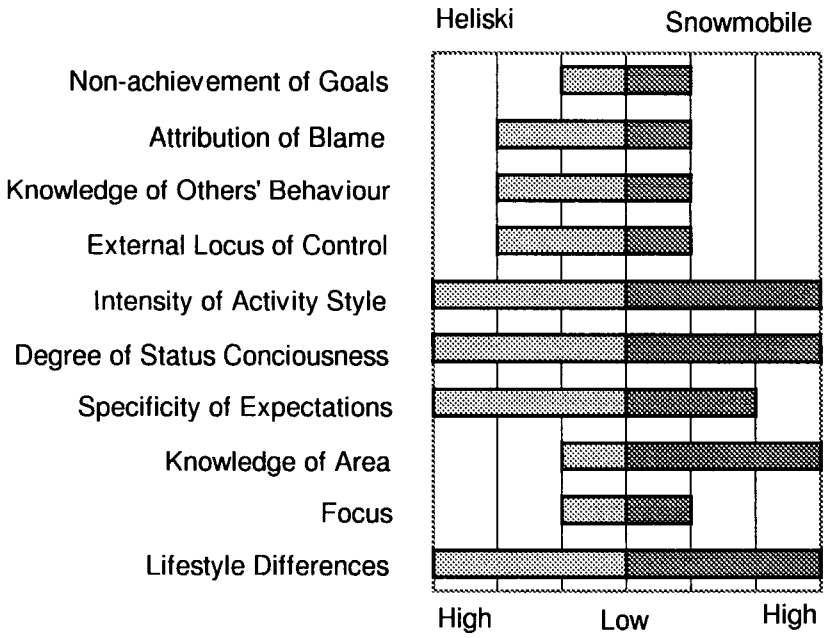

Figure IV-3:Susceptibility to Conflict Profile - Heliski vs. Snowmobiling

A Recreation Conflict Hierarchy

Another obvious result of comparing the susceptibility to conflict of different activities is the development of a sort of "hierarchy of conflict" within any group of recreation activities which are taking place in the same area. For instance, in looking at backcountry skiing, heliskiing, and snowmobiling, backcountry skiing would be placed at the bottom of the hierarchy. Neither heliskiers or snowmobilers view backcountry skiers as a serious threat or a source of conflicts. Backcountry skiers are relatively few in number compared to both heliskiers and snowmobilers. Backcountry skiers have a fairly limited range of travel and they don't seem to have a negative effect on wildlife or the environment.

Heliskiing on the other hand is more likely to be a source of conflict. This activity involves larger numbers of people who are transported by extremely noisy machines. These machines allow heliskiers to cover many square kilometres of terrain in a single day. The noise of the helicopters is not only annoying to backcountry skiers who are seeking a tranquil wilderness experience but, as mentioned earlier, there may be the possibility of the noise acting as a trigger for avalanches. There have also been studies indicating that the helicopters can have a negative effect on some species of wildlife. This places heliskiing above backcountry skiing on the conflict hierarchy. But if heliskiing can negatively affect the quality of the experience for backcountry skiers, snowmobiling can have a negative effect on both heliskiing and backcountry skiing. This puts snowmobiling at the top of the recreation hierarchy.

In the next chapter, the importance of acknowledging differences in susceptibility is addressed, particularly in connection with the development of land use policy governing recreational land use in British Columbia.

V. LAND USE POLICY GOVERNING COMMERCIAL BACKCOUNTRY RECREATION IN BRITISH COLUMBIA

In this chapter, the policy governing the use of Crown land for commercial and non-commercial recreation is reviewed, with a view to analysing the Commercial Backcountry Recreation Policy of 1995 as far as its effectiveness in meeting the needs of recreationists and addressing sources of conflict.

A. An Historical Perspective on Recreational Land Use Policy in British Columbia.

Ninety-three percent of the land base in British Columbia is Crown land, so the provincial government is responsible for controlling basically all of the backcountry resources used for recreational purposes. There is a long tradition of use of these lands by public recreationists and it is only relatively recently that there has been policy governing the use of these lands by commercial recreation operators and granting them tenure over their operating areas.

1. Backcountry Skiing

Backcountry skiing is primarily undertaken by individuals on a non-commercial basis, so there has never been any policy governing the use of backcountry areas by backcountry skiers. When the first commercial backcountry skiing operators went into business in the

early 1980's, many of them were only required to have a permit from the Ministry of Forests. This granted the operator the right to build a cabin on a small piece of land (usually 50 square metres), but there was no policy which governed the commercial operation in terms of land use (Schaeffer 1993). This meant there was no protection for the operator in terms of conflict with other users, either public or commercial. This was particularly trying for the commercial backcountry ski operators in the Revelstoke region because all of those operations were within the operating areas of heliski companies. This lack of adequate regulation of commercial backcountry ski operations existed until the introduction of the Commercial Backcountry Recreation Policy in 1995.

2. Helicopter Skiing

In the early days of helicopter skiing, operators did not have any kind of tenure on the land which they used. But by the late 1970's, heliski operators were becoming very concerned about this lack of tenure. They were finding it increasingly difficult to obtain financing because they did not have any guarantee of long-term rights to their operating area. Some operators were also reluctant to undertake significant capital investment for the same reason (Gmoser 1993). From 1976 to 1980, heliski operators met repeatedly with provincial officials in an effort to establish some sort of tenure agreement. The biggest obstacle to the granting of tenure was the sheer size of the heliski areas. At the time, the average heliski area covered approximately 200 square miles. The government felt very uncomfortable about being seen to give such huge tracts of land to the operators, despite the fact that the tenure would only recognise the operator's right to commercially heliski in a particular area (Ski Consultants 1980).

The government eventually came up with a compromise. The Commercial Mechanized Ski Guiding Policy was approved in 1983. This policy managed to get around the disturbing idea of granting operators large tracts of land by instead giving them a run-based tenure. That is, the operators were granted exclusive commercial heliski rights to 100 metre wide runs. This run-based tenure would give operators the long term rights to specified runs. It was felt that this would meet the operators' needs in terms of financing and marketing, but the government would not be in the uncomfortable position of having granted the operators huge areas of land. The new policy allowed operators a ten-year tenure over the runs.

In 1988, the policy was changed once again. It had proved to be nearly impossible for operators to ski only on the 100 metre swaths which had been designated on 1:50,000 topographical maps and there were frequently conflicts on the edges of operating areas where competing operators would have runs adjacent to each other on the same slope. The Heli Ski Operators Association and its members lobbied vigorously for an area-based tenure (Schlunegger 1993). In the revised Commercial Mechanized Ski Guiding Policy, the operators were given the rights to heliski within a designated area, and as part of the new tenure agreement, each operator was required to submit a management plan every five years. But while the Commercial Mechanized Ski Guiding Policy addressed the concerns of the heliski operators, by the late 1980's it was obvious that a more comprehensive policy was needed which would address the needs of all the commercial operators using BC's backcountry. This led to the development of the Commercial

Backcountry Recreation Policy which was accepted by the provincial government in February of 1995.

3. Snowmobiling

As noted earlier, nearly all snowmobiling in BC is undertaken on a non-commercial basis and there has never been any regulation over the use of snowmobiles on Crown land. Anyone over the age of sixteen has the right to ride their snowmobile on Crown land. Children under the age of sixteen are permitted to use snowmobiles if they have their parent's consent. Snowmobile owners are supposed to register their machines with the BC Motor Vehicle Branch and they are then given a decal which is attached to the machine and is valid for the life of the machine. To date, approximately 65,000 snowmobiles have been registered in BC in the past 20 years, but it is not known how many of these machines are still in use. In the last two years, 5,000 new machines have been registered and 1,800 used machines were registered by new owners. There are currently no plans to regulate the use of snowmobiles and the BC Snowmobile Federation is committed to maintaining their unrestricted access to public lands in BC (Weid 1993). If commercial snowmobile operations become more popular and successful, it seems likely that some form of regulation will be necessary.

B. The Development of the Commercial Backcountry Recreation Policy

1. A Policy Proposal for the Regulation of Commercial Backcountry Recreation

In 1990, BC Lands released a public discussion paper aimed at generating public input about the proposed Commercial Backcountry Recreation Policy. The paper identified backcountry recreation as a growth industry in the province with predictions of over half a billion dollars in revenue by the year 2000 from commercial backcountry recreation (BC Lands, 1990).[18] There was also a recognition on the government's behalf of the fact that backcountry resources had been poorly managed in the past:

> To date, policy and programs have been limited and largely uncoordinated. There is now a need for government to develop appropriate commercial backcountry recreation policies that will provide this economic sector with sufficient security to undertake business planning and investment, and also establish the basis to manage the difficult issues surrounding industry growth and expansion (BC Lands 1990).

The importance of public access to Crown land was also addressed, with the paper discussing the need for balancing the interests of the public and commercial sectors.

The discussion paper touched on eight areas of concern:

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[18] Unless otherwise stated, this section is based on "Commercial Backcountry Recreation on Crown Land in British Columbia: A public discussion paper", published by Ministry of Lands and Parks, December 1990.

Planning, inventory and carrying capacity.

Before the establishment of new commercial backcountry recreation operations, it was recognised that there was a need for long range planning based on comprehensive land use inventories and assessments, with a focus on the sustainable development of natural resources.

Public Access to Crown Lands

It was made clear that it was critical to recognise the tradition of public use of Crown land, and public access had to be considered when evaluating commercial proposals.

Aboriginal Land Issues

Aboriginal land issues had to be considered in any proposal for a commercial backcountry operation.

Allocating Commercial Land Rights

The paper called for a move towards a competitive process for the granting of land rights. In the past, land had been allocated on a "first-come, first-served" basis. The new approach would include a competitive approach to the granting of additional rights to existing operators (e.g., if a heliski operator wanted to expand to have a summer operation.) The paper also proposed to make the competition open to proposals from interests outside the province or the country. No priority was to be given to Canadian

citizens. Also, proposals would be evaluated in terms of their economic, social and environmental impact on the region, with a view to maximising the local benefits.

Pricing Commercial Backcountry Recreation Land Rights

The value of land use rights was to be established through a competitive process. If the rights were transferred from one operator to another, it would require the approval of the Minister and, if the seller looked to gain a substantial amount, the Ministry maintained the right to share in the profits.

Nature of Rights

A commercial backcountry operator might require different kinds of rights in order to be able to operate. These would be: resource use rights, land use rights, and business licences. These rights are granted by different government agencies, depending on the expertise required to evaluate the application. These use rights would not constitute ownership of the land. The paper states that Crown land should only be sold under very special circumstances, although longterm tenure will be granted in instances where security is required to finance capital improvements. The right to use land would not convey exclusive rights to the operator and the government would maintain the right to modify licences in the case of conflicts.

Resource Management and Conflict Resolution

The paper proposes the avoidance of negative environmental and social impacts by evaluating proposals for such impacts prior to the establishment of any commercial backcountry recreation operation. If there was not sufficient information upon which to base a decision, operators might be required to pay for an assessment. Also, operators would be required to prepare a management plan which provided a basis for monitoring the performance of an operation.

Public Safety

Commercial backcountry operators would be encouraged to undertake self-regulation to manage risk.

2. Public Response to the Proposed Commercial Backcountry Recreation Policy

The 1990 discussion paper was widely distributed and nearly 900 individuals and groups with interests in the future of recreation in BC prepared written responses to the proposals. There was a general acceptance of the need for a policy governing commercial

backcountry recreation, although few respondents were in favour of all of the proposals outlined in the paper.[19]

As far as land use planning, most people agreed with the idea of planning, but some were sceptical that the government could carry out the kind of comprehensive land use planning which would be required.

The majority of respondents were concerned about protecting access to Crown land for members of the public. There was some worry that the public's use of the land could be limited through the granting of land use rights to commercial backcountry operators.

Few expressed an opinion about aboriginal land issues, but those that did wanted to see land claims addressed prior to the allocation of land use rights on Crown land.

With regard to the competitive process for the allocation of rights, the biggest fear on the part of respondents was that an emphasis on financial returns could override environmental and social criteria. There was also a strong support for local ownership of operations, as opposed to foreign ownership.

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[19] Unless otherwise stated, this section is based on "Summary of Public Comments: Commercial Backcountry Recreation on Crown Land in British Columbia", published by Ministry of Lands and Parks, September 1991.

Commercial operators expressed concern over the pricing system, including the government's proposal to share in any financial returns resulting from a transfer of land use rights. Some people felt that rights should not be transferable.

A large number of respondents were strongly opposed to the sale of Crown land for commercial purposes, while some commercial operators felt that the tenures discussed still did not provide sufficient security for investment purposes.

Of particular interest, in terms of this thesis, is the fact that while many people supported the management plan approach as a means of monitoring the performance of the operators, some people also expressed concerns regarding the government's ability to manage the resource and resolve conflicts. There were also mentions of conflicts between commercial recreation and other resource users, particularly logging operations.

Overall, respondents wanted to see more public input into the process of developing policies, and once proposals are made, they wanted to see reviews of proposals by people from within the area of concern and from outside.

3. A Final Version of the Commercial Backcountry Recreation Policy

As a result of the comments from members of the public, a public participation process was undertaken which included several workshops throughout the province over a two

year period. The workshops were attended by representatives from stakeholder groups and members of the public. The results of the workshops were considered with the comments on the public discussion paper and a policy proposal was prepared. Some of the key points raised as a result of the public review were the following:

- It was generally accepted that there was a need for a policy.

- The public was strongly opposed to anything which would limit public access to Crown land.

- The protection of the environment should be a top priority

- Crown land should not be sold.

- Preference should be given to local operators.

- Financial returns should not be the first priority.

- There is a need for land use planning.

- Public must be involved in the decision-making process on commercial backcountry recreation proposals.

Based on the input of the public and members of stakeholder groups, revisions were made and a final version of the policy was developed. The final version differs from the original policy proposed in several ways, but it is interesting to note that it also fails to address some of the concerns raised by the public process.

In the version of the policy which was approved in February 1995, the policy is prefaced by a list of nine "strategic principles," which were developed out of the comments from stakeholders and the public.[21]

These principles are:

1. Environmental Stewardship

There was general agreement that the underlying principle of the entire policy should be sustainability. The protection of environmental integrity and biological diversity should take precedence over any recreational uses of the land, and commercial activities should be environmentally sustainable.

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[21] Unless otherwise stated, this section is based on the Commercial Backcountry Recreation Policy, Section 3.4.0500, Volume 3, BC Lands.

2. Public Access and Use

The desire on the part of the public to have unlimited access to Crown land resulted in the development of a statement which indicates that public access will be limited only by "environment, social and public safety considerations."

3. Economic Diversification

The focus is on the integration of commercial backcountry recreation as part of the strategies to diversify the economies of communities and regions.

4. Public Consultation

The public is guaranteed the opportunity to participate in reviews of and decisions on commercial backcountry recreation applications. There is a commitment to an open and consultative process which ensures that the interests of the public are considered.

5. Inter-agency Co-ordination

Because there are several different government agencies involved in the review of commercial backcountry recreation proposals, the policy recognises the need for a high degree of co-operation with all departments, as well as with local governments and members of the public.

6. Land Use Planning

The policy highlights the importance of working with other land use planning processes being undertaken in the province including Land and Resource Management Plans and Local Resource Use Plans.

7. Fair Return to the Crown

The policy commits to ensuring that financial return is secondary to environmental and social considerations.

8. Relationship with First Nations

Aboriginal land claims are addressed through involving First Nations in the review of commercial backcountry recreation proposals.

9. Integration with Other Uses.

To avoid conflicts with other resource uses, the possibility of conflict will be addressed during the review of commercial backcountry recreation proposals.

The Commercial Backcountry Recreation Policy is the product of extensive public consultations and it attempts to address the needs of all of the various groups who are affected by Commercial Backcountry Recreation, but there does not appear to be enough emphasis on providing specific guidelines to address the avoidance or resolution of

conflicts between backcountry recreation activities. It seems to be assumed that conflicts will be addressed in the review process prior to the acceptance of a proposal for a commercial backcountry recreation operation. This does not take into consideration the fact that circumstances may arise over time which bring previously compatible activities into conflict. And it certainly does not address the avoidance of conflict by taking into consideration the specific characteristics of various activities which make them more or less susceptible to experiencing conflict.

It is left up to the discretion of the BC Lands officers in the various regions to determine whether there is a possibility of a conflict occurring and, according to Lands representatives, there are no set guidelines for making decisions about potential conflicts. The policy only addresses dispute resolution by outlining the process of dispute i.e., complaints are to be submitted to the regional BC Lands office, and if the conflict is not resolved then an appeal can be made to the Minister of Environment. It is interesting to note that while the Commercial Backcountry Recreation Policy does govern the use of Crown Lands for recreational purposes, it is seen by BC Lands as a tenuring policy, rather than a land planning policy (Butler 1995). This difference in perception may also have an impact on the efficacy of the CBR in terms of conflict prevention, because BC Lands representatives do not see the policy as a land planning tool.

In the next section, the implications of recreation conflict theory and of the specific characteristics of the activities addressed in this thesis will be discussed with a view to

providing suggestions for the development of future policy governing commercial backcountry recreation in British Columbia.

C. Recommendations for Future Policy Development

The literature on outdoor recreation and the results of the research undertaken for this thesis both indicate that some recreation activities are more susceptible to experiencing conflict when participants of those activities come into contact with other groups. It would be advisable for future policy governing commercial backcountry recreation to recognise the fragility of certain components of particular recreation experiences (e.g., enjoying the natural setting, seeking solitude and tranquility) and to take into account the specific characteristics of different recreation activities.

1. Implications of Recreation Conflict Theory for Future Policy Development

The foundation of any recreation conflict is the non-achievement of recreational goals. In order to develop policy guidelines for avoiding conflict, it is necessary to determine the specific goals of each recreational activity and to then design guidelines which address the needs of the different activities. For instance, backcountry skiers are interested in a tranquil wilderness experience. Obviously, the presence of motorised recreation activities in their ski area will result in the non-achievement of their recreation goals. In designing future policy, it will be necessary to identify the specific recreational goals of the

commercial and non-commercial activities in order to ensure that the goals of one group do not conflict with others.

One approach to avoiding conflicts between motorised and non-motorised activities might be to restrict motorised activities to certain areas. Unfortunately, this approach could result in escalated feelings of conflict on the part of the motorised recreationists who feel that their recreational possibilities have been reduced. At the same time, such restrictions might not meet the needs of the non-mechanised recreationists because they may still be able to hear the motors of the other recreationists, or the areas set aside for non-motorised recreation might become too crowded. If solitude or "getting away from it all" is one of their recreational goals, then a crowded area would not meet their needs either. Too many regulations might result in recreationists feeling that they have lost control of their recreation experience. According to the literature, recreationists who feel that the locus of control over their experience is external are more likely to experience conflict.

All of these issues highlight the importance of developing a clear understanding of all of the components which are necessary for recreationists to achieve their recreational goals. In developing a land use policy which addresses commercial and non-commercial backcountry recreation, it would be an important piece of the process to identify the following characteristics of the recreation activities taking place in an area:

- **What are the social goals of the recreation participants?**

Are they looking for a tranquil, wilderness experience, or do they view their recreation activity as an opportunity to socialise and meet people?

- **What are the psychological goals of the recreation participants?**

Are the participants looking for relaxation, excitement, risk?

- **What are the physical goals of the recreation participants?**

Are participants involved in the activity to improve their physical fitness? Do they need specific terrain to achieve their goals?

- **Do the different groups have knowledge of the behaviour of other groups?**

Do the different groups easily identify the presence of other recreationists in the area? Is there a history of conflict between the groups?

- **Will policy changes affect the locus of control?**

Is increased regulation likely to affect the achievement of recreational goals? Would restriction of activities in certain areas affect those recreationists who value the proximity of the area as an important factor in choosing to recreate there?

- **How intense is the activity style of the activity participants?**

Are the participants occasional users of the area, or regular users of the area?

- **Do the participants have private or status conscious activity styles?**

If there are differing activity styles, are the participants in the two groups likely to come into contact?

- **How specific are the expectations of the activity participants?**

What specifically are they looking for? Could the same expectations be met in other ways?

- **Do the participants have a long history of using the area?**

Do they have a lot of knowledge of the area? Is the use a traditional one?

- **How focused is the mode of experience of the activity?**

Are focused recreationists likely to come into contact with recreationists with an unfocused mode of experience?

- **Are there significant lifestyle differences between the participants in different recreation activities?**

Where do the participants come from? What is their socio-economic background?

Consideration of these questions should form a part of the review process undertaken as part of the application process under the Commercial Backcountry Recreation Policy.

2. Implications of Characteristics of Backcountry Skiing, Heliskiing and Snowmobiling for Future Policy Development

In looking at the characteristics of the backcountry skiing, heliskiing, and snowmobiling, perhaps the most important consideration in terms of policy development is the fact that many of the recreationists participating in these activities are not from British Columbia. They are not even Canadian. 97.5% of heliskiers and 45.6% of backcountry skiers are from outside of Canada. The Commercial Backcountry Policy development process involved a great deal of public participation by British Columbians, but the resulting policy is developed by and for British Columbians. Given the global nature of the tourism industry, should provincial policy be designed with a local or a global perspective?

It is important to understand British Columbia's position in the world with regards to backcountry skiing, heliskiing and snowmobiling. Backcountry skiing is very popular in Europe, but the very popularity of the activity makes it difficult for people to achieve a true wilderness experience in Europe. While currently the majority of backcountry skiers in BC are from Canada or the US, there is a large potential market in Europe (Beglinger 1993). The backcountry ski experience in BC appeals to those skiers who want to get away from it all and experience the tranquility of Canada's wilderness. The presence of motorised activities such as heliskiing and snowmobiling can greatly detract from this experience and could make BC a less desirable destination for European backcountry skiers.

As discussed earlier, British Columbia is the centre of heliskiing worldwide, but there are new heliski areas opening up which are trying to get a share of the heliski market. In the last five years, new heliski operations have opened up in the Himalayas in Pakistan and in the Caucasus of Russia. One European heliskier told the author that he had chosen to come to BC instead of going to Russia because he felt that Canada had a better medical system and better food. Other than that, he really did not see any difference between BC and Russia. Heliskiers are primarily interested in skiing light powder snow and, as most of them are travelling from far away, it does not really matter where they go skiing. BC is competing on a global level in the heliski industry and this needs to be acknowledged in policy development.

While backcountry skiing and heliskiing are largely dependent on foreign customers, snowmobiling is generally undertaken on a non-commercial basis by local area residents, or by people who are within driving distance. This raises questions about whether the needs of local residents should be put ahead of those of foreign tourists. Industry predictions call for rapid growth in the snowmobile market and the technology of snowmobiles is likely to improve, making conflicts between snowmobilers and skiers ever more likely. Perhaps it is time for the development of regulations for snowmobile activity.

Beyond these larger issues are the specific characteristics of these three activities which need to be considered in the development of land use policy. Obviously, backcountry skiers are unable to achieve their recreational goals when they are forced to interact with motorised recreation activities. In the case of a conflict between a commercial backcountry ski operator and a heliski operator in the Revelstoke region, the commercial backcountry operator stated that the quality of the experience he was offering to his guests was severely impacted by the presence of heliskiers in the same areas as his backcountry ski operation (Beglinger 1993). After a long conflict resolution process, BC Lands has restricted the heliski operator from operating within the backcountry ski operator's use area and the heliski helicopters are not permitted to fly over the area. Unfortunately, this restriction of the heliski activity did not completely solve the problem because the sound of helicopters can be heard for several kilometres and so, while the heliskiers are no longer sharing the same terrain as the backcountry skiers, on a busy day the backcountry skiers will hear helicopters throughout the day. This situation might have been solved by the creation of a noise buffer zone around the backcountry area which would keep the aircraft far enough away to avoid the noise of their engines being a problem.

Other specific characteristics of the backcountry ski experience which have to be taken into account when developing policy governing that activity include an acknowledgement of the importance that backcountry skiers place on the natural environment. Backcountry skiers expressed a strong desire to be in a wilderness setting and they also indicated the importance of wildlife and wildlife habitat. Because backcountry skiing is such a focused

experience, backcountry skiers are more likely than any other group to be perturbed by environmental disruptions. The interests of the backcountry skiers must be taken into account when making decisions about other land uses beyond recreational activities i.e., logging, mining.

Heliskiers are less concerned about the natural environment than the backcountry skiers, but they still expressed a desire to enjoy the wilderness setting. Some heliskiers expressed concern about the visual impact of clear cut logging and heliski operators are actively involved in trying to reduce the negative impact of logging in terms of the destruction of ski runs. Heliskiers are less likely to experience a reduction in the quality of their experience as a result of other activities because they are primarily concerned with the quality of the powder snow and the terrain. It would seem that these two features of the heliski experience are relatively safe from the impact of other activities, but the quality of the snow can be adversely affected by the presence of snowmobilers because they track out the powder, and the quality of the terrain can be affected by the restriction of heliskiing in certain areas and by logging practices.

Snowmobilers place a great deal of importance on their right to travel over long distances without being restricted. This is probably the biggest challenge to any efforts to regulate snowmobile activity. Snowmobilers can travel hundreds of kilometres a day at speeds of up to 150 kilometres per hour. A large part of the snowmobile experience is this ability to travel fast and far. Obviously, snowmobilers have a strongly negative impact on some

other recreationists. The need to restrict their activity is becoming increasingly evident, but at this point there is no means for restricting snowmobile activity in any kind of an organised manner.

The lack of regulation of snowmobile activity highlights the need for a policy which addresses all types of recreation - commercial and non-commercial. The Commercial Backcountry Recreation Policy only addresses those recreation activities which are being undertaken on a commercial basis and while the policy states that public access to Crown land is ensured, it does not address the quality of the public access. The control of recreational activities in British Columbia is further complicated by the fact public and commercial recreation activities are managed by different agencies of the government.

In the case of heliskiing and backcountry skiing, 97.5% of the participants in heliskiing are paying customers from outside of Canada and yet virtually the entire Columbia Mountain range has been divided up into tenure areas for heliskiing. This means that there are very few areas within this mountain range (outside of the National Parks) where public backcountry skiers can travel without interacting in some way with heliski operations. As backcountry skiers are more likely to come from British Columbia, or at least Canada, it seems like the needs of the residents of the province have been ignored. Once again, future policy will have to address the need for balancing local needs with global demands.

3. Managing Conflict with Land Use Policy

Having discussed the implications of conflict theory for policy development and the specific characteristics of the recreation activities in question, it is worth taking a brief look at the implementation of provincial land use policy and how conflict is addressed. As mentioned above, the Commercial Backcountry Recreation Policy does not specifically deal with inter-activity conflicts beyond discussing the avoidance of conflicts through the review of proposals. It is worthwhile to note that BC Lands has primarily dealt with inter-activity conflicts by separating incompatible uses. This is a very traditional approach to conflict prevention, but it does not address the social-psychological causes of the conflict and it certainly does not take into account the susceptibility to conflict of individual activities.

In an examination of conflict prevention in British Columbia Provincial Parks, Thompson (1994) discusses the four main approaches to conflict prevention, all of which are based on management of the recreation resource, rather than on the management of the users of the resource. The four approaches are:

- zoning

- Recreation Opportunity Spectrum

- regulation

- substitution.

All of these approaches are aimed at separating incompatible activities, although they take different approaches to the separation. They are all basically methods of zoning specific areas for specific uses, but some methods, such as the Recreation Opportunity Spectrum, attempt to recognise some of the causes of conflict, although none of them go far enough in recognising the causes of conflict.

- **Zoning** - Zoning simply involves the physical separation of conflicting activities. It fails to recognise the social and psychological root of many conflicts and, in some instances, zoning can escalate a conflict because if there is nowhere else for the restricted activity to take place, participants may ignore zoning regulations. It can be very difficult to enforce zoning because it can be nearly impossible to monitor activities over large areas. An example of this exists in the National Parks near Revelstoke. For years there have been reports of snowmobilers "poaching powder" on the edges of the parks. Unfortunately, some areas of the Parks are so remote that Parks staff have no means of enforcing restrictions on snowmobile activity. The only way to monitor such activity would be through the use of aerial surveillance and there is no budget for such an expensive undertaking.

- **Recreation Opportunity Spectrum** - The use of the Recreation Opportunity Spectrum (ROS) goes beyond simply zoning. The analysis of a resource area using

the ROS addresses the attributes of the resource setting, the physical requirements of the recreation activities in question, and the requirements for a satisfactory recreation experience. Unfortunately, the only criteria applied to the recreation experience are:

- remoteness of the area
- size of the area
- evidence of humans
- user density
- amount and noticeability of managerial regimentation of control (Buist and Hoots 1982).

While the ROS addresses some of the susceptibility to conflict factors (e.g., knowledge of others' behaviour), it falls short of recognising all of the social-psychological causes of conflict.

- **Regulation** - Regulation of a resource area involves establishing limits on use. Signs in an area will indicate restricted activities by area or time period. Regulation requires extensive enforcement if it is to be successful and once again it fails to recognise the causes of conflict; rather it deals with the symptoms of the conflict.

- **Substitution** - Substitution is an approach to conflict which tries to address the problem of displacement. If an activity is restricted from an area, a substitution approach would endeavour to find an alternative location for the activity. This only works in large areas or at a systems level because it is difficult to find alternative areas.

Also, it is difficult to educate users about alternative areas, particularly if they have a long history of use in a particular area or if proximity is a key factor in their choice of a particular area.

Thompson (1994) states that although spatial separation is the most popular method of conflict prevention in recreation conflict situations, it is inadequate because it ignores the social-psychological causes of conflict. He calls for an increased emphasis on public participation in conflict management as a means of educating participants about the goals of other activities, and as an opportunity for groups to establish a consensus-based approach to conflict resolution.

To date, BC Lands has relied on the spatial approach to conflict management. In a conflict between backcountry skiers and snowmobilers near Golden, the commercial backcountry ski operator was required to dismantle a portion of his operation to prevent the conflict (Leeson 1992). In a conflict between heliskiers and a commercial backcountry operation in the Durand Glacier area near Revelstoke, BC Lands again instituted a zoning approach to the conflict, by restricting heliskiing and helicopter flights over the backcountry area (Schlunegger 1995).[22]

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[22] It should be noted that in the Durand conflict, BC Lands did attempt to undertake a conflict resolution process by involving both parties in discussions. Unfortunately, the complete incompatibility of heliskiing and backcountry skiing made it impossible for a compromise to be reached and eventually a solution was imposed by the regional office of BC Lands. Neither party was satisfied with the zoning decision. In this case, the conflict could have been avoided by the recognition of the incompatibility of these two activities before permission was granted to the backcountry operator to establish his operation. According to the Commercial Backcountry Recreation Policy,

It does not appear that the Commercial Backcountry Policy offers any additional guidance for the avoidance or resolution of conflicts. There is no written policy which outlines the approach to be taken by BC Lands in the event of a conflict. The management of conflict is left up to the discretion of regional officers of BC Lands. The literature on recreation conflict and the survey data presented in this study both indicate the importance of recognising the social-psychological causes of conflict. The failure of the Commercial Backcountry Recreation Policy to address these causes is one of the flaws in the policy from a conflict management perspective.

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future conflicts of this nature will be avoided through the proposal review process, but the policy does not address how existing conflicts, or future conflict between existing operations will be dealt with.

VI. Conclusion

Backcountry recreation in British Columbia is becoming increasingly popular among both residents of British Columbia and tourists from elsewhere in the world. This increased popularity will inevitably lead to increased conflict as recreationists with incompatible recreation goals are forced to share the same recreation resources. The likelihood of conflict is magnified by the dynamic nature of outdoor recreation. Technological improvements are making it much easier for many people to participate in outdoor recreation and, particularly in the case of motorised vs. non-motorised activities, these improvements are contributing to the occurrence of conflict situations. It is imperative for recreation resource managers in BC to recognise the causes of conflicts and the varying levels of susceptibility to conflict which are characteristic of different recreation activities.

In this thesis, the social-psychological causes of conflict are examined and a case is made for recreation resource managers to switch their focus from avoiding conflict through managing the resource, to managing the resource users. Ten statements are presented which highlight the social-psychological causes of conflict and these can be used to assess the likelihood that conflict will occur in a given recreation situation. The ten statements are:

- Conflict is caused by the non-achievement of recreational goals, with goals such as nature enjoyment, solitude and tranquility being particularly susceptible to interference from other activities.

- A true conflict includes the attribution of blame for this non-achievement to some other person or group.

- Conflict is more likely when the achievement of the recreation goal is dependent on factors beyond the individual's control.

- Social contact (i.e., the knowledge of another's behaviour) is a necessary condition for conflict.

- Recreationists with more intense activity styles are more prone to conflict.

- When recreationists with private and status conscious activity styles interact, conflict occurs.

- Recreationists with more specific expectations are more prone to conflict.

- Recreationists with a long history of activity in an area or with greater knowledge of an area are more prone to conflict.

- Recreationists with a more focused mode of experience are more prone to conflict.

- Recreationists with less tolerance for lifestyle diversity are more prone to conflict.

The case study in this thesis looks at three winter recreation activities which have a history of conflict: backcountry skiing, heliskiing, and snowmobiling. All of these activities are projected to grow in popularity, so it is likely that there will continue to be conflicts between them. These activities are particularly interesting because they demonstrate the types of conflicts which occur between motorised and non-motorised activities (backcountry skiing vs. heliskiing and snowmobiling). They also illustrate the conflicts which can occur between commercial and non-commercial recreation activities (heliskiing and backcountry skiing vs. snowmobiling). But perhaps the most interesting aspects of these three activities are the causes of the conflicts between them. The survey data indicate that the three groups share some recreation goals, such as an enjoyment of the wilderness setting and a desire to view wildlife, but there are some very important differences which are the root of the conflicts between them and these differences are responsible for variations in their susceptibility to experiencing conflict.

Backcountry skiers are primarily interested in a tranquil wilderness experience which allows them to "get away from it all." Heliskiers are focused on skiing "steep and deep" powder. Snowmobilers view their recreation activity as an opportunity for socialising and moving quickly over the terrain. Within each activity group, the participants have remarkably similar definitions of what constitutes a desirable recreation experience. They also have very similar outlooks in terms of perceiving the impacts of other activities. But there are very strong attitudinal differences between the three activity groups.

As indicated in the theory on outdoor recreation conflict, backcountry skiers who value such vulnerable qualities as tranquility and pristine wilderness are much more likely to experience conflict. Heliskiers are less likely to perceive other activities in a negative manner, and snowmobilers do not really acknowledge any negative impacts as a result of the presence of other recreationists in the same area. This results in a "recreation conflict hierarchy" where some groups are causing conflict for other groups without experiencing conflict themselves. By applying the ten statements about social-psychological causes of conflict, it is possible to develop a "susceptibility to conflict" profile for individual recreation activities. Such a profile indicates where a particular activity is positioned on the recreation conflict hierarchy and offers an easy way to evaluate how susceptible an activity is to experiencing conflict.

The susceptibility to conflict of recreation activities needs to be a key component in the development of any policy aimed at reducing conflict between recreation activities. The current policy covering commercial backcountry recreation in British Columbia is the BC government's first real attempt to address recreation conflict between commercial activities in a comprehensive manner. Unfortunately, there is little specific guidance in the policy in terms of preventing or resolving conflict. The key component for conflict avoidance is a proposal review process which is undertaken before the establishment of a commercial operation. It is the view of the author that this review process needs to include an assessment of the susceptibility to conflict of the recreation activities in question. The Commercial Backcountry Recreation Policy needs to go beyond a spatial

approach to conflict prevention. There needs to be a focus on the users of the resource, rather than strictly on the resource.

The most important question which arises out of the case study is the question of developing local land use policies which have global implications. British Columbia is becoming an increasingly popular destination for people from around the world who want to experience the beauty of our backcountry wilderness areas. In the examples addressed in this thesis, commercial heliskiing and backcountry skiing operations are both dependent on foreign clients for the success of their operations, yet there is no recognition of the international nature of these businesses in the policy which regulates them. The most important question which will face BC Lands managers over the next decade will be - are we managing our lands for residents of BC or for the enjoyment of all people from around the globe? The answer to this question will shape land use policy over the next decades, as the right of public access to Crown Lands comes into conflict with the desire of visitors to experience our pristine wilderness.

Areas for Future Research

Given the importance of addressing conflicts in BC's backcountry the following areas of research would be useful:

More Information on Activities

More information is required on the three activities addressed in the case study - backcountry skiing, heliskiing, and snowmobiling. There is very little written material available on these activities and yet all three of them are growing in popularity. To date, this thesis is probably the most comprehensive examination of the three activities in British Columbia, but much more analysis is needed. In 1980, a study of the helicopter industry was undertaken at the request of the provincial government. There has been no subsequent study to provide a benchmark of the development in that industry. Such a study would provide important information about the economic, social and environmental impact of the industry. Commercial backcountry skiing should be studied in a similar manner as it is a relatively young industry which is not well understood by those outside the industry.

Snowmobiling is perhaps the biggest threat to other winter recreation activities in BC and it has the most participants and yet the only information available about the industry has been gathered by the BC Snowmobile Federation. It would be very useful to see an independent assessment of the activity, in terms of its impact on other activities and the natural environment. Regulations on snowmobiling are becoming increasingly prevalent in other provinces and in the United States, and yet BC has no regulations. An examination of regulations in other areas could be very useful in planning for the future of snowmobiling in BC.

Survey to Address Conflicts

The survey instruments used in this thesis were not specifically designed to analyse the causes of conflict. It would be extremely useful to undertake another survey project which was much more focused on establishing the sources of conflict in different activities. Such a survey would have questions which specifically addressed the following areas:

- ***identification of recreational goals*** - e.g., What are the qualities of their experience which they value most highly? What are they trying to achieve through their participation?

- ***attribution of blame for non-achievement of goals*** - e.g., If they are experiencing conflict, who do they blame, if anyone?

- ***locus of control*** - e.g., Do they feel that they are in control of their experience or is there some form of external control?

- ***knowledge of the behaviour of other recreationists*** - e.g., Are they aware of other recreationists in the recreation area? If so, how do they feel about the behaviour of these other groups?

- ***intensity of activity style*** - e.g., How often do they participate? How committed are they to their leisure activity? Is the activity a central life interest? Could they substitute another activity if they were unable to participate in this one?

- ***type of activity style*** - e.g., Do they have a private or status conscious activity style?

- ***specificity of expectations*** - e.g., Do they have very specific expectations of their recreation experience?

- ***knowledge of area*** - e.g., Do they have a history of activity in the area? How well do they feel they know the area?

- ***mode of experience*** - e.g., Are they interested in moving slowly through their environment and appreciating the complexities of the experience or is fast travel an important component of their activity?

- ***lifestyle diversity*** - e.g., What is their demographic profile? How do they view others with different socio-economic backgrounds?

A survey based on the above questions would be very useful in terms of developing a clear understanding of the causes of conflicts between different recreation activities.

Development of the Susceptibility to Conflict Profile

The graphic representation of the susceptibility to conflict profile of the three recreation activities could be significantly improved if the questions above were designed with such a profile in mind. The questions on a future survey could be developed in such a way as to provide a much more objective and quantitative basis for the susceptibility profile.

Examination of Conflict Prevention and Management Approaches in Other Areas

It was not within the scope of this thesis to examine approaches taken to conflict prevention and management in other parts of the world where backcountry skiing, heliskiing and snowmobiling are taking place. There are some heliski operations in the United States and in the past few years there have been conflicts between these operations and backcountry skiers, but there is virtually no written material on this subject. It would be very interesting to address how these activities have been regulated in other parts of the world.

Summary

In many ways, the conflict over the use of BC's backcountry for recreation is very similar to the conflicts occurring over the use of other natural resources in this province (e.g., rangelands, forests, fisheries), thus the experience gained from an examination of winter recreation activities can be applied much more broadly. Some of the important findings of this thesis are presented below, starting with those findings which have larger implications

and moving onto to findings which are of particular significance to land use policy in British Columbia.

- ***The dichotomy between environmental impact and economic interests***

The conflicts between backcountry skiing, heliskiing, and snowmobiling are an example of the apparent dichotomy which exists between economic development and environmental interests. There are concerns about the environmental impact of both heliskiing and snowmobiling, and yet both these activities are responsible for significant contributions to the economies of the regions where they are taking place, so there has been little interest in limiting the activities of these groups, except by backcountry skiers. Backcountry skiers are relatively benign in environmental terms and they are keenly interested in the preservation of the natural environment, but because the backcountry skiers represent a negligible contribution in economic terms, there has been little emphasis on their needs or desires. This situation mirrors similar situations throughout the province and around the world, where economic interests appear to take precedence over environmental concerns. Any policy which addresses the use of natural resources in BC needs to take this dichotomy into account.

- ***The globalisation of economics.***

The development of heliskiing, in particular, highlights the increasingly global nature of economics. The heliski industry is nearly entirely dependent on clients from outside of Canada, and yet the industry is using the natural resources of BC, and the activities of the

heliski operators are governed by legislation and policy developed in British Columbia by British Columbians. As the economy of the world becomes more global, it is going to become increasingly necessary for policy to recognise the impacts that local policy will have on industries which are dependent on an international market.

- ***The importance of public participation in the development of policy.***

Public participation in the development of policy aimed at preventing conflicts is a key component in ensuring that there is a broad range of public commitment to the implementation of the policy. Public participation provides an opportunity to educate people about the nature of the conflicts, as well as allowing for participants from conflicting activities to develop an understanding of the interests of members from other groups. Public participation can also facilitate the recognition of the responsibilities of users, as well as their rights.

- ***The inadequacy of zoning as a means of conflict prevention.***

In the past, resource managers have relied on zoning as a means of preventing conflict between different natural resource-based activities. Zoning alone is no longer an effective approach to preventing conflict because zoning depends on having a large enough land base to permit the separation of conflicting activities or to allow for the provision of alternative areas for conflicting activities. With increasing population density, there is simply not enough land or recreational resources to meet the needs of all users. In addition, zoning fails to address the social and psychological causes of conflict which are

often the primary causes of conflict between competing recreational activities. Spatial or temporal zoning of land resources may be necessary, but such zoning must only be undertaken after considering the causes of conflicts, and zoning decisions should be made in conjunction with resource users.

- ***The evolution from "frontier" mentality to future planning.***

In the past, British Columbia has enjoyed an apparently limitless supply of natural resources. This has led to the development of a "frontier" mentality in terms of managing natural resources. Now that the limits of BC's resources are becoming increasingly evident, this "frontier" mentality is no longer acceptable. There are no more frontiers in BC, at least spatially, and in terms of the recreation activities examined in this thesis, it is highly likely that most technological frontiers have also been reached. This means there is a need for longterm visions and plans which recognise the transition from having limitless resources to developing strategies for identifying priorities for resource use.

- ***The importance of responsibilities, as well as rights.***

Throughout the development of the Commercial Backcountry Recreation Policy, there was a lot of emphasis placed on the rights of the public to maintain unrestricted access to public lands. At the same time, commercial operators were concerned about having the right to continue or develop commercial operations which rely on using the natural resources of BC. It is important for resource users to recognise that they have responsibilities, as well as rights. In the case of commercial operators, their

responsibilities in terms of social, environmental, and economic impacts should be clearly laid out and addressed through the management plans which are an integral part of their operation agreement with the province.

- ***The need for more tools for managing conflict.***

With a growing population and the increasing popularity of outdoor recreation, British Columbia will likely face more conflicts over the next few decades. It is therefore extremely important for resource managers to take a proactive approach to such conflict by developing tools which allow them to prevent or manage conflict in an effective manner. Land use policies need to continue to be designed which specifically address the prevention and resolution of conflicts. Public involvement in the design of such policies is a critical component, in order to ensure the acceptance and support of the policies. There are currently several initiatives underway in British Columbia which are aimed at developing policies in conjunction with the stakeholders and members of the public. Such initiatives need continued support. Within the existing Commercial Backcountry Recreation Policy, there is an opportunity to develop the management plan as a means of managing conflict. The plans should be used to explore the potential conflicts which might exist with other resource users and contingency plans should be developed for dealing with such conflicts if they arise.

It would appear that despite the recent development of the Commercial Backcountry Recreation Policy for British Columbia, there is still no comprehensive approach to

managing recreation conflicts in this province. This thesis highlights the importance of addressing these conflicts and it offers suggestions for approaches to analysing the causes of such conflict. Much more study is needed of the interaction of winter recreation activities in British Columbia, in particular of the snowmobile activity, because despite its infinitely renewable nature, powder snow is an increasingly important commodity in BC's backcountry.

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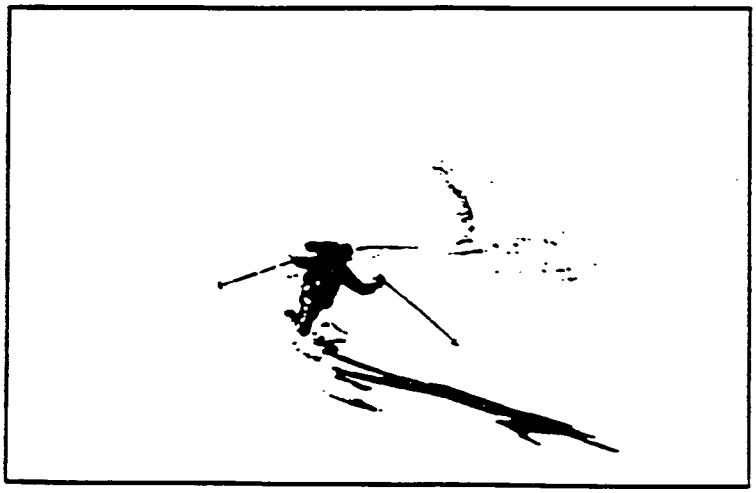
APPENDIX A: Commercial Backcountry Skier Survey

The University of British Columbia

SURVEY

COMMERCIAL BACKCOUNTRY SKIING IN BRITISH COLUMBIA



This survey is being conducted by the University of British Columbia Resource Management Science Department and the Forest Economics and Policy Analysis Research Unit. The purpose of the survey is to:

- identify interactions among different resource-based activities in the Revelstoke/Golden area, including backcountry skiing, heli-skiing, snowmobiling, logging and wildlife conservation
- determine the extent to which different uses are compatible or conflicting
- evaluate the actual and potential economic contributions of these activities to the regional and provincial economies.

Additional questions are asked about your background in order to allow the researchers to determine the representativeness of the sample as well as to allow for generalizations to be made about the participants in different activities.

Please answer all questions to the best of your ability. Seal the completed survey in the envelope provided and return it to the backcountry ski operator.

ANSWERS PROVIDED WILL BE KEPT IN STRICT CONFIDENCE

BACKCOUNTRY SKIING IN BRITISH COLUMBIA

SECTION 1: BACKGROUND

In this first section, we would like to find out a little about your backcountry skiing experience.

1. How many years have you been participating in backcountry skiing?

   [ ] Years

2. How would you describe your skiing ability? (Please mark choice.)

BEGINNER		INTERMEDIATE		ADVANCED	

3. What is the average number of days which you backcountry ski each year ?

   [ ] Days per Year

4. How many times per year do you go on a multi-day trip?

   [ ] Times per Year

5. What is the average length of a typical multi-day trip?

   [ ] Days

6. In the past, where have you gone on multi-day backcountry trips? And how many trips have you made to each location?

LOCATION	# OF TRIPS
Revelstoke/Golden area	
Elsewhere in B.C.	
Elsewhere in Canada	

LOCATION	# OF TRIPS
United States	
Europe	
Other (specify)	

7. How important were the following factors in your choice of THIS AREA on this trip?

FACTORS	Extremely Important			Neutral		Not At All Important
Return trip/ been here before	5	4	3	2	1	0
Type of accommodations available	5	4	3	2	1	0
Type of terrain	5	4	3	2	1	0
Proximity to your place of residence	5	4	3	2	1	0
Desire to be in a wilderness setting	5	4	3	2	1	0
Desire to visit British Columbia	5	4	3	2	1	0
Recommendation from friend	5	4	3	2	1	0
Advertising or promotional materials	5	4	3	2	1	0
Weather and snow conditions	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

8. What was (is) the total length of your stay in the Revelstoke/Golden area?

[ ] Days

9. How many days were (will be) actually spent backcountry skiing?

[ ] Days

10. What percentage your skiing will be done OUTSIDE of Mount Revelstoke National Park and Glacier National Park?

[ ] %

10. On average, how many kilometres do you ski each day ?

[ ] Kilometres

11. How many vertical feet have you skied, or will you ski, during your stay?

[ ] '000 Vertical Feet

12. Besides backcountry skiing, which of the following activities did you participate in during your stay in this area? And how many days did you spend on each activity?

ACTIVITY	# OF DAYS	ACTIVITY	# OF DAYS	ACTIVITY	# OF DAYS
Heli-Skiing		Downhill Skiing		Cross Country Skiing	
Snowmobiling		Viewing Wildlife		Other (specify)	

SECTION 2: OPINION QUESTIONS

In this section, we would like to get your personal opinion about some of the features which affect the quality of your backcountry ski experience in British Columbia.

1. How important to you are the following features of your backcountry skiing vacation experience? *(Please circle the number that best represents the importance of each feature.)*

FEATURES	Extremely Important			Neutral		Not At All Important
Skiing untracked powder	5	4	3	2	1	0
Skiing above the treeline	5	4	3	2	1	0
Skiing in the trees	5	4	3	2	1	0
Skiing steep slopes	5	4	3	2	1	0
Skiing long runs	5	4	3	2	1	0
Skiing in a small group (less than 6 people)	5	4	3	2	1	0
Opportunity to view wildlife	5	4	3	2	1	0
Meeting people/socializing	5	4	3	2	1	0
Enjoying the natural setting	5	4	3	2	1	0
Opportunity to relax (get away from work)	5	4	3	2	1	0
Improving your physical condition	5	4	3	2	1	0
Sense of adventure	5	4	3	2	1	0
Exposure to risk	5	4	3	2	1	0
Access to telephones, faxes etc.	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

2. Conflicts over the use of wilderness areas by different recreational users are bound to arise. To obtain some idea of your impressions about these conflicts, please circle the response which best describes your impresseion of the degree of impact the following activities have on the QUALITY of backcountry skiing in this area. *(Please indicate whether an activity has POSITIVE impact, NEGATIVE impact or no impact (NEUTRAL).)*

	Positive Impact			Neutral			Negative Impact
Helicopter Skiing	+3	+2	+1	0	-1	-2	-3
Snowmobiling	+3	+2	+1	0	-1	-2	-3
Logging	+3	+2	+1	0	-1	-2	-3
Wildlife Conservation	+3	+2	+1	0	-1	-2	-3

3. Currently, some resource users pay a fee for the right to use government lands for commercial recreation purposes. For example, heli-ski operators pay $4 per day for each skier who uses their area. If a similar system was put in place to charge backcountry skiers a user fee, what is the MAXIMUM amount you would be willing to pay PER DAY to enable you to ski in this region? *(Please check the amount you would be willing to pay per day.)*

Would not pay (Would ski somewhere else.)		Willing to pay $25 - $50 per day	
Willing to pay less than $10 per day		Willing to pay $50 - $100 per day	
Willing to pay $10 - $25 per day		Willing to pay more than $100	

4. How much MORE would you be willing to pay per day if the following statements were true? *(Please circle the ADDITIONAL amount you would be willing to pay per day)*

	ADDITIONAL AMOUNT PER DAY					
No logging is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No snowmobiling is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No heli-skiing is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife is seen while skiing.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife habitat is protected.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100

5. We would like to have an idea about the importance of wildlife to backcountry skiers. If you had control of the government's budget for wildlife preservation, how do you think the budget should be divided among the following categories in terms of percentage? (The numbers should add up to 100%.)

BENEFITS	% OF BUDGET
Preserve large mammals (deer, bear, etc.) and their habitats	%
Preserve small mammals (squirrels, marmots, etc.) and their habitats	%
Preserve birds and their habitats	%
Preserve other species and their habitats	%
TOTAL BUDGET	100%

6. Given a budget for the preservation of large mammals and their habitats, what percentage of the budget should be allocated to the following species. (The sum should add up to 100%.)

SPECIES	% OF BUDGET
Caribou (which requires unlogged forests)	%
Grizzly Bear	%
Elk/Deer/Moose (hunted species)	%
All other large mammals (e.g. goats, lynx, etc.)	%
TOTAL	100 %

SECTION 3: WHAT ARE YOUR EXPENSES?

We are interested in knowing how valuable backcountry skiing and other outdoor recreational activities are to those who participate in these activities and make use of publicly-owned land. In this section, we are attempting to determine how much you spent on these four categories of costs: (1) the purchase cost of your ski equipment , (2) transportation and living costs to get to the ski area, (3) on-site costs incurred while backcountry skiing, and (4) the expenses which you would have incurred had you stayed home.

How much did you spend on each of the following categories? Please provide the best answer you can, even if these are approximate estimates of the actual expenses you incurred.

1. What was your approximate purchase price of :

Ski equipment	$
Ski clothing	$
Camping equipment (if applicable)	$
Other equipment e.g. pieps, probe etc.	

2. How often do you purchase the following items?

•Ski equipment (skis, boots, poles)	-	Every		Years
•Ski clothing	-	Every		Years
•Camping equipment	-	Every		Years
•Backcountry safety equipment	-	Every		Years

3. Travel Expenses for Backcountry Ski Vacation

Airfare	$
Ground transportation (e.g. car, bus, train)	$
Private automobile (gasoline, oil, repairs)	$
Accommodation (enroute to destination)	$
Food and beverages	$
Miscellaneous (e.g. film, souvenirs etc.)	

4. While in the backcountry skiing area, how much did you spend on each of the following items?

EXPENSES	SPENT IN SKI AREA
Accommodation	$
Food and beverages	$
Entertainment	$
Ski equipment rental or purchases	$
Souvenirs, camera supplies etc.	$
Other (specify)	

5. How much do you normally spend on food, beverages and entertainment (e.g. going out for the evening) when you are at home?

$ _____ Per Week

6. Approximately how much will this backcountry ski trip cost you INCLUDING EVERYTHING?

$ _____

SECTION 4: PERSONAL INFORMATION

In this section, we would like to find out more about people who go backcountry skiing.

1. How old are you? ☐

2. Are you: Male ☐ Female ☐

3. Including yourself, how many people are there in your household? ☐

4. Are you:

☐	Single
☐	Married or Common-law
☐	Divorced

5. How many people came with you on this trip? ☐

6. How many years of school have you completed? (Please circle the number of years.)

Grade School								High School				College/University				Graduate School				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21+

7. Near what city or town do you presently reside?

Town/City	Province/State	Country

8. What was the approximate gross (before tax) income of your household in 1992?

☐	Less than $20,000
☐	$20,000 - $40,000

☐	$40,000 - $60,000
☐	$60,000 - $100,000

☐	$100,000 - $140,000
☐	$140,000 - $180,000
☐	More than $180,000

SECTION 8: ADDITIONAL COMMENTS

If you have any comments about this survey or if you feel there are some issues which we have not addressed, please use the space on this page and on the back of this page to make your comments.

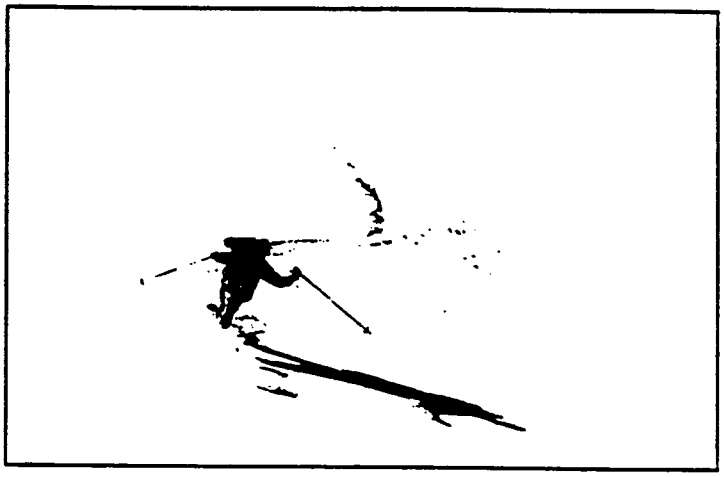
THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

APPENDIX B: Independent Backcountry Skier Survey

The University of British Columbia

SURVEY

BACKCOUNTRY SKIING IN BRITISH COLUMBIA



This survey is being conducted by the University of British Columbia Resource Management Science Department and the Forest Economics and Policy Analysis Research Unit. The purpose of the survey is to:

- identify interactions among different resource-based activities in the Revelstoke/Golden area, including backcountry skiing, heli-skiing, snowmobiling, logging and wildlife conservation
- determine the extent to which different uses are compatible or conflicting
- evaluate the actual and potential economic contributions of these activities to the regional and provincial economies.

Additional questions are asked about your background in order to allow the researchers to determine the representativeness of the sample as well as to allow for generalizations to be made about the participants in different activities. ANSWERS PROVIDED WILL BE KEPT IN STRICT CONFIDENCE.

Please answer all questions to the best of your ability.
Seal the completed survey in the envelope provided and return it to:
Parks Canada, Rogers Pass Information Centre
or
Resource Management Science Department, University of British Columbia, 436-2206 East Mall, Vancouver, B.C. V6T 1Z3

BACKCOUNTRY SKIING IN BRITISH COLUMBIA

SECTION 1: BACKGROUND

In this first section, we would like to find out a little about your backcountry skiing experience.

1. How many years have you been participating in backcountry skiing?

   [ ] Years

2. How would you describe your skiing ability? (Please mark choice.)

BEGINNER		INTERMEDIATE		ADVANCED	

3. What is the average number of days which you backcountry ski each year ?

   [ ] Days per Year

4. How many times per year do you go on a multi-day trip?

   [ ] Times per Year

5. What is the average length of a typical multi-day trip?

   [ ] Days

6. In the past, where have you gone on multi-day backcountry trips? And how many trips have you made to each location?

LOCATION	# OF TRIPS
Revelstoke/Golden area	
Elsewhere in B.C.	
Elsewhere in Canada	

LOCATION	# OF TRIPS
United States	
Europe	
Other (specify)	

7. How important were the following factors in your choice of THIS AREA on this trip?

FACTORS	Extremely Important			Neutral		Not At All Important
Return trip/ been here before	5	4	3	2	1	0
Type of accommodations available	5	4	3	2	1	0
Type of terrain	5	4	3	2	1	0
Proximity to your place of residence	5	4	3	2	1	0
Desire to be in a wilderness setting	5	4	3	2	1	0
Desire to visit British Columbia	5	4	3	2	1	0
Recommendation from friend	5	4	3	2	1	0
Advertising or promotional materials	5	4	3	2	1	0
Weather and snow conditions	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

8. What was (is) the total length of your stay in the Revelstoke/Golden area?

[ ] Days

9. How many days were (will be) actually spent backcountry skiing?

[ ] Days

10. What percentage your skiing will be done OUTSIDE of Mount Revelstoke National Park and Glacier National Park?

[ ] %

10. On average, how many kilometres do you ski each day ?

[ ] Kilometres

11. How many vertical feet have you skied, or will you ski, during your stay?

[ ] '000 Vertical Feet

12. Besides backcountry skiing, which of the following activities did you participate in during your stay in this area? And how many days did you spend on each activity?

ACTIVITY	# OF DAYS
Heli-Skiing	
Snowmobiling	

ACTIVITY	# OF DAYS
Downhill Skiing	
Viewing Wildlife	

ACTIVITY	# OF DAYS
Cross Country Skiing	
Other (specify)	

SECTION 2: OPINION QUESTIONS

In this section, we would like to get your personal opinion about some of the features which affect the quality of your backcountry ski experience in British Columbia.

1. How important to you are the following features of your backcountry skiing vacation experience? *(Please circle the number that best represents the importance of each feature.)*

FEATURES	Extremely Important		Neutral		Not At All Important	
Skiing untracked powder	5	4	3	2	1	0
Skiing above the treeline	5	4	3	2	1	0
Skiing in the trees	5	4	3	2	1	0
Skiing steep slopes	5	4	3	2	1	0
Skiing long runs	5	4	3	2	1	0
Skiing in a small group (less than 6 people)	5	4	3	2	1	0
Opportunity to view wildlife	5	4	3	2	1	0
Meeting people/socializing	5	4	3	2	1	0
Enjoying the natural setting	5	4	3	2	1	0
Opportunity to relax (get away from work)	5	4	3	2	1	0
Improving your physical condition	5	4	3	2	1	0
Sense of adventure	5	4	3	2	1	0
Exposure to risk	5	4	3	2	1	0
Access to telephones, faxes etc.	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

2. Conflicts over the use of wilderness areas by different recreational users are bound to arise. To obtain some idea of your impressions about these conflicts, please circle the response which best describes your impresseion of the degree of impact the following activities have on the QUALITY of backcountry skiing in this area. *(Please indicate whether an activity has POSITIVE impact, NEGATIVE impact or no impact (NEUTRAL).)*

	Positive Impact			Neutral			Negative Impact
Helicopter Skiing	+3	+2	+1	0	-1	-2	-3
Snowmobiling	+3	+2	+1	0	-1	-2	-3
Logging	+3	+2	+1	0	-1	-2	-3
Wildlife Conservation	+3	+2	+1	0	-1	-2	-3

3. Currently, some resource users pay a fee for the right to use government lands for commercial recreation purposes. For example, heli-ski operators pay $4 per day for each skier who uses their area. If a similar system was put in place to charge backcountry skiers a user fee, what is the MAXIMUM amount you would be willing to pay PER DAY to enable you to ski in this region? *(Please check the amount you would be willing to pay per day.)*

Would not pay (Would ski somewhere else.)		Willing to pay $25 - $50 per day	
Willing to pay less than $10 per day		Willing to pay $50 - $100 per day	
Willing to pay $10 - $25 per day		Willing to pay more than $100	

4. How much MORE would you be willing to pay per day if the following statements were true? *(Please circle the ADDITIONAL amount you would be willing to pay per day)*

	ADDITIONAL AMOUNT PER DAY					
No logging is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No snowmobiling is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No heli-skiing is permitted in the area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife is seen while skiing.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife habitat is protected.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100

5. We would like to have an idea about the importance of wildlife to backcountry skiers. If you had control of the government's budget for wildlife preservation, how do you think the budget should be divided among the following categories in terms of percentage? (The numbers should add up to 100%.)

BENEFITS	% OF BUDGET
Preserve large mammals (deer, bear, etc.) and their habitats	%
Preserve small mammals (squirrels, marmots, etc.) and their habitats	%
Preserve birds and their habitats	%
Preserve other species and their habitats	%
TOTAL BUDGET	**100%**

6. Given a budget for the preservation of large mammals and their habitats, what percentage of the budget should be allocated to the following species. (The sum should add up to 100%.)

SPECIES	% OF BUDGET
Caribou (which requires unlogged forests)	%
Grizzly Bear	%
Elk/Deer/Moose (hunted species)	%
All other large mammals (e.g. goats, lynx, etc.)	%
TOTAL	**100 %**

SECTION 3: WHAT ARE YOUR EXPENSES?

We are interested in knowing how valuable backcountry skiing and other outdoor recreational activities are to those who participate in these activities and make use of publicly-owned land. In this section, we are attempting to determine how much you spent on these four categories of costs: (1) the purchase cost of your ski equipment , (2) transportation and living costs to get to the ski area, (3) on-site costs incurred while backcountry skiing, and (4) the expenses which you would have incurred had you stayed home.

How much did you spend on each of the following categories? Please provide the best answer you can, even if these are approximate estimates of the actual expenses you incurred.

1. What was your approximate purchase price of :

Ski equipment	$
Ski clothing	$
Camping equipment (if applicable)	$
Other equipment e.g. pieps, probe etc.	

2. How often do you purchase the following items?

•Ski equipment (skis, boots, poles)	-	Every		Years
•Ski clothing	-	Every		Years
•Camping equipment	-	Every		Years
•Backcountry safety equipment	-	Every		Years

3. Travel Expenses for Backcountry Ski Vacation

Airfare	$
Ground transportation (e.g. car, bus, train)	$
Private automobile (gasoline, oil, repairs)	$
Accommodation (enroute to destination)	$
Food and beverages	$
Miscellaneous (e.g. film, souvenirs etc.)	

4. While in the backcountry skiing area, how much did you spend on each of the following items?

EXPENSES	SPENT IN SKI AREA
Accommodation	$
Food and beverages	$
Entertainment	$
Ski equipment rental or purchases	$
Souvenirs, camera supplies etc.	$
Other (specify)	

5. How much do you normally spend on food, beverages and entertainment (e.g. going out for the evening) when you are at home?

$ _____ Per Week

6. Approximately how much will this backcountry ski trip cost you INCLUDING EVERYTHING?

$ _____

7. For the following items of equipment, could you please indicated whether you own one, what yearit is, when you purchased it, its approximate purchase price, and the proportion of its use which is for backcountry skiing.

	DO YOU OWN ONE?		YEAR OF MACHINE	# OF YEARS OWNED	PURCHASE PRICE	% USED FOR SKIING
Snowmobile	YES	NO	19 ___		$	%
Truck	YES	NO	19 ___		$	%
Camper	YES	NO	19 ___		$	%
Trailer	YES	NO	19 ___		$	%

SECTION 4: PERSONAL INFORMATION

In this section, we would like to find out more about people who go backcountry skiing.

1. How old are you? ☐

2. Are you: Male ☐ Female ☐

3. Including yourself, how many people are there in your household? ☐

4. Are you:

☐	Single
☐	Married or Common-law
☐	Divorced

5. How many people came with you on this trip? ☐

6. How many years of school have you completed? (Please circle the number of years.)

Grade School								High School				College/University				Graduate School				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21+

7. Near what city or town do you presently reside?

Town/City	Province/State	Country

8. What was the approximate gross (before tax) income of your household in 1992?

☐	Less than $20.000	☐	$40.000 - $60.000	☐	$100.000 - $140.000
☐	$20.000 - $40.000	☐	$60.000 - $100.000	☐	$140.000 - $180.000
				☐	More than $180.000

SECTION 8: ADDITIONAL COMMENTS

If you have any comments about this survey or if you feel there are some issues which we have not addressed, please use the space on this page and on the back of this page to make your comments.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

APPENDIX C: Heliskier Survey

The University of British Columbia

SURVEY

HELICOPTER SKIING IN BRITISH COLUMBIA

This survey is being conducted by the University of British Columbia Resource Management Science Department and the Forest Economics and Policy Analysis Research Unit. The purpose of the survey is to:

- identify interactions among different resource-based activities in the Revelstoke/Golden area, including heli-skiing, backcountry skiing, snowmobiling, logging and wildlife conservation
- determine the extent to which different uses are compatible or conflicting
- evaluate the actual and potential economic contributions of these activities to the regional and provincial economies.

Additional questions are asked about your background in order to allow the researchers to determine the representativeness of the sample as well as to allow for generalizations to be made about the participants in different activities.

Please answer all questions to the best of your ability.
Seal the completed survey in the envelope provided
and return it to the heli-ski operator.

ANSWERS PROVIDED WILL BE KEPT IN STRICT CONFIDENCE

HELICOPTER SKIING IN BRITISH COLUMBIA

SECTION 1: BACKGROUND

In this first section, we would like to find out a little about your skiing experience.

1.How many years have you been skiing?

[ ] Years

2. What is the average number of days which you downhill ski each year (excluding heli-skiing)?

[ ] Days per Year

3. How would you describe your skiing ability?

BEGINNER		INTERMEDIATE		ADVANCED	

4. If you have been heli-skiing before, where have you gone on previous trips? And how many times have you heli-skied in each location?

LOCATION	# OF TRIPS
British Columbia	
Elsewhere in Canada	

LOCATION	# OF TRIPS
United States	
Europe	

LOCATION	# OF TRIPS
New Zealand	
Other	

5. If you have been helicopter skiing in BRITISH COLUMBIA on previous occasions, which heli-skiing operator(s) have you skied with IN THE PAST? And how many times have you visited each area?

OPERATOR	# OF TRIPS
CMH Adamants	
CMH Bobbie Burns	
CMH Bugaboos	
CMH Cariboos	
CMH Galena	
CMH Gothics	

OPERATOR	# OF TRIPS
CMH Monashees	
CMH Revelstoke	
CMH Valemount	
Great Canadian Heliskiing	
Kootenay Heliskiing	
Mike Wiegele Heliskiing	

OPERATOR	# OF TRIPS
Purcell Helicopter Skiing	
R. K. HeliSkiing	
Selkirk Tangiers HeliSkiing	
Tyax HeliSkiing	
Tyax Lodge HeliSkiing	
Whistler HeliSkiing	

6. How important were the following factors in your choice of THIS AREA on this trip?

FACTORS	Extremely Important				Neutral	Not At All Important
Type of accommodations	5	4	3	2	1	0
Type of terrain	5	4	3	2	1	0
Safety record of the operator	5	4	3	2	1	0
Size of ski groups	5	4	3	2	1	0
Price of the package	5	4	3	2	1	0
Proximity to your place of residence	5	4	3	2	1	0
Desire to be in a wilderness setting	5	4	3	2	1	0
Desire to visit British Columbia	5	4	3	2	1	0
Access to business services (phone, fax)	5	4	3	2	1	0
Qualifications of the guides	5	4	3	2	1	0
Recommendation from friend	5	4	3	2	1	0
Advertising or promotional materials	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

7. What was (is) the total length of your stay in this heli-ski area? And how many days did you (will you) actually heli-ski?

[ ] Days in the Area

[ ] Days Spent Heli-Skiing

8. How many vertical feet have you skied, or will you ski, during your stay?

[ ] '000 Vertical Feet

9. Besides heli-skiing, which of the following activities did you participate in during your stay in this area? And how many days did you spend on each activity?

ACTIVITY	# OF DAYS
Backcountry Skiing	
Snowmobiling	

ACTIVITY	# OF DAYS
Downhill Skiing	
Viewing Wildlife	

ACTIVITY	# OF DAYS
Cross Country Skiing	
Other (specify)	

SECTION 2: OPINION QUESTIONS

In this section, we would like to get your personal opinion about some of the features which affect the quality of your heli-ski experience in British Columbia.

1. How important to you are the following features of your heli-skiing vacation experience? *(Please circle the number that best represents the importance of each feature.)*

FEATURES	Extremely Important		Neutral		Not At All Important	
Skiing untracked powder	5	4	3	2	1	0
Skiing above the treeline	5	4	3	2	1	0
Skiing in the trees	5	4	3	2	1	0
Skiing steep slopes	5	4	3	2	1	0
Skiing long runs	5	4	3	2	1	0
Skiing in small group (less than 6 people)	5	4	3	2	1	0
Opportunity to view wildlife	5	4	3	2	1	0
Meeting people/socializing	5	4	3	2	1	0
Enjoying the natural setting	5	4	3	2	1	0
Opportunity to relax/get away from work	5	4	3	2	1	0
Improving your physical condition	5	4	3	2	1	0
Flying in a helicopter	5	4	3	2	1	0
Sense of adventure	5	4	3	2	1	0
Exposure to risk	5	4	3	2	1	0
Remoteness of the lodge (if applicable)	5	4	3	2	1	0
Access to telephones, faxes etc.	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0
Other (specify)	5	4	3	2	1	0

2. Conflicts over the use of heli-skiing areas by other users are bound to arise. To obtain some idea of your impressions about these conflicts, please circle the response which best describes your impresseion of the degree of impact the following activities have on the QUALITY of heli-skiing in this area. *(Please indicate whether an activity has POSITIVE impact, NEGATIVE impact or no impact (NEUTRAL).)*

	Positive Impact			Neutral			Negative Impact
Backcountry Skiing	+3	+2	+1	0	-1	-2	-3
Snowmobiling	+3	+2	+1	0	-1	-2	-3
Logging	+3	+2	+1	0	-1	-2	-3
Wildlife Conservation	+3	+2	+1	0	-1	-2	-3

3. Currently, heli-ski operators pay $4 per day for each skier in order for you to have the right to ski on government lands. If this amount was increased, what is the MAXIMUM amount you would be willing to pay PER DAY (in addition to your package price) to enable you to heli-ski in this region? *(Please check the amount you would be willing to pay per day.)*

Would not pay more (Would ski somewhere else.)		Would pay $25 - $50 per day	
Would pay less than $10 per day		Would pay $50 - $100 per day	
Would pay $10 - $25 per day		Would pay more than $100	

4. How much MORE would you be willing to pay per day if the following statements were true? *(Please circle the ADDITIONAL amount you would be willing to pay.)*

	ADDITIONAL AMOUNT WILLING TO PAY					
No logging is permitted in the heli-skiing area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No snowmobiling is permitted in the ski area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
No backcountry skiing is permitted in the ski area.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife is seen while skiing.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100
More wildlife habitat is protected.	$0	<$10	$10-$25	$25-$50	$50-$100	> $100

5. .We would like to have an idea about the importance of wildlife to heli-skiers. If you had control of the government's budget for wildlife preservation, how do you think the budget should be divided among the following categories in terms of percentage? (The numbers should add up to 100%.)

BENEFITS	% OF BUDGET
Preserve large mammals (deer, bear, etc.) and their habitats	%
Preserve small mammals (squirrels, marmots, etc.) and their habitats	%
Preserve birds and their habitats	%
Preserve other species and their habitats	%
TOTAL BUDGET	**100%**

6. Given a budget for the preservation of large mammals and their habitats, what percentage of the budget should be allocated to the following species. (The sum should add up to 100%.)

SPECIES	% OF BUDGET
Caribou (which requires unlogged forests)	%
Grizzly Bear	%
Elk/Deer/Moose (hunted species)	%
All other large mammals (e.g. goats, lynx, etc.)	%
TOTAL	**100 %**

SECTION 3: WHAT ARE YOUR EXPENSES?

We are interested in knowing how valuable heliskiing and other outdoor recreational activities are to those who participate in these activities and make use of publicly-owned land. In this section, we are attempting to determine how much you spent on these four categories of costs: (1) the purchase cost of your ski equipment , (2) transportation and living costs to get to the heli-ski area, (3) on-site costs incurred while heli-skiing, and (4) the expenses which you would have incurred had you stayed home.

How much did you spend on each of the following categories? Please provide the best answer you can, even if these are approximate estimates of the actual expenses you incurred.

1. What was your approximate purchase price of :

Ski equipment	$
Ski clothing	$
Other equipment related to heli-skiing	$

2. How often do you purchase the following items for downhill skiing?

•Ski equipment (skis, boots, poles) - Every [ ] Years

•Ski clothing - Every [ ] Years

3. Travel Expenses for Heli-Ski Vacation

Airfare	$
Ground transportation (e.g. car, bus, train)	$
Private automobile (gasoline, oil, reparis)	$
Accommodation (enroute to destination)	$
Food and beverages	$
Miscellaneous (e.g. film, souvenirs etc.	

2. While in the heli-skiing area, how much did you spend on each of the following items over and above the price you paid for your heli-ski package?

EXPENSES	SPENT IN HELI-SKI AREA
Accommodation	$
Food and beverages	$
Entertainment	$
Ski equipment rental or purchases	$
Souvenirs, camera supplies etc.	$
Purchase of extra vertical footage	$
Other (specify)	$

3. How much do you normally spend on food, beverages and entertainment (e.g. going out for the evening) when you are at home?

$ _____

4. Approximately how much will this heli-ski trip cost you INCLUDING EVERYTHING?

$ _____

SECTION 4: PERSONAL INFORMATION

In this section, we would like to find out more about people who go heli-skiing, so we would like to know more about you..

1. How old are you? _____

2. Are you: Male ☐ Female ☐

3. Including yourself, how many people are there in your household? _____

4. Are you:

☐	Single
☐	Married or Common-law
☐	Divorced

5. How many people came with you on this trip? [ ]

6. How many years of school have you completed? (Please circle the number of years.)

Grade School								High School				College/University				Graduate School				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21+

7. Near what city or town do you presently reside?

Town/City	Province/State	Country

8. What was the approximate gross (before tax) income of your household in 1992?

	Less than $20,000
	$20,000 - $40,000

	$40,000 - $60,000
	$60,000 - $100,000

	$100,000 - $140,000
	$140,000 - $180,000
	More than $180,000

SECTION 8: ADDITIONAL COMMENTS

If you have any comments about this survey or if you feel there are some issues which we have not addressed, please use the space on this page and on the back of this page to make your comments.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY.

APPENDIX D: Snowmobiler Survey

SECTION 1: BACKGROUND

1. How many years have you been snowmobiling? _____ years

2. How would you describe your snowmobiling ability? (Please mark one)

_____ beginner _____ intermediate _____ experienced

3. On average, how many snowmobiling trips do you take each year? _____ trips

How many of these are in the Revelstoke/Golden area? _____ trips

4. Are you a member of a snowmobile club? (Please circle one)

YES NO

5. What other forms of outdoor recreation do you participate in? (Please check categories)

____ backcountry skiing ____ downhill skiing ____ heliskiing

____ hunting ____ fishing ____ horseback riding

____ trail biking ____ four-wheeling ____ Other ATV

____ hiking ____ mountaineering ____ mountain biking

____ boating ____ sailing ____ canoeing

____ Other (Please specify _____)

SECTION 2: SNOWMOBILING IN THE REVELSTOKE/GOLDEN AREA

Please answer the following questions based on your snowmobiling trips in the Revelstoke/Golden area.

1. Who else do you usually snowmobile with? (Please mark one or more)

____ no one else ____ your friends

____ your family ____ members of your club

2. If you snowmobile with a group, how many other people do you usually ride with, and how many other snowmobiles are in your group ?

_____ people _____ snowmobiles

3. What is the usual duration of your snowmobile visit in the Revelstoke/Golden area? (Please indicate if you live in the area.) (Please mark one.)

____ 1 day or less ____ 2 days ____ 3 days

____ more than 3 days (please specify how many: _____ days)

____ live in area

4. How long do you usually snowmobile for? (Please mark one.)

____ 1/2 a day or less ____ a full day ____ 2 days

____ more than 2 days (please specify how many: _____ days)

5. What distances do you usually cover when snowmobiling (i.e., round trip)?

a) On your usual type of trip?

_____ km or _____ miles

b) In a full season ?

_____ km or _____ miles

6. The provincial government is considering user fees as a means of allocating resource use among competing users. Suppose that it did require you to purchase a snowmobiling permit specific to the Revelstoke/Golden region and that is valid for one year; the permit ensures you unrestricted use of the area for snowmobiling. What is the MAXIMUM amount you would you be willing to pay for such a permit? (Please mark one)

____ $0 (I would go elsewhere)

____ less than $10

____ more than $10 but less than $25

____ more than $25 but less than $50

____ more than $50 but less than $75

____ more than $75 but less than $100

____ more than $100

7. Would you be willing to pay more for a snowmbiling permit if,

	Yes or No ? (Please circle)		If yes, how much more ?
No logging was permitted?	YES	NO	$ _____ per year
No heliskiing was permitted?	YES	NO	$ _____ per year
No backcountry skiing was permitted?	YES	NO	$ _____ per year
More evidence of wildlife?	YES	NO	$ _____ per year
More logging roads were developed?	YES	NO	$ _____ per year

8. Wildlife viewing genrally adds to one's enjoyment of outdoor recreational experiences. In addition, people are interested in preserving wildlife even though they may not view wildlife during the current recreational activity. Preservation implies that one is passing on natural resources to future generations, and that one gains satisfaction from knowing the wildlife exists in its natural state and that you can view the wildlife at some future date. Please answer the following questions that deal with these issues.

Do you enjoy seeing wildlife on your snowmobiling trips or at other times that you are recreating outdoors? (Please circle one.)

YES NO

If YES, what is the **maximum** annual amount that you would be willing to pay to continue seeing wildlife?

$ _____ per year

Do you think that society should preserve wildlife in their natural habitat? (Please circle.)

YES NO

If YES, what is the **maximum** annual amount that you would be willing to contribute to a wildlife fund that is dedicated to preserving wildlife in eastern British Columbia?

$ _____ per year

In making your decision about how much to pay for wildlife viewing and preservation, you may have in mind some specific benefits that you value more than others. Please provide an indication of the relative importance of different benefits by allocating 100 points among the following benefit items. You may allocate 0 to some items. **Please ensure the points you allocate sum to 100.**

BENEFITS:	POINTS
Preserve big game species of wildlife and their habitats	____
Preserve small animals (squirrels, marmots, etc.) and their habitats	____
Preserve birds and their habitats	____

Suppose further that you had to allocate 100 points to the preservation of big game animals and their habitats. How would you allocate those benefits among the following species?

____ All species should be given equal treatment

OR I would allocate the points as follows: (Be sure the total sums to 100.)

SPECIES:	POINTS
Caribou	_____
Grizzly Bear	_____
Elk	_____
Deer	_____
Moose	_____

All other big game species _____

TOTAL _____

7. How desirable to you are the following features of your snowmobiling trips in the Revelstoke/Golden area ? (Please circle the number that best represents your response to the statement indicated)

	Very Undesirable		Neutral		Very Desirable
Close to home/work	1	2	3	4	5
Challenging conditions	1	2	3	4	5
Wildlife viewing	1	2	3	4	5
Scenic views	1	2	3	4	5
Solitude	1	2	3	4	5
Hunting opportunities	1	2	3	4	5
Wilderness experience	1	2	3	4	5
Amenities (e.g. cabins)	1	2	3	4	5
Variety of terrain	1	2	3	4	5
Steep slopes	1	2	3	4	5
Snow conditions	1	2	3	4	5
Access to snowmobile area	1	2	3	4	5
Use of logging roads	1	2	3	4	5
Forested environment	1	2	3	4	5
Open alpine terrain	1	2	3	4	5
Groomed trails	1	2	3	4	5
Unploughed roads	1	2	3	4	5
Untracked snow	1	2	3	4	5

SECTION 3: WHAT IS YOUR EXPENDITURE ON SNOWMOBILING ?

1. If you had to travel to the Revelstoke/Golden area for snowmobiling please answer the following question, otherwise go directly to the next question (question 2).

   How much did you spend travelling to the area ?

   $ _____ Transportation (gas, oil, car rental, bus fares, etc.)

   $ _____ Food en route

   $ _____ Accommodation en route

2. How much do you usually spend on the following items during your average snowmobiling trip?

   $ _____ Food (groceries, meals, beverages)

   $ _____ Accommodation (campgrounds, lodges, motels)

   $ _____ Transport to snowmobile area or trail (gas, oil)

   $ _____ Running costs of snowmobile (gas, oil, repairs, snowmobile rental)

   $ _____ Other (Please specify: _____)

   If you had stayed at home, what proportion of the expenditures made in the region you are snowmobiling in (excluding cost of getting to the region) would you have had to make? The "at home" expenditures would include money spent on food, beverages, other recreation, and so on; that is, expenses that you avoid by going snowmobiling.

   _____ % of the total expenditures (not including cost of getting to region)

3. For the following items of equipment could you please indicate whether you own one, what year it is, when you purchased it, its approximate purchase price, and the proportion of its use which is for snowmobiling ?

	Own		Year of machine	Years Owned	Purchase Price	Proportion of use for snowmobiling
Snowmobile	YES	NO	19___	_____	$ _____	
Truck	YES	NO	19___	_____	$ _____	_____ %
Camper	YES	NO	19___	_____	$ _____	_____ %
Trailer	YES	NO	19___	_____	$ _____	_____ %

4. How much do you spend on other equipment used for your trips?

$ _____ Maintenance of machine (per year)

$ _____ Special clothing (per year)

$ _____ Other (Please specify: _____)

SECTION 4: PERSONAL INFORMATION

1. a) What is your age? (Please check one.)

____ under 25 ____ 26-35 ____ 36-45

____ 46-55 ____ 56-65 ____ over 65

b) Are you: ____ Male ____ Female

2. Including yourself, how many individuals are there in your household? _____

3. What is your level of education? (Please circle)

Secondary (Grade): 8 9 10 11 12

Post Secondary (Trade School, University, etc.)

Years: 1 2 3 4 5 6

4. What was the approximate gross (before tax) income of **your household** in 1991? (Check one)

____ less than $20,000 ____ $50,000 to less than $60,000

____ $20,000 to less than $30,000 ____ $60,000 to less than $70,000

____ $30,000 to less than $40,000 ____ $70,000 to less than $80,000

____ $40,000 to less than $50,000 ____ $80,000 and over

5. Where do you live? _____
(town or locality, province or state, country)

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS SURVEY

APPENDIX E: Demographic Data

1. Demographic Profiles of Recreation Participants

a) Gender

In all three groups, there were more male respondents than female. For the backcountry skiers, 67.5% of the respondents were male, 32.5% were female. There were significantly more females among the backcountry skiers when compared to either the heliskiers or the snowmobilers. There was no significant difference between heliskiers and snowmobilers with both groups being strongly dominated by male respondents. For heliskiers, 86.8% of the respondents were male and 13.2% were female. The snowmobile group was made up of 93.3% males and only 6.7% females.

Table E-1: Gender[23]

	Backcountry Skiing	Heliskiing	Snowmobiling
Male	**67.5%**	**86.8%**	**93.3%**
Female	**32.5%**	**13.2%**	**6.7%**
n	**157**	**136**	**195**

P values:	**Backcountry/Heliski**	**.0001**	**Significant**
	Backcountry/Snowmobile	**.0000**	**Significant**
	Heliski/Snowmobile	**.0439**	**Significant**

[23] Survey data sets from different activities were analysed using the Mann-Whitney U test for significance. P values of less than 0.05 were considered to be significant.

b) Age

Both backcountry skiers and snowmobilers were significantly younger than heliskiers. 36.1% of backcountry skiers were under 35 years old, and 46.3% of snowmobilers were under 35 years old. Only 22.8% of the heliskiers were under 35. 21.5 % of the backcountry skiers were over 45 years of age, and 26.1% of the snowmobilers were over 45. 38.9% of the heliskiers were over 45. There are significant differences in the ages of heliskiers compared to backcountry skiers and snowmobilers, but there is no significant difference in the ages of snowmobilers compared to backcountry skiers (see Table E-2). The average age of backcountry skiers is 40.11 years, while for heliskiers it is 43.71 (see Table E-3).

Table E-2: Age by Category

	Backcountry Skiing	Heliskiing	Snowmobiling
% Under 25	**1.3**	**2.9**	**7.4**
% 26-35 Yrs	**34.8**	**19.9**	**38.9**
% 36-45 Yrs	**42.4**	**34.6**	**27.6**
% 46-55 Yrs	**12.0**	**27.2**	**15.3**
% Over 55 Yrs	**9.5**	**15.4**	**10.8**
n	**158**	**136**	**203**

P values:	**Backcountry/Heliski**	**.0005**	**Significant**
	Backcountry/Snowmobile	.2097	
	Heliski/Snowmobile	**.0000**	**Significant**

Table E-3: Age in Years

	Backcountry Skiing	Heliskiing
Mean	**40.11**	**43.71**
Std Deviation	**9.64**	**10.53**
Range	**45.00**	**49.00**
N	**158**	**136**

c) Income

As might be expected given the high cost of the experience, heliskiers report a higher gross household income than any other group. 62.8% of those heliskiers who responded to the income question report making more than $100,000 per year (30.5% reported making over $180,000), with only 4.5% reporting incomes of less than $40,000. Backcountry skiers are still in a relatively high income bracket with 23.5% reporting incomes of over $100,000, but 25.5% of backcountry skiers reported incomes of less than $40,000 per year. It is difficult to directly compare the income information about snowmobilers because the top income bracket on the snowmobile survey was $80,000 and over; however in comparing the lower income levels, 74.5% of snowmobilers report earning less than $60,000, compared to 45.1% of backcountry skiers and 17.1% of heliskiers. Using the information available on all three groups, there appear to be significant differences in income between all of them.

Table E-4: Annual Household Income

	Backcountry Skiing	Heliskiing	Snowmobiling
% Under $20K	**9.8**	**3.8**	**1.6**
% $20-40K	**15.7**	**1.9**	**37.0**
% $40-60K	**19.6**	**11.4**	**35.9**
% $60-100K	**31.4**	**20.0**	**25.5**
% $100-140K	**9.8**	**17.1**	
% $140-180K	**6.5**	**15.2**	
% Over $180K	**7.2**	**30.5**	
n	**153**	**105**	**192**

P values:	**Backcountry/Heliski**	**.0000**	**Significant**
	Backcountry/Snowmobile	**.0000**	**Significant**
	Heliski/Snowmobile	**.0000**	**Significant**

d) Education

There was no significant difference in education levels between backcountry skiers and heliskiers with both groups reporting a mean of over 16 years of education - 16.99 for backcountry skiers and 16.57 for heliskiers. Both of these figures are significantly different from the mean of 12.35 years for snowmobilers.

Table E-5: Years of Education

	Backcountry Skiing	Heliskiing	Snowmobiling
Mean	**16.99**	**16.57**	**12.35**
Std Deviation	**2.71**	**3.84**	**2.02**
Range	**13.00**	**13.00**	**9.0**
N	**155**	**121**	**198**

P values:	Backcountry/Heliski	.9090	
	Backcountry/Snowmobile	**.0000**	**Significant**
	Heliski/Snowmobile	**.0000**	**Significant**

e) Marital Status

There was a significant difference in the marital status of backcountry skiers and heliskiers. Backcountry skiers were more likely to be single (32.3%) rather than divorced (2.5%), as compared to heliskiers (23.1% single, 9.9% divorced). 65.2% of backcountry skiers reported being married or in a common-law relationship, compared to 66.9% of heliskiers. Information about marital status was not included on the snowmobile survey.

Table E-6: Marital Status

	Backcountry Skiing	Heliskiing
Single	**32.3%**	**23.4%**
Married	**65.2%**	**67.2%**
Divorced	**2.5%**	**9.5%**
n	**158**	**137**

P values:	**Backcountry/Heliski**	**.0167**	**Significant**

f) Group Size

There was no significant difference between heliskiers and backcountry skiers in terms of the number of people accompanying the respondent. Backcountry skiers reported an average of 4.77 people accompanying them, while heliskiers reported an average of 6.43 people. There were, however, significant differences between snowmobilers and backcountry skiers, and snowmobilers and heliskiers. Snowmobilers reported a mean group size of 8.24.

Table E-7: Group Size

	Backcountry Skiing	**Heliskiing**	**Snowmobiling**
Mean	4.77	6.43	8.24
Std Deviation	4.21	8.45	14.51
Range	29	44	199
N	156	125	195

P values:	Backcountry/Heliski	.4041	
	Backcountry/Snowmobile	**.0000**	**Significant**
	Heliski/Snowmobile	**.0000**	**Significant**

g) Household Size

There was no significant difference in household size between backcountry skiers and heliskiers, or between heliskiers and snowmobilers, but there was a significant difference between backcountry skiers and snowmobilers, with backcountry skiers reporting the lowest

average number of people in their household (2.49) and snowmobilers reporting the highest average household size (2.88).

Table E-8: Household Size

	Backcountry Skiing	Heliskiing	Snowmobiling
Mean	2.49	2.75	2.88
Std Deviation	1.31	1.47	1.28
Range	7.00	8.00	5.00
N	157	131	196

P values:	Backcountry/Heliski	.1294	
	Backcountry/Snowmobile	**.0012**	**Significant**
	Heliski/Snowmobile	.2329	

h) Place of Residence

There is a marked difference between the groups in terms of place of residence. The vast majority of the heliskiers came from Europe (52.1%) and the US (42.1%). Approximately the same percentage of backcountry skiers came from the US (38%), but the majority of backcountry skiers were from Canada (54.4%). Skiers from Japan and other countries made up a small proportion of both groups - 6% of backcountry skiers and 7% of heliskiers. The snowmobilers are nearly all from Canada (98.5%), with only a very small proportion from the US (1.5%). There are significant differences between all three groups in terms of place of residence.

TableE- 9: Place of Residence

	Backcountry Skiing	Heliskiing	Snowmobiling
Canada	54.4	2.5	98.5
USA	38.0	42.1	1.5
Europe	1.9	52.1	
Other	5.7	3.3	

P values:			
	Backcountry/Heliski	.0000	Significant
	Backcountry/Snowmobile	.0000	Significant
	Heliski/Snowmobile	.0000	Significant

i) Ability

There are significant differences between all three groups in terms of ability. Respondents were asked to rank themselves as either beginners, intermediates or advanced participants in their activity. Heliskiers reported much higher levels of ability with 93% reporting to be advanced skiers, and only 7% ranking themselves as intermediates. Snowmobilers also tended to have high levels of ability with 83% ranking themselves as advanced, 16.5% intermediate, and only 0.5% beginners. Backcountry skiers reported lower levels of ability. 4.4% of backcountry skiers reported being beginner skiers, 40.6% reported to be intermediate skiers and 55.0% reported to be advanced skiers.

Table E-10: Ability

	Backcountry Skiing	Heliskiing	Snowmobiling
Beginner	4.4%	0.0%	.5%
Intermediate	40.6%	6.3%	16.5%
Advanced	55.0%	93.8%	83.0%
n	160	144	206

P values:			
	Backcountry/Heliski	.0000	Significant
	Backcountry/Snowmobile	.0000	Significant
	Heliski/Snowmobile	.0028	Significant

Heliskiers reported having participated in skiing for more years than backcountry skiers. The average number of years skied reported by heliskiers was 29.67 years, while backcountry skiers reported an average of 11.67 years. Snowmobilers reported having participated in their sport for an average of 15.49 years. There were significant differences between the responses provided by all three groups (see Table E-11).

Table E-11: Years in Activity

	Backcountry Skiing	Heliskiing	Snowmobiling
Mean	11.67	29.67	**15.49**
Std Deviation	10.04	11.23	**7.60**
Range	57	56	**34**
N	161	144	**207**

P values:	**Backcountry/Heliski**	**.0000**	**Significant**
	Backcountry/Snowmobile	**.0000**	**Significant**
	Heliski/Snowmobile	**.0000**	**Significant**

2. Comparison of Choice Factors in Choosing Area

Both backcountry skiers and heliskiers were asked to identify the importance of seven factors in their choice of the Revelstoke area for a ski vacation on a scale of 0 to 5 ("Not at all important" to "Extremely important"). Of the seven factors, there were only significant differences in the responses regarding two of the factors. There was no significant difference in the responses from heliskiers and backcountry skiers in terms of the importance of the type of accommodations, the type of terrain, the desire to visit British Columbia, the importance of advertising, and the recommendation of a friend. There were significant differences in the responses in terms of the proximity of the area to the respondent's place of residence and the participant's desire to be in a wilderness setting.

Backcountry skiers identified the area's proximity as being more important than heliskiers. The backcountry skiers also placed more importance on the opportunity to be in a wilderness setting.

Table E-12: Choice Factors - Backcountry Skiers vs. Heliskiers

	Backcountry Skiing	Heliskiing	P values
Type of accommodations	3.81	3.83	0.9033
Type of terrain	4.48	4.35	0.3959
Proximity to place of residence	**2.08**	**1.45**	**0.0010**
Desire to be in wilderness setting	**4.71**	**3.90**	**0.0000**
Desire to visit BC	2.72	2.45	0.1696
Recommendation from friend	2.97	3.45	0.1142
Advertising	1.90	2.05	0.4397

On the snowmobile survey, respondents were asked to rank two of the same choice factors as the skiers: type of terrain and proximity. When compared to the responses provided by backcountry skiers and heliskiers, there were significant differences between the groups, with snowmobilers placing more importance on the type of terrain and the proximity of the area to their place of residence as compared to either of the other groups.

Table E-13: Choice Factors - Backcountry Skiers vs. Snowmobilers

	Backcountry Skiing	Snowmobiling	P values
Type of terrain	4.48	4.68	.0070
Proximity to place of residence	2.08	3.52	.0000

Table E-14: Choice Factors - Heliskiers vs. Snowmobilers

	Heliskiing	Snowmobiling	P values
Type of terrain	4.35	4.68	.0011
Proximity to place of residence	1.45	3.52	.0000

3. Comparison of Features of the Ski Experience

As for the choice factors, participants were asked to identify the importance of features of their recreation experience on a scale of 0 to 5 ("Not at all important" to "Extremely important"). While there were relatively few differences in the choice factors involved in the selection of the Revelstoke area for a ski experience, the two groups of skiers had strongly significant differences in their ranking of the features of the ski experience. While both groups of skiers gave high ranks to the importance of skiing untracked powder snow, heliskiers ranked it significantly higher. Backcountry skiers, however, saw skiing in the alpine (above treeline) as more important than heliskiers did. Heliskiers were more likely to desire opportunities to ski steep terrain, while backcountry skiers placed more emphasis on long runs and small group size.

Backcountry skiers gave higher ranks to the opportunity to view wildlife and enjoying the natural setting. (In fact, "enjoying the natural setting" was given the highest ranking of any factor by backcountry skiers. Heliskiers ranked "skiing untracked powder" as the most

important feature.) Backcountry skiers also placed more importance on the experience as a means of improving their physical condition and they gave higher ranks to the adventure and risk components of the experience. Heliskiers placed more importance on the access to business services such as telephones, faxes, etc. There was no significant difference in the ranking of the following features: skiing in the trees; the experience as an opportunity to relax (get away from work); meeting people and socialising (see Table E-15).

Table E-15: Features of Experience - Backcountry Skiing vs. Heliskiing

	Backcountry Skiing	Heliskiing	P values
Untracked powder	**4.67**	**4.87**	**.0003**
Above treeline	**4.05**	**3.67**	**.0057**
In trees	3.39	3.50	.1662
Steep slopes	**3.53**	**4.01**	**.0002**
Long runs	**4.15**	**3.81**	**.0197**
Small group	**3.68**	**2.78**	**.0000**
Opportunity to view wildlife	**3.33**	**2.21**	**.0000**
Meeting people/socialising	3.16	2.97	.1762
Enjoying the natural setting	**4.82**	**4.24**	**.0000**
Opportunity to relax	**4.35**	**3.99**	**.0036**
Improving physical condition	**3.97**	**3.22**	**.0000**
Sense of adventure	**4.24**	**3.27**	**.0000**
Exposure to risk	**2.66**	**2.26**	**.0452**
Access to phones, faxes etc.	**0.42**	**2.22**	**.0000**

Snowmobilers were not asked to rank all of the same features as backcountry skiers and heliskiers, but they were asked to rank several of the same features, and many of these features were ranked significantly differently when compared to the responses provided by backcountry skiers and heliskiers. Both snowmobilers and backcountry skiers ranked untracked powder snow as an important feature and there was no significant difference between their responses. However, snowmobilers placed significantly more importance on all of the following features:

alpine areas (above treeline), forested areas (in trees), steep slopes, socialising, and adventure. Backcountry skiers placed a much higher importance on enjoying the natural setting.

In comparison to heliskiers, snowmobilers placed less importance on powder snow, but they gave higher rankings to alpine areas, socialising and adventure. Heliskiers gave a higher ranking to enjoying the natural setting.

Table E-16: Features of Experience - Backcountry Skiing vs. Snowmobiling

	Backcountry Skiing	Snowmobiling	P values
Untracked powder	4.67	4.61	.4023
Above treeline	**4.05**	**4.61**	**.0000**
In trees	**3.39**	**3.75**	**.0051**
Steep slopes	**3.53**	**4.19**	**.0000**
Meeting people/socialising	**3.16**	**3.97**	**.0000**
Enjoying the natural setting	**4.82**	**4.01**	**.0000**
Sense of adventure	**4.24**	**4.52**	**.0001**

Table E-17: Features of Experience - Heliskiing vs. Snowmobiling

	Heliskiing	Snowmobiling	P values
Untracked powder	**4.87**	**4.61**	**.0000**
Above treeline	**3.67**	**4.61**	**.0000**
In trees	3.50	3.75	.3190
Steep slopes	4.01	4.19	.0514
Meeting people/socialising	**2.97**	**3.97**	**.0000**
Enjoying the natural setting	**4.24**	**4.01**	**.0176**
Sense of adventure	**3.27**	**4.52**	**.0000**

4. Perceptions of Other Activities

Backcountry skiers generally perceived other activities much more negatively than heliskiers. When asked to rate the positive or negative impact of various activities on the quality of the skiing experience, backcountry skiers saw the impact of snowmobiling as being very negative (-

2.37 on a scale of -3 to +3). Heliskiers saw snowmobiling as a negative but much less serious impact on the quality of their experience (-.89). While both groups saw logging as a negative impact, backcountry skiers again saw it much more negatively (-2.11) as compared to heliskiers (-.99). Both groups thought wildlife conservation would have a positive impact on their experience, but backcountry skiers placed much more importance on conservation (+2.19) than did the heliskiers (+.76). In terms of their perceptions of each other, the backcountry skiers saw heliskiing as quite a negative impact (-1.66), though much less serious than snowmobiling. Heliskiers, however, saw backcountry skiers as having a mildly positive impact on their experience (+.51).

Table E-18: Impacts of Other Activities - Backcountry Skiers vs. Heliskiers

	Backcountry Skiing	Heliskiing	P values
Heliskiing	-1.66		
Snowmobiling	-2.37	-1.05	0.0000
Backcountry skiing		0.50	
Wildlife conservation	2.19	0.84	0.0000
Logging	-2.11	-1.07	0.0000

To assess the perceptions of snowmobilers in terms of the impact of other activities, snowmobilers were asked to rank the importance of a series of statements on a scale of 1 (most important) to 7 (least important). The statement which received the highest average ranking concerned the development of more logging roads (logging roads are often used by snowmobilers to gain access to alpine areas). The two statements which received the next highest rankings concerned the protection of wildlife habitat and increased visibility of wildlife. The restriction of logging activities was not seen as very important and the exclusion of other recreation activities (backcountry skiing and heliskiing) received the lowest rankings of all.

Table E-19: Impacts of Other Activities - Snowmobilers

	Mean	Std Dev.	Range	N
More logging roads developed	3.50	2.10	6	113
More wildlife habitat protected	3.81	1.98	6	113
More wildlife visible	3.73	1.83	6	113
No logging permitted	4.24	2.00	6	113
No backcountry skiing permitted	4.58	1.60	6	113
No heliskiing permitted	4.58	1.76	6	113

When the groups were asked about their willingness to pay to exclude various activities from the area, backcountry skiers were overall more willing to pay to see restrictions than were the heliskiers. Both groups were willing to pay additional amounts to see logging excluded from the area, with lower income backcountry skiers willing to pay slightly more per day ($10.05) than heliskiers ($10.00). Again, both groups were willing to pay to see snowmobiling excluded from the area but the backcountry skiers were willing to pay significantly more ($10.82) than the heliskiers ($7.36). In terms of their willingness to pay for the exclusion of the other group, backcountry skiers were willing to pay more for the restriction of heliskiing than for anything else ($12.27). Heliskiers were not willing to pay much at all for the restriction of backcountry skiing ($3.03).

Both groups were willing to pay for the opportunity to view more wildlife while skiing with no significant difference between the two groups. Both groups were also willing to pay for more wildlife habitat protection, with the backcountry skiers willing to pay more ($11.46) than the heliskiers ($10.02).

Snowmobilers were not asked about their willingness to pay for the exclusion of certain activities in a recreation area, but they were asked about how much they would be willing to pay on an annual basis to ensure access to snowmobiling areas in the Revelstoke area. The average amount snowmobilers were willing to pay for an annual permit was $31.39.

Table E-20: Willingness to Pay - Snowmobilers

	Price for Annual Permit
Mean	$31.39
Std Deviation	46.18
Range	500
N	194