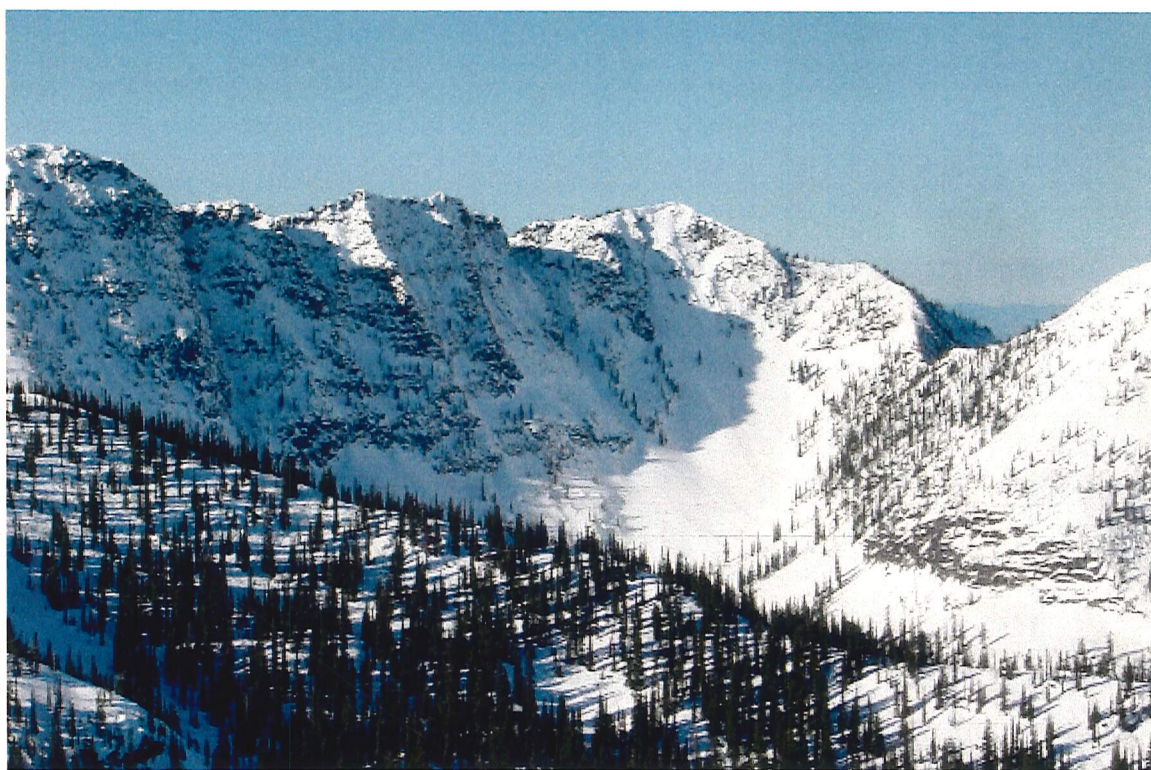


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BACKCOUNTRY WINTER RECREATIONISTS IN STAGLEAP PROVINCIAL PARK



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Abstract

Stagleap Provincial Park is one of the most heavily used areas of winter recreational backcountry travel in the Southern Selkirk Range of British Columbia, Canada. British Columbia Parks (BC Parks) has identified a need for research examining the demographic of users who are traveling in potential avalanche terrain within Stagleap Provincial Park. This study identifies specific demographics of winter backcountry recreationists in Stagleap Park, including their level of avalanche awareness and preparedness for travel in avalanche terrain. It also analyzes avalanche terrain in the park using ArcGIS. Key recommendations for BC Parks include a display of current avalanche conditions and snowpack analyses, and the development of a 'safe' trail network within the park.

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1.0 Introduction

The number of winter recreationists spending their free time in the beautiful backcountry areas of British Columbia, Canada is growing (Parks Canada, 2000), as is the trend for winter recreational travel within Stagleap Provincial Park. Stagleap Park has the highest mountain pass in Canada (1774 meters), making the magnificent mountainous terrain some of the most accessible in south-central British Columbia. Visitors are drawn to Stagleap Provincial Park because of the ease of access, consistent snow conditions, and varied terrain features throughout the park.

The Stagleap Provincial Park Management Plan identifies a risk of avalanche hazard to winter backcountry recreationists (Stagleap Provincial Park Purpose Statement and Zoning Plan 2003). To manage this crucial public safety concern, the demographics, level of preparedness, knowledge and experience of the recreationists must be known.

Recommendations from my research will help BC Parks to ensure that winter backcountry recreationists have the proper resources to make educated and informed decisions before traveling in backcountry avalanche terrain in Stagleap Provincial Park.

2.0 Objectives

Specific objectives of the study were as follows:

- Determine the demographics of non-mechanized winter backcountry recreationists in Stagleap Park.
- Determine the level of avalanche training of non-mechanized winter backcountry users in Stagleap Park.
- Identify the strategies used for decision making when preparing to travel in Stagleap Park in the winter.
- Describe and illustrate avalanche terrain within Stagleap Park using ArcGIS.

The objectives described above were the key factors used to analyze data provided by users in Stagleap Park. Data presented provides a view of user demographics which will help the park land use managers to determine the level and type of management needed for recreationists traveling in avalanche terrain within the park.

3.0 Literature Review

McFarlane B, Watson D, Boxall P. 2001. *Getting more from what we have: the case of backcountry permits*

This report determined there is a need for understanding the demographics of people and the change over time as it relates to human use management in Canadian National parks. The findings determined that there has been a decrease in backcountry use in national parks since 1975. The authors suggest this decline is related to the under-use of data currently collected by Parks Canada.

Conger S. 2004. *A review of color and cartography in avalanche danger visualization*

The objectives in this report were to identify the need for review of the presentation method of avalanche danger scales and ways to represent the danger in a way that is not misleading. The findings suggest that by displaying the danger scale with significant color differences and associated descriptive text included, the result of misleading information is dramatically reduced.

McCammon I. 2000. *The role of training in recreational accidents in the United States*

The objectives for this study were to determine whether the level of avalanche education among individuals enhances their confidence, luring them in to un-safe terrain or whether it makes them safer backcountry travelers. The study concluded that among avalanche educated travelers there was an increase in risk management techniques, there was a decrease in the level of risk taken, and that heuristics (a particular technique of directing one's attention in learning, discovery, or problem-solving) are a part of the process.

Longland M, Haider W, Hägeli P, Breadmore B. 2005. *Study Brief: Decision making by amateur winter recreationists in avalanche terrain*

The objectives of this study were to investigate three recreational groups, out-of-bounds skiers, backcountry skiers, and snowmobile riders regarding their motivations, perceptions and decision making tools used when traveling and preparing to travel in avalanche terrain. The study compares the differences and similarities in these three target groups in relation to their travel plans and preparedness and education relating to traveling in avalanche terrain.

Adams L. 2004. *Supporting sound decisions: a professional perspective on recreational avalanche accident prevention in Canada*

In this paper, Adams identifies the need for understanding the human factors related to decision making while traveling and preparing to travel in avalanche terrain. This paper as well as my own research objectives identifies the need for demographic information of recreationists traveling in backcountry winter environments.

Bhudak Consultants Ltd. 2003. *Public Avalanche Safety Review* (prepared for the Ministry of Public Safety and Solicitor General)

This report is derived from the substantially large number of fatalities that occurred in 2003 and looks at the measures that can be taken in order to increase public awareness of the risk of avalanches. Based on this, it is evident that education for the public in relation to avalanches is necessary. This research completed by Bhudak (2003) will provide insight in determining if backcountry recreationists using Stagleap Park are educated and prepared for their trip.

4.0 Methods

4.1 Study Area

Stagleap Provincial Park is located at the summit of a mountain pass on Highway 3 between Salmo and Creston. The main point of access to destinations within the park is from the parking lot at the summit of the pass. The parking lot separates the north and south portions of the park. From the parking lot, users typically venture to Cornice Ridge on the north side, and the Craggs, Baldy Rocks and Lightning Strike on the south side. The terrain features in all areas of the park vary from simple to complex.

4.2 Recreationist Survey

Field research at Stagleap Park took place over seven days in February and March, 2006. A trailhead intercept survey was administered to the backcountry winter recreationists in the park. Recreationists were intercepted at their point of entry into the park (parking lot) and were asked to take part in the survey for the purpose of this report. The survey included qualitative and quantitative questions to determine specific demographics of the users in the

park. It incorporated questions regarding their level of avalanche awareness and preparedness for travel in avalanche terrain and their amount of experience traveling in mountainous environments in the winter. They were asked the series of survey questions and their answers were recorded by myself and Nola Flaws (survey administrator). Field research was completed by March 4, 2006. Data was then input and analyzed using MS Excel to ensure effective graphical representation.

5.0 Results

5.1 Demographics

During the course of my research, there were a total of 82 recreationists surveyed. The most common backcountry recreationist traveling in Stagleap Park was a male between the ages of 30 and 34 who had three to five years experience traveling in avalanche terrain (Figure 1).

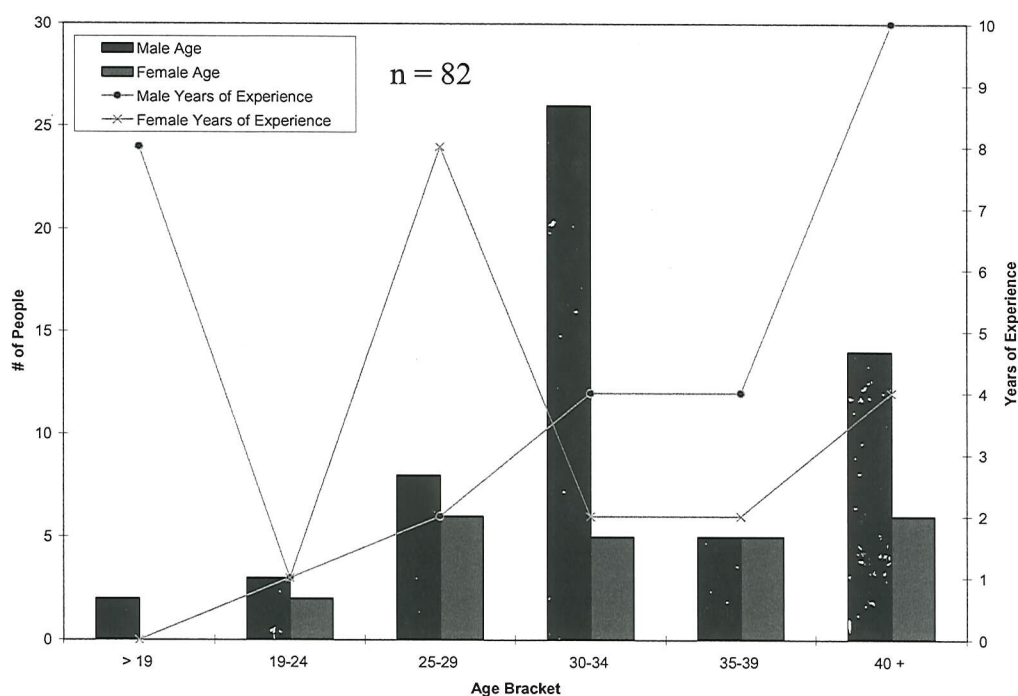


Figure 1: The number of males and females, their age bracket and their years of experience traveling in avalanche terrain.

The numbers of male visitors in Stagleap Park were 71% of the number of people surveyed, while female visitors were 29% (Figure 2).

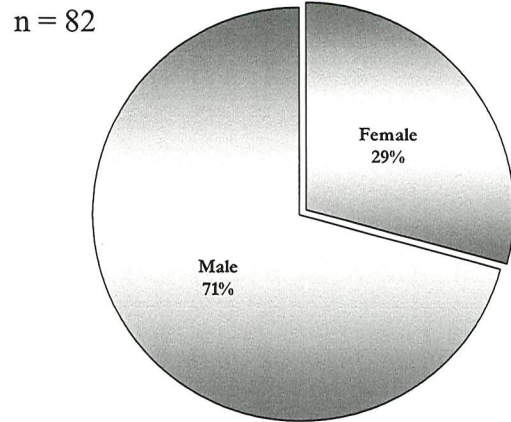


Figure 2: The percent of each gender of recreationists surveyed.

Skiers dominate the mode of travel within the park at 82% of all recreationists surveyed (Figure 3).

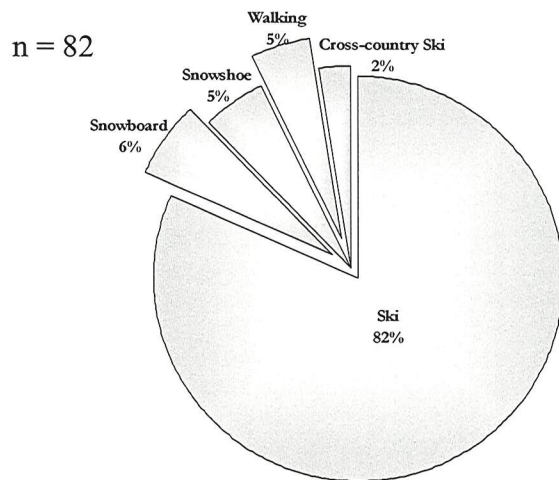


Figure 3: Mode of transport used by recreationists in Stagleap Park.

5.2 Group Data

The majority of visitors were from the Kootenay's with other visitors from USA, international countries, Alberta and other areas of British Columbia (Figure 4).

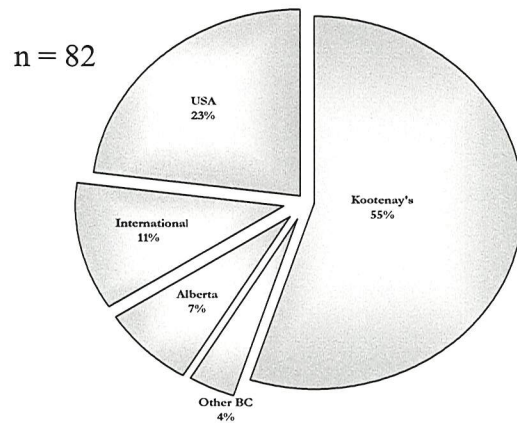


Figure 4: The percentage of visitors from specific geographic areas.

The amount of visits to the park per year varied from one trip per year to weekly trips (Figure 5).

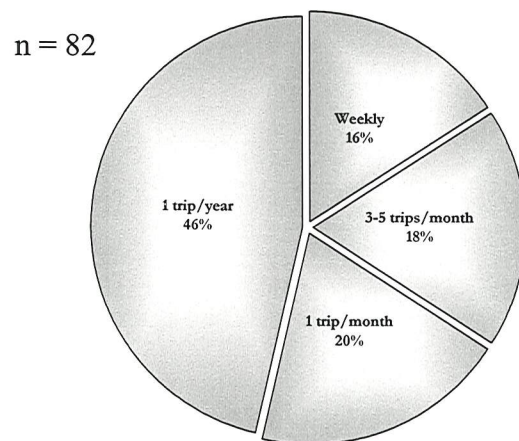


Figure 5: The percentage of backcountry winter recreationist visits to Stagleap Park each year.

The average group size was found to be between three and five people (Figure 6) with groups of two being the next most common.

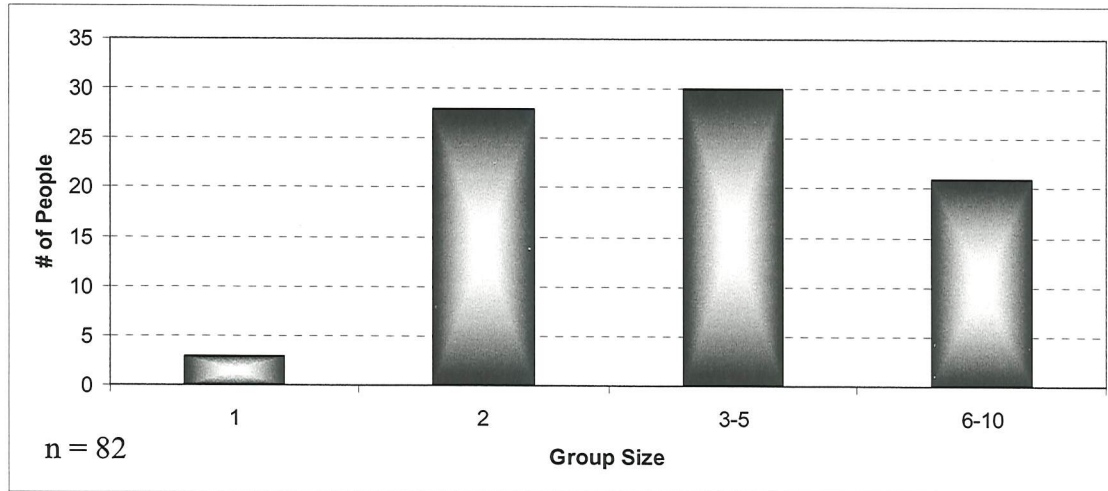


Figure 6: The most common group sizes for backcountry winter recreation travel in Stagleap .

5.3 Avalanche Travel Experience

Figure 7 expresses the percentage of people with avalanche training and their level of training from the Canadian Avalanche Association (CAA), Recreational Avalanche Course (RAC), Advanced Recreational Avalanche Course (ARAC), or other certifications.

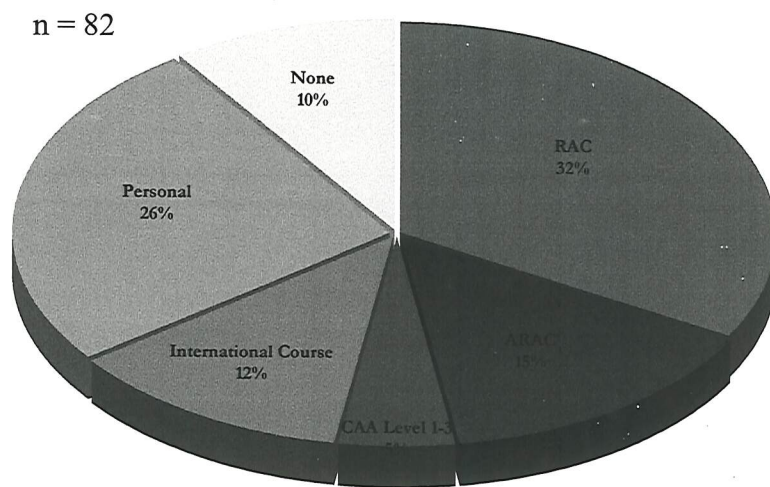


Figure 7: The percentage of people with avalanche training and the type of training.

Avalanche equipment (avalanche transceiver, probe, and shovel) carried by park users is expressed in Figure 8.

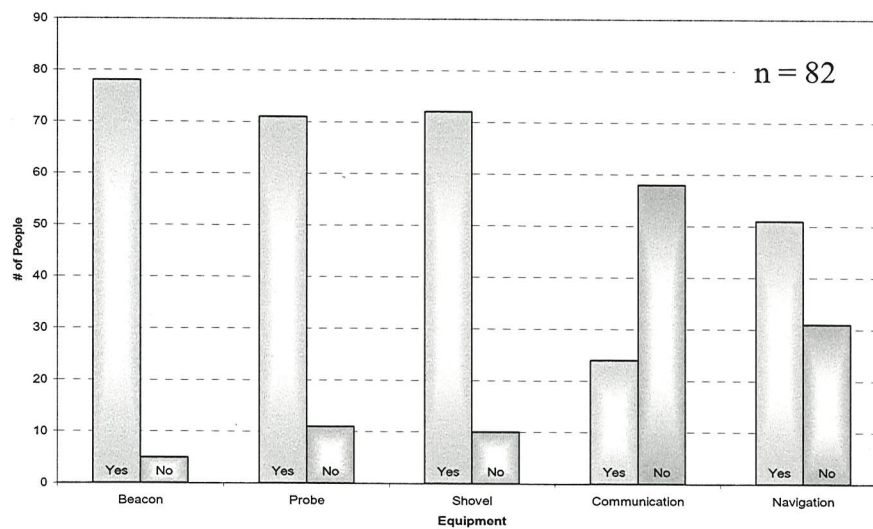


Figure 8: The number of people carrying avalanche safety equipment on their day of travel in Stagleap Park.

The informational data used in decision making for trips is represented in Figure 9.

n = 82

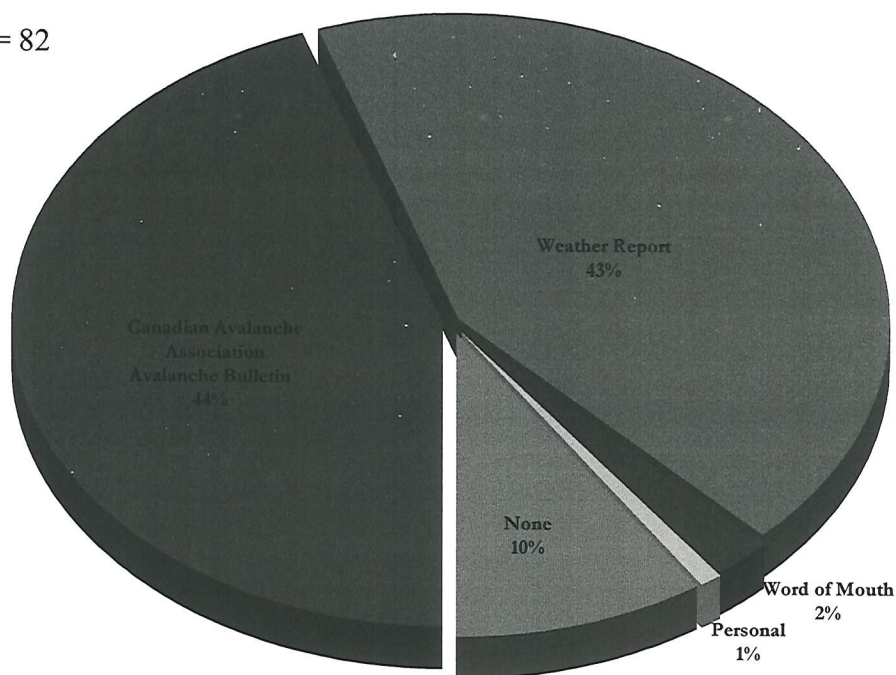


Figure 9: The decision making tools recreationists used prior to their trip to the park.

Map 1 displays the terrain and related slope hazards within the park.

6.0 Discussion

6.1 Demographics

The demographics demonstrate that there is a significant amount of winter backcountry use within Stagleap Provincial Park. These findings correlate with the Canadian Avalanche Association's description of a typical avalanche victim:

- A male in his 20's
- A backcountry skier
- With a 73% chance of being killed during the months of January, February and March, compared to 23% during November, December and April
- Between the hours of 12:00 noon and 14:00
- Triggering an avalanche while on foot (55%) or snowmobile (32%)

(<http://www.avalanche.ca>)

6.2 Group Data

Group size is an important safety consideration while traveling in the backcountry. Though the majority of groups were between two and five people, there were users who were traveling alone in the park. This finding suggests that they are either familiar with the park and have chosen not to travel in avalanche terrain, or that they have chosen to recreate in avalanche terrain and will take their chances against such a hazard.

Forty-six percent of recreationists surveyed said they visited the park once per year, while 34% of visitors visited the park weekly or bi-weekly. While the majority lies with yearly visitors, my personal observations of recreationists during the period of this study conclude that those recreationists were commonly in a group with people that are weekly or bi-weekly visitors to the park.

6.3 Avalanche Travel Experience

There has only been one fatal accident (1997) within the park boundaries (Tweedy, 1997), which suggests that people traveling in the park are well educated about traveling in avalanche terrain and is consistent with my findings. However, Figure 8 shows that there are still about 8% of park users that do not carry the necessary equipment (avalanche beacon, probe and shovel) to be traveling in avalanche terrain.

7.0 Conclusion/Recommendations

7.1 Conclusion

This study was successful in identifying the demographics of winter backcountry recreationists traveling in Stagleap Provincial Park. It identified that there is a significant amount of winter backcountry recreational use within the park and that there are users that may not be aware of or have the tools to make sound decisions before traveling in the backcountry.

7.2 Recommendations

I recommend that BC Parks implement into their management plan a strategy which enables users to check the Canadian Avalanche Association Bulletin, the current weather report and current snowpack conditions upon entry into the park. These decision aids could include a current bulletin or trailhead display that details the mentioned information, updated daily in the day-use cabin at the parking lot.

Another recommendation is to implement a 'safe' trail network for the commonly used areas of the park. This project would include the development a marked trail system throughout the park as well as a map which details the safe routes of travel within the park and the areas with potential avalanche hazard.

Parks Canada currently utilizes their 'Avalanche Terrain Ratings for the Mountain National Parks' system for evaluating visitors' potential exposure to avalanche terrain. The classification categories are simple, challenging, and complex. It is a system that is available for users to help them determine the level of terrain they are capable of traveling in within National Parks. This classification system could be a useful tool in establishing a 'safe' trail network within Stagleap Park.

If implemented, these recommendations will help BC Parks to ensure that park users have the ability to access and use educated information essential for safe travel within Stagleap Provincial Park.

Literature Cited

Tweedy J (BC Ministry of Transportation and Highways). 1997. Internet. Accessed March 2006. <http://alpineclub-edm.org/accidents/accident.asp?id=570>) Accessed 2006 Feb 24
This article details the factors behind the death of a park user in 1997.

Parks Canada. 2000. *Avalanche Terrain Ratings for Backcountry Touring in National Parks(second addition)*. http://www.pc.gc.ca/pn-np/inc/PM-MP/visit/visit7a1_e.pdf Accessed 2006 Feb 25.

