

# Balancing Visitor Needs and Ecosystem Health:

A Study of the Impact of the Redstreak Restoration on users of the Redstreak Campground



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## 1. Introduction

From the high peaks of the Continental Divide to the semi-arid Rocky Mountain Trench, Kootenay National Park spans diverse landscapes and is an inviting place to visit – both for the wildlife that thrive in this ecosystem and the humans who are drawn to its natural beauty. Nestled between the Southwest corner of Kootenay National Park and the Columbia Valley, the town of Radium Hot Springs is located in a dry low-elevation valley that supports rich biodiversity and critical wildlife habitat (Parks Canada, 2005). According to Parks Canada (2005),

“this area contains the only example of dry Douglas-fir/Ponderosa pine/wheatgrass vegetation in Canada's national parks and provides important winter range for wildlife, including the Rocky Mountain Bighorn sheep (*Ovis canadensis canadensis*). It is also the site where most of the human activity in the region occurs.”

Balancing ecological integrity and visitor experience is an important part of the Parks Canada mandate. Active management of the forest in and around the Redstreak campground outside of Radium Hot Springs is an example of this balancing act in action.

Historically, this area relied on frequent, low intensity forest fires to maintain its mixed grassland and open forest ecosystem: a mosaic composed of different aged trees and open grassy areas (Parks Canada, 2003a). However, decades of fire suppression in the Columbia Valley has led to encroachment of dense forest onto former grassland, to the detriment of many species of animals and plants that rely on this ecosystem. For some people it is surprising to learn that grasslands, not old growth forests, are British Columbia's most endangered ecosystem (Parks Canada, 2003a). Grasslands support nearly one third of the province's endangered species, including the prairie falcon, American badger, long-billed curlew, sharp-tailed grouse, bluebunch wheatgrass, and Rocky Mountain Bighorn Sheep (Parks Canada 2006).

We now live with the consequences of decades of fire suppression: unhealthy forests that have the potential to support large and intense wildfires but fewer kinds of plants and animals (Parks Canada, 2003b). One of the species that has been greatly affected by forest encroachment is the Rocky Mountain Bighorn Sheep.

Rocky Mountain bighorn sheep are a blue-listed species that spend summer in the alpine and winter in valley bottoms where lighter snowfall allows easier access to food (Parks Canada, 2006). The historical winter range of the local bighorn sheep before the 1980's was the low, southwest facing slopes between Dry Gulch Creek and Stoddart Creek (Parks Canada, 2006). However, by 1990 bighorn sheep had become a familiar sight in the town of Radium Hot Springs, on nearby golf courses and along highway 93/95 and the “mile hill” outside of Radium Hot Springs (Parks Canada, 2006). Bighorn sheep mortality on the highway have since increased; between 2002 and 2004, 27 bighorn sheep were killed on the highway and five were reported hit but not found (Dibb, 2006). Although the reason that the sheep are now spending more time on the highway and in the town of Radium Hot Springs is not yet completely understood, several contributing factors have been identified. Encroachment of forest onto former grassland reduces the quality and availability of winter habitat (Parks Canada, 2006). Another factor contributing to the shift in range pattern may include overgrazing of historic range, availability of higher quality forage on the golf courses, and avoidance of predators (Parks Canada, 2006).

In order to address the twin issues of loss of bighorn sheep habitat and increased risk of severe forest fires Parks Canada has taken steps to restore the ecological integrity of the area around the Redstreak campground. With the assistance of other local partners such as the Radium-Stoddart Bighorn Sheep Working Group, Parks Canada has initiated a multi-year ecosystem based management plan for the area in and around the Redstreak campground. The Redstreak Restoration Project has two main goals:

- To reduce dangerous forest fuel loads and the risk of catastrophic fire adjacent to park facilities and the local community that have resulted from fire suppression, and
- To restore fire-maintained grassland and healthy open forest ecosystems that the Radium-Stoddart Bighorn sheep band historically relied upon for winter range. (Parks Canada, 2003a)

Beginning in the winters of 2002 and 2003, trees were selectively removed from an area totalling about 150 hectares (see Figure 1). Many large veteran trees were left. The selective tree removal occurred during winter months when the ground is frozen and will be least impacted by the removal of trees. Revenues from

harvested trees are used to support the restoration project (Parks Canada, 2003b). A controlled prescribed burn was then conducted in the spring of 2005 (Parks Canada, 2006). Prescribed burns are carefully controlled fires that are used by Parks Canada to restore ecosystems and return nutrients to the soil where they stimulate new growth. In addition, many plants – such as lodgepole pines that rely on low intensity fires to open their cones – need occasional fires to complete their life cycle.



Photo 1. Before Restoration

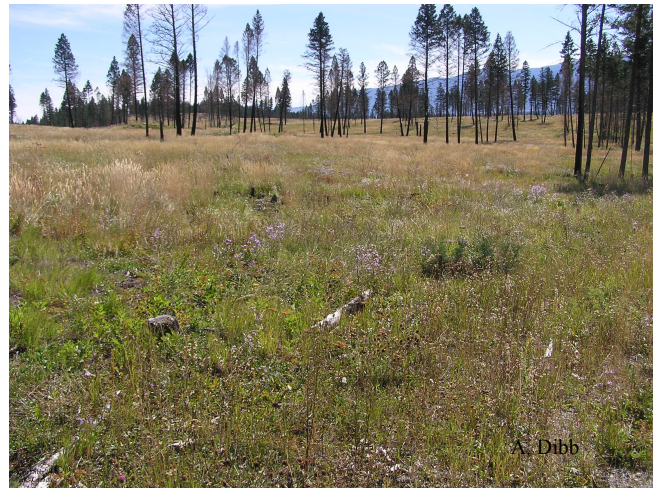


Photo 2. After Restoration

Before the Redstreak restoration was done the trees in the dense forest competed for sun and nutrients (Photo 1). Trees grew very close together making it difficult for animals to move through them. Dense forest like this also presents extreme fire hazard: lots of dead wood on the ground and trees so close together that fire can move easily from one to the next. Photo 2 shows the Redstreak restoration several months after the prescribed burn in 2005. The landscape is open, vegetation has grown back and the large veteran trees have adequate access to sunlight and nutrients.

The Redstreak campground is one of few federal campgrounds that provide full-service hook-ups; it is also within walking distance of the Radium Hot Springs. As a result, the campground is very popular and sees many return visitors. Visitors are attached to the campground and in some cases have been coming since they were children and are now bringing their own children. They have expectations every time they return to the Redstreak campground, and many were shocked when they arrived the summer after the trees were thinned. The change to the landscape was drastic.

The existing trail network around the Redstreak campground is quite small; campers who would like to take walks or hikes from the campground have limited options with the trail network as it currently exists. There is a 2.5 km trail to the Hot Springs which also connects to the Juniper loop on the other side of Sinclair Canyon. There is a 2 km loop trail with access to viewpoints on Redstreak mountain, and there are trails into the town on Radium Hot Springs. Parks Canada would like to improve the trail network around the Redstreak campground by constructing trails through the Redstreak restoration – as of yet there is only an informal trail in this area that very few people know about. These trails would both increase available recreational activities in the area and educate users, through the use of interpretive panels, about the Redstreak restoration project.

This report compares the results from a survey conducted in 2003 and a follow-up study conducted in 2006. Similar research methods were used during both years; these will be discussed in detail in the Methods section of this report. In 2003, the survey was conducted just after the trees had been thinned and it was really obvious to visitors, especially return visitors, that the landscape had been drastically changed. Now that the grassland vegetation has grown back, the 2006 follow-up study can be used to track changes in opinion about the Redstreak Restoration.

## **2. Objectives of the Research**

Because the Redstreak Restoration Project has had such a drastic effect on the landscape around the Redstreak campground, Parks Canada felt it was important to understand the impact of active management of the forest on visitors to the area. As the restoration has now been completed, we are able to compare results from 2006 to the 2003 survey and see if visitors' experience have changed now that the landscape has started to improve aesthetically.

In 2003 a survey was conducted in the Redstreak Campground meet the following objectives (St. Arnaud, 2004):

1. Assess visitor satisfaction in the campground to determine if it has changed with the restoration work,
2. Assess visitor understanding and acceptance of the restoration project, and
3. Determine if visitors are accessing Parks Canada information about the Restoration Project.

In addition to the above objectives, two new objectives were added in 2006:

4. Understand current patterns of visitor use on the landscape, and
5. Evaluate user need/desire for a new trail network in the area around the Redstreak campground.

Surveys were carefully written with the intention of meeting these clearly defined objectives. Descriptions of the surveys are thoroughly described in the following section. Please see the Discussion and Conclusion sections of this report for final analysis of the findings.

### 3. Methods

Research conducted in 2003 involved a survey of campers in the Redstreak campground. In order to meet the two new objectives in 2006, in addition to the campground survey an intercept survey of current users of the Redstreak Restoration was attempted. Infrared trail counters were installed in strategic locations throughout the informal trails in the Redstreak Restoration to study the actual numbers and current patterns of visitor use. The data from the trail counters will also serve as a baseline to help track changes in visitor use as interpretive trails are constructed in the Redstreak Restoration. Each of these methods will be discussed separately in the following sub-sections.

#### 3.1 Redstreak Campground Visitor Survey: 2003 and 2006

The survey conducted in 2006 was developed by a multi-disciplinary team composed of members from Resource Conservation departments within Parks Canada. Social scientist Michael den Otter provided the main content of the survey, ensuring its consistency with the 2003 survey as well as adherence to proper survey methods and techniques. Wildlife specialist Alan Dibb felt it was important to understand visitor acceptance of restrictions Parks Canada is considering implementing in order to protect bighorn sheep. Fire and Vegetation specialist Rick Kubian contributed ideas for the construction of future interpretive trails in the area and helped design the questions related to current use of the area as well as the desire for improvements to hiking and biking trails in the area. Finally, coop student Emily Pridham gave ongoing input on the workability of the survey as it was administered to visitors.

Wherever possible, questions were the same in both the 2003 and 2006 surveys in order to ensure consistency and enable meaningful comparisons between the two sets of data. Generally the same methods were used to conduct the Redstreak campground survey both years.

Respondents were interviewed at their campsites on randomly selected nights between mid June and mid August. Where the group consisted of more than one person a principal respondent was selected. It was desirable to have an individual respond rather than the whole group, however groups often liked to answer questions together. The selection on a principal respondent was useful where differences of opinion arose and for inputting demographics.

One researcher conducted the survey; all questions were asked in the same manner. Surveys were conducted on random evenings between 5 and 9pm. Through most of July and early August surveys were conducted on average five nights a week with an emphasis on Fridays to Mondays when the campground is busiest.

Surveys were administered using a Palm Pilot and Entryware Designer software. The survey is designed on a desktop computer and downloaded to Palm Pilot. The system allows for branches in the survey (for example to sections of the survey that only apply to some respondents) without interrupting the flow of the survey. Every few evenings the Palm Pilot was synchronised with the desktop computer where the data can be input directly into SPSS. This eliminates the need for data entry and the errors that can occur at the data entry stage.

The survey contained a total of 63 questions. Most items were closed questions with limited response values such as yes/no or a 5-point Likert scale. Several open-ended questions were included to give respondents a chance to add any more information they deemed relevant. Questions were designed to cover the major topics discussed in the Objectives section of this report.

Response rates were very high in both 2003 and 2006. This may be because people are relaxed at their campsites and generally can spare some time to talk with the researcher. Response rates for 2003 and 2006 are summarised below in Table 1. In 2006, non-responses included respondents who refused to participate in the survey as well as those who stated that the time was inconvenient for them but were only staying in the campground for one night. Very few people were unable to complete the survey because of language barriers.

Table 1 . Redstreak Campground Survey Response Rates

	2006	2003
Valid Responses	413	378
Non-responses	27	21

Response Rate	93.9%	97.4%
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### 3.2 Infrared Trail Counters

Trafx infrared trail counters work by projecting an infrared beam across a trail. Every warm object that passes in front of the trail counter interrupts the beam and registers a count. This means that it is possible that large animals will trigger counts and also that two people side by side will register as one. In addition, plants that are heated by the sun and blow around in the wind may also trigger false counts. To compensate for all of these factors, wherever possible the trail counters are installed on narrow sections of a densely wooded trail where hikers move single file. Counters are installed high enough on a tree so that the beam will cross the hiker at mid-chest height, missing small animals such as dogs. Suspicious counts (for example in the middle of the night) may be eliminated if it is considered that an animal, rather than a person, triggered the count.

Six Trafx counters were installed in the area around the Redstreak campground to monitor current patterns of visitor use. In addition, one trafox vehicle counter was installed to count cars using the road on the west side of the Restoration area. Locations of all counters are shown in Figure 1. Trafox vehicle counters are buried underground and detect changes in the magnetic field; counts are registered when a vehicle moves through the area adjacent to the counter. The researcher is able to adjust settings on the vehicle counter to compensate for speed of travel.

Overall, the newer generation of infrared trail counters are far superior and less prone to false counts than were older styles of trail counter (such as TRAILMASTER infrared trail counters). Photo 3 shows an infrared trail counter installed on a tree.



Photo 3 . Infrared trail counter



Photo 4. Trail counter downloading

Data was downloaded from the counters to an iPAQ weekly. From there the data is downloaded to a desktop computer to be cleaned of any garbled counts or counts triggered by the researcher at the time of installation. Photo 4 shows researchers downloading data with an iPAQ – an umbrella is used to shield the sensitive electronics from the rain.

Researchers will continue collecting data from these trail counters into the fall because the trails will still see use by visitors. Once all the data has been collected, it will be merged into one file on the computer and analysed. Analysis of data from the trail counters will unfortunately not be presented in this report.



### 3.3 Intercept Survey

Although trails through the Redstreak Restoration are as of yet informal, they are currently seeing some use. It is valuable to understand how people who currently use the trails feel about the area as well as their opinions of active management of the forest by Parks Canada. In general, we suspect that of those who currently use these trails, the majority are residents of the Columbia Valley. Because they live close to the Redstreak Restoration, residents may feel differently about the Restoration than do campers in the Redstreak campground.

Improvements and additions to the trails in the area will impact local residents. Therefore, receiving input from current users, as well as gaining an idea about the number of people who use the area, may be useful in designing future trails in the area that will best meet the needs of both residents and visitors to the area.

The intercept survey was similar in methodology to the campground survey except for the following differences:

- Campground satisfaction questions were not asked,
- It was noted whether the users had a dog or a bike with them, and
- Participants were asked about their current pattern of use in the Redstreak Restoration

The initial plan was for the researcher to wait at an intercept point (shown on Figure 1) and survey anyone who passed the intercept point. The research location was selected because it is at a place where two main access roads into the Redstreak Restoration diverge. Because there is not frequent use of the informal trails, dates and times for intercept surveying were selected based on analysis of data collected from trail counters in the area to try to determine times when the probability of encountering users was the highest. However, after two attempts each of three hours on different days failed to yield a single respondent the need to change strategy became apparent.

Because visitor use in the Redstreak Restoration is random and infrequent, it was decided to install survey boxes so that users could fill out a survey when they went by the boxes. Survey boxes were installed at two locations, shown on Figure 1. Photo 5 shows a survey box and poster with directions for completing the survey. Once the intercept survey was put onto paper it had to be shortened again in order to fit on half of a legal-size sheet of paper (with questions on both sides). The survey boxes will remain in place until use stops in the Restoration in the fall, at which time the surveys will be analysed. A brief summary of the data collected so far will be presented in the Results section of this report. Initial response rates indicate a lack of use in the area which is backed up by data from the trail counters. In general, it is suspected that most people are unaware of the informal trails in the area and choose more well-developed areas to use for recreational activities.

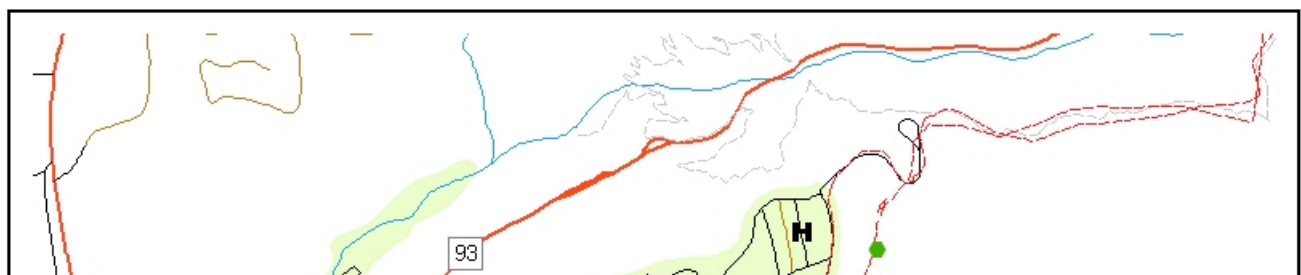


Photo 5. Survey box

Figure 1. Map of Redstreak Restoration, campground and research locations

#### 4.Results

The results section is divided into several broad themes and sub-themes, each addressing different aspects of the objectives outlined in Section 2 of this report.

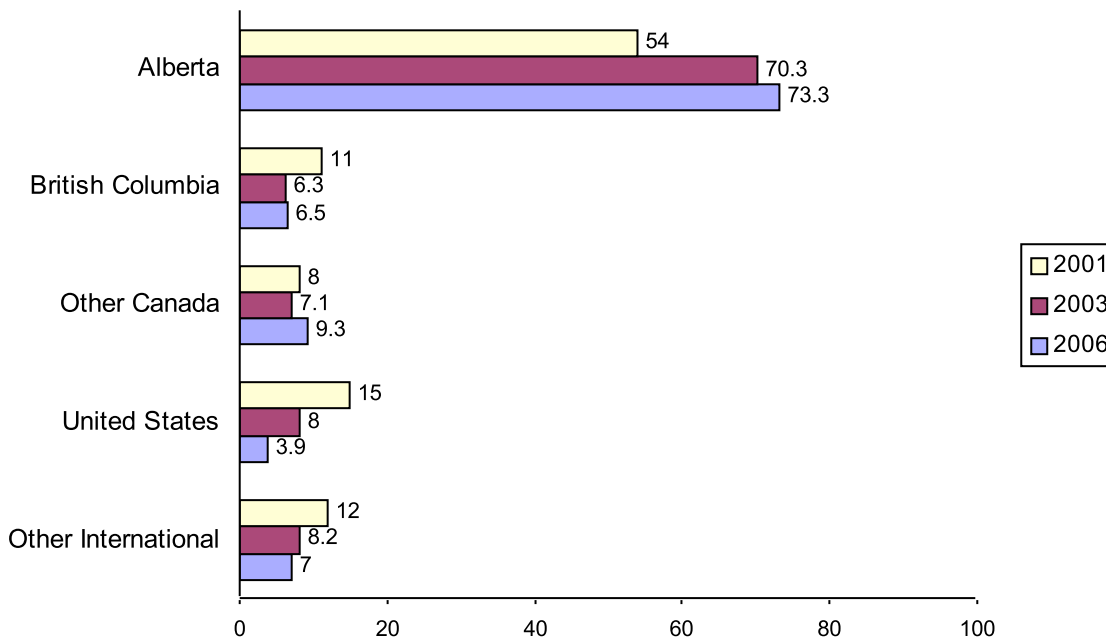
#### 4.1Visitor Profile

Some major characteristics of Redstreak campground visitors in 2006 are:

- Average group size is 3.71 people
- The majority of campers (78.5%) are at the campground with their family
- Average stay in the campground is 3.9 nights
- 66.1% of campers have valid passports, 33.9% of campers do not. Of the 368 respondents from Canada, 63.3% currently had valid passports – only slightly lower than the percentage total for the campground. Of the 16 Americans surveyed at the campground, 75% currently held valid passports (slightly more than the campground average)
- Tents remain the most popular type of camping shelter used, although the proportion of tents has remained constant since 2003.
- While the use of travel trailers remained constant between 2001 and 2003, in 2006 we saw an increase in travel trailer use, up from 25% in 2003 to 31% of the total in 2006.

Campers were classified into the following groups for comparison with data from 2003 and 2001 (Figure 2):

- Alberta
- British Columbia
- Other Canada
- United States



- Other International

Figure 2. Camper Origins

Campers at the Redstreak campground are predominantly from Alberta; in addition, the proportion of Albertans at the Redstreak campground has been increasing since 2001. The proportion of international campers, including campers from the United States, has been decreasing since 2001.

Of the 413 valid respondents interviewed in the campground, 67.6% held annual national park passes, while 32.0% were using either a single day pass or multiple day passes.

Two campers, or 0.5% of the total surveyed, did not hold a national pass. These campers were surveyed early in the season while the campground was on self-registration. The low number of people without a park pass suggests that even when there are no Parks Canada staff at the campground entrance kiosk, campers still purchase the required permits for staying in a National Park.

In 2006, almost two thirds of respondents had been to the campground at least once before this visit (Table 3). Of those who had been to the campground before, 45.3% had made at least one visit within the last five years. It is this group of people who would be expected to be most impacted by the changes in the campground resulting from the Redstreak Restoration Project since they were in the area around the time when the changes were made.

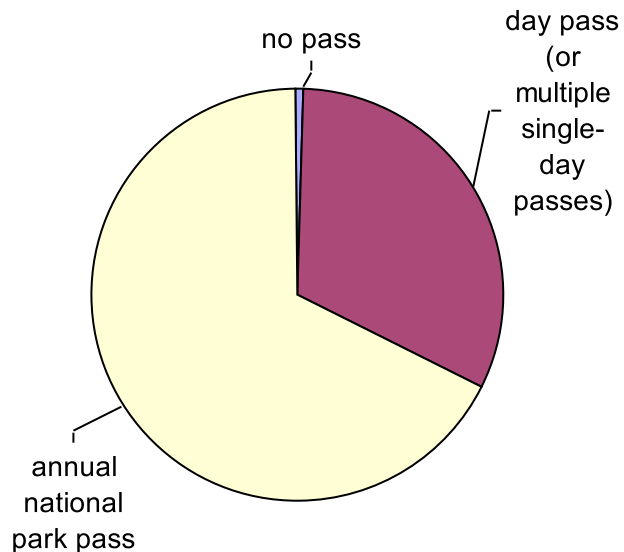
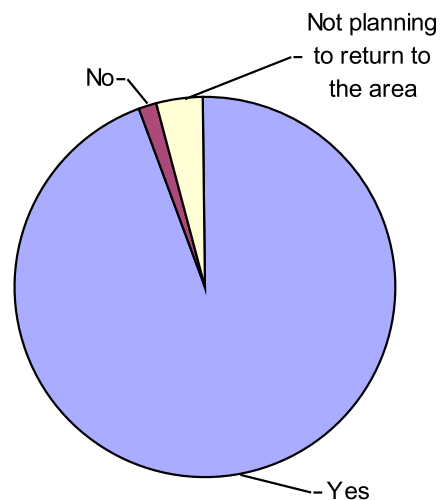


Figure 3. Type of Park Pass Used

Table 2. Have you been to this campground before?



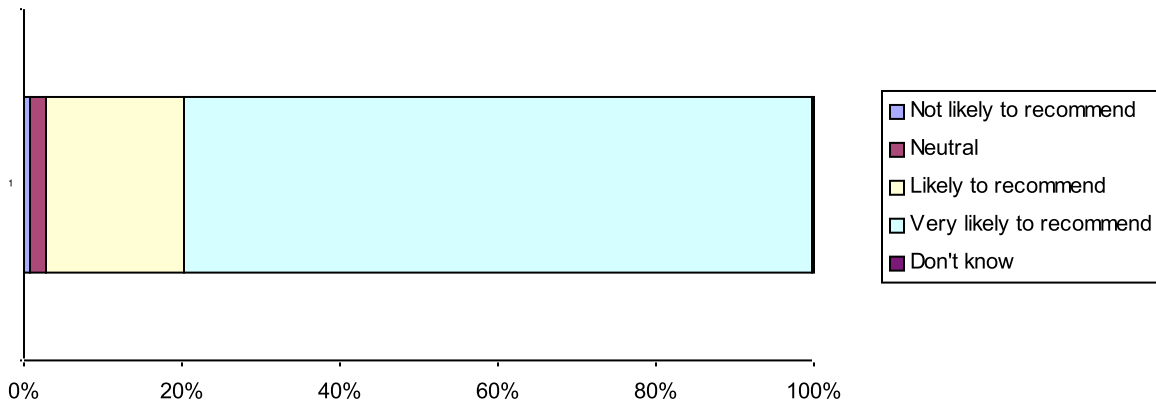
Yes	61.0%
No	39.0%

An overwhelming majority of people (94.4%) affirmed that they will stay at the Redstreak campground in the future, or would like to stay if they are able to return to the area in the future (Figure 4). Only 1.7% of people

stated that they would not return to the Redstreak campground (not including those who do not plan to return to this area). This seems to indicate a very high level of satisfaction with the Redstreak campground. It may also indicate that the impact of the Redstreak Restoration is not sufficient to deter visitors from returning to the campground. This issue will be evaluated in greater depth in following

Figure 4. Will you stay here again?

In addition to wanting to return to the campground themselves, 97.1% of respondents said that they would be either likely or very likely to recommend the campground to friends or family (Figure 5). Many people already



had recommended the campground to others and will continue doing so.

Figure 5. Likelihood of campground recommendation

#### 4.2 Knowledge and Acceptance of the Redstreak Restoration Project

Analysis of visitors' knowledge and acceptance of the Redstreak Restoration Project has been broken down into several sub-headings.

##### 4.2.1 Awareness: Tree Removal and Purpose of Tree Removal

Whether or not they had been to the campground before, respondents were asked "Are you aware that trees have been removed from the forest in this area of the park?"

There is a large difference in response to this question in 2006 compared with 2003. In 2003, this question was asked just after the area had been selectively logged. The difference in the landscape was highly visible, and even if visitors had not been to the campground before they could see slash piles and bare ground. In 2003, 89.3% of campers were aware that trees had been removed. However, in 2006 that number has dropped down to 52.2%, or just over half of respondents (Figure 6).

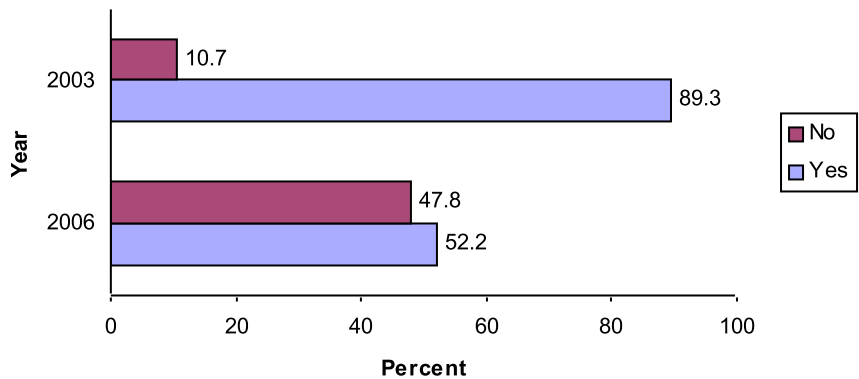
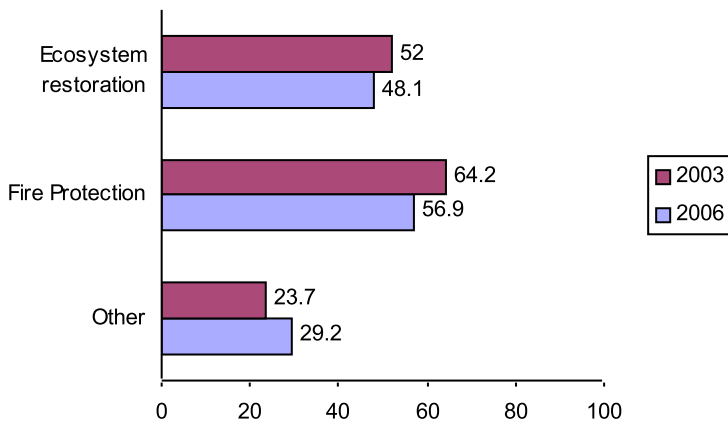


Figure 6. Awareness of tree removal

Over a year after the prescribed burn, vegetation has grown back in much of the restored area and covered the stumps that are now the only evidence of the work that was done in the area. As a result, fewer people notice the changes that have taken place. Even campers whose tents overlooked areas that had had been cleared were at times unaware that trees had been removed. Often they were surprised to find out that they were camping right beside it.



Respondents who were aware that trees had been removed were asked without prompting "What do you think the purpose of this forest thinning or tree removal is?" If their response had to do with restoring grasslands, providing habitat for bighorn sheep, or improving the general health of the ecosystem, then their answer was classified as ecosystem restoration. Any responses related to making the campground or town of Radium Hot Springs safer from fire were classified as fire protection. If respondents did not know why the work was done or if they proposed other reasons, these were entered as "other". Respondents had the opportunity to give more than one answer.

Figure 7. Perceived purpose of restoration work

Overall, campers both years gave responses in the same proportion: slightly more believed the work was done for fire protection than for ecosystem restoration, and less than one third of respondents each year thought the work was done for other reasons (Figure 7). However, in general the number of respondents in 2006 who replied ecosystem restoration or fire protection has decreased and the number of "other" responses have increased compared with 2003.

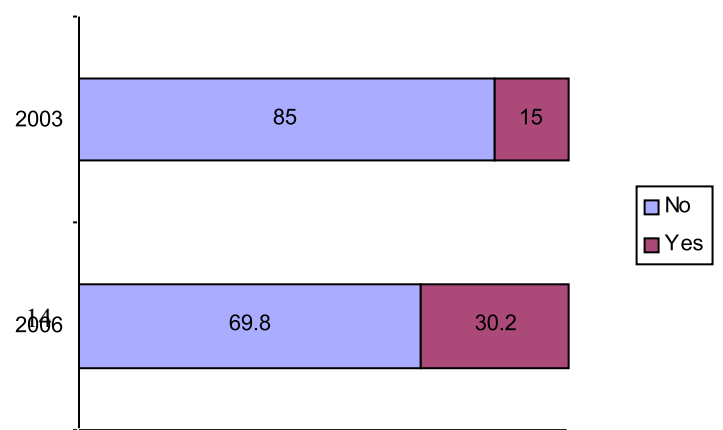
Some common "other" responses offered by campers are:

- Because of pine beetles, bug kill, or disease
- To get rid of dead trees and improve safety in the campground
- To enlarge or improve the campground

One disgruntled camper stated "it was done to wreck my camping experience".

#### 4.2.2 Previous Knowledge and Information Sources

More people had heard about the restoration before arriving in 2006 than in 2003. However, even in 2006 only 30.2% of people said that they had heard about the restoration before their arrival at the campground (Figure 8). This number may be misleading, though, because some people may have meant that they had not heard about the restoration before they arrived the summer after the bulk of the work was done. Nonetheless, the data still shows that most people are not hearing



about the restoration from sources outside of Parks Canada.

Figure 8. Respondents who had already heard about restoration

Without being read a list of options, respondents who were aware of the restoration project were asked where they had received their information (Figure 9). The most common source of information was a campground interpretive program. Many people had read signs located outside of the bathrooms or on the signs opposite the campground kiosk. Some people remembered receiving brochures the year after the tree thinning occurred. Other sources of information included friends, family and other campers.

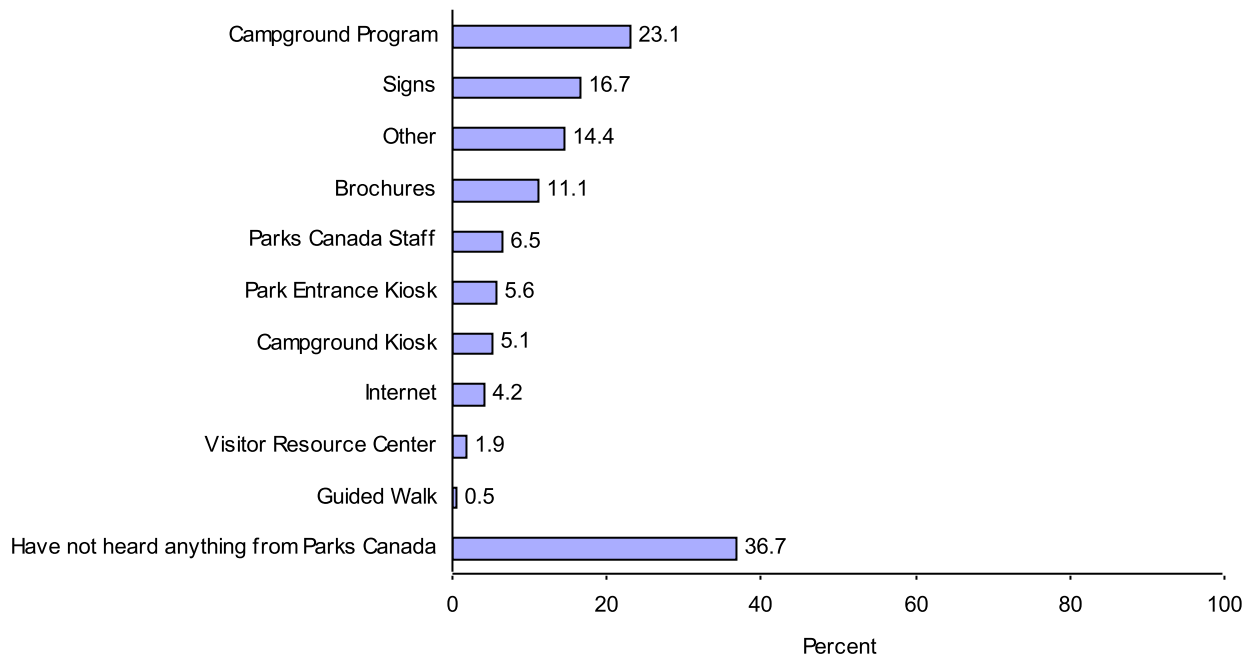
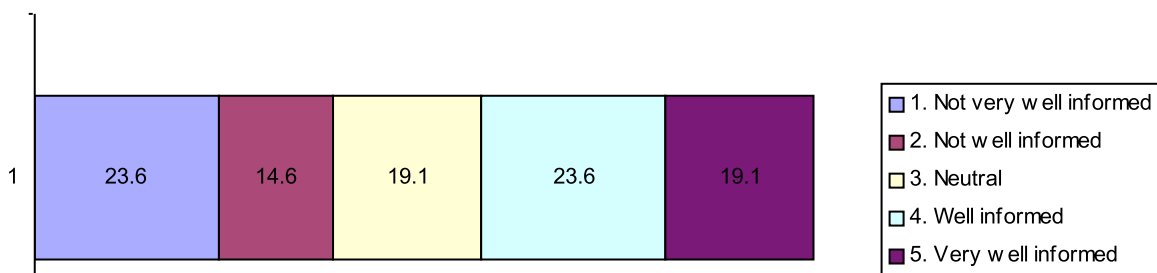


Figure 9. Sources of information about the Redstreak restoration

Important to note also is that 36.7% of people who knew of the restoration stated that they had not heard about it from Parks Canada. They generally had noticed through their own observations that trees had been removed but had not been given or searched out the reasons why. Often they were interested in the Redstreak restoration and asked many questions about the restoration project after the survey was concluded.

Only people who had heard about the restoration from Parks Canada were asked the subsequent question:

- How well has Parks Canada informed you about the restoration work, on a scale of 1 to 5, where 1 is not very well informed and 5 is very well informed?



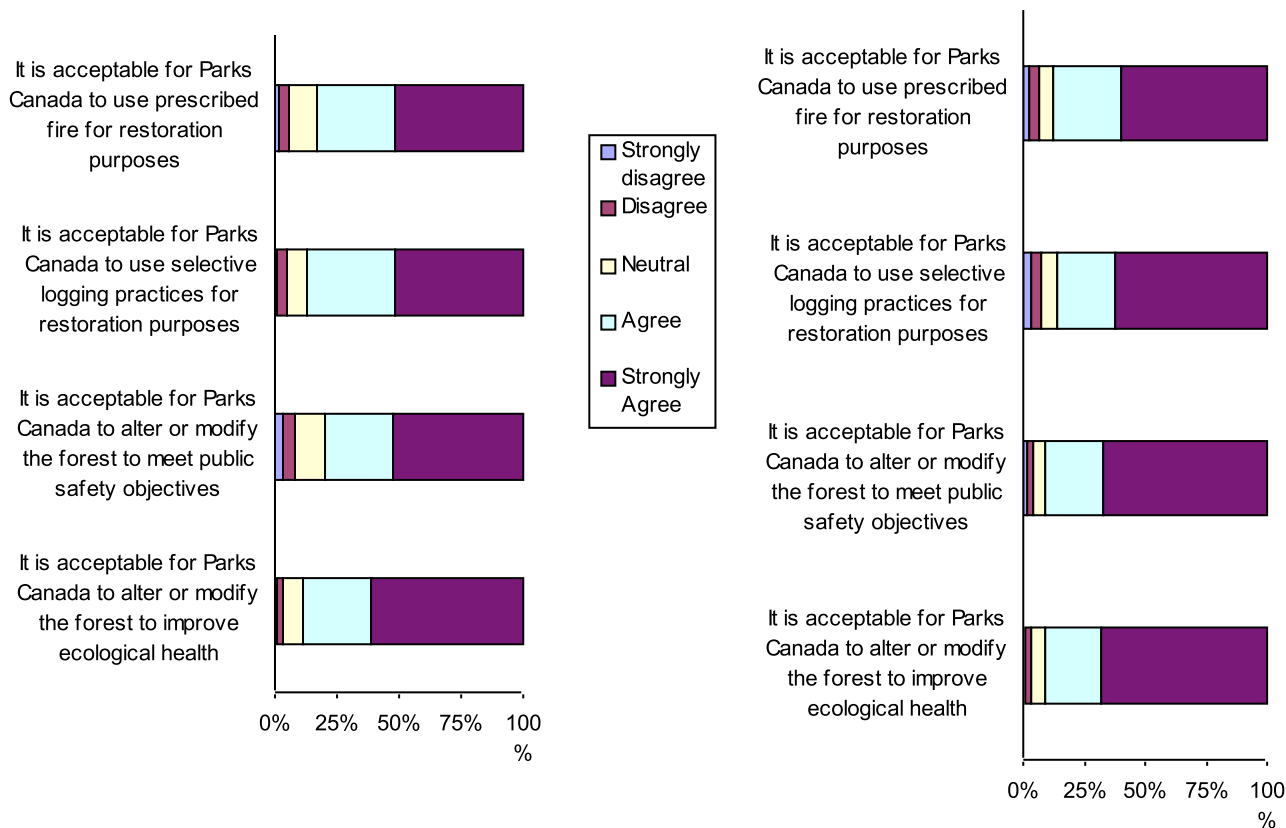
Responses to this question are shown in Figure 10.

Figure 10. How well informed are you about the restoration work?

Only 42.7% of people say that they are either very well informed or well informed, while 57.3% of people are either neutral, not well informed, or not very well informed. Compared with previous years, information about the restoration project is not as readily available. If campers are interested in finding out about the restoration project they can get information from any of the sources described in Table X. However, at this point many people are not accessing these information sources.

### 4.2.3 Acceptance of Active Management Techniques

In order to gauge acceptance of active management by Parks Canada respondents were asked to rate their acceptance of four principal active management techniques on a scale of 1 (strongly disagree) to 5 (strongly agree). The results of responses to these four statements in 2006 and 2003 are contrasted in Figures 11 and



12.

Figure 11. Acceptance of active management: 2006

Figure 12. Acceptance of active management: 2003

Overall, campers in both 2003 and 2006 are highly accepting of Parks Canada’s decision to actively manage the forest. Prescribed burns and selective logging are both equally accepted by campers; in both cases well over 75% of people agree or strongly agree with the use of these techniques. People are slightly more accepting of the issue of altering the forest to improve ecological health than they are of altering the forest to meet public safety objectives. However, once again over 75% of people agree or strongly agree that it is okay to alter or modify the forest for these two reasons.



#### 4.2.4 Effect of Redstreak Restoration on Visitor Experience

If campers were aware that trees have been removed in the area of the Redstreak campground they were asked if the tree thinning had a negative effect on their experience in the campground. Their responses were given on the same scale of 1 to 5 that is described above. Responses to this question in 2003 and 2006 are contrasted in Figure 13.

In both 2006 and 2003 the majority of people strongly disagreed or disagreed with the statement “the thinning has a negative effect on my experience”. There has been virtually no change in response to this statement between the two survey years even though the appearance of the Redstreak landscape has really changed.

When asked this question in 2006, many people said that the thinning has had no effect on their experience. Some people also said that the thinning has greatly improved their experience in the campground. Many people have noted the increased presence of deer, bighorn sheep, and grassland birds – they say that being able to see these animals in and around the campground has greatly enhanced their camping experience.

On the other hand, in 2006 12.8% of respondents agreed or strongly agreed that the thinning has a negative effect on their experience. Among their complaints are that

- they miss the trees and the privacy they provided,
- they see less wildlife now,
- that there is not enough shade in the campsites anymore, and
- that too many trees were removed.

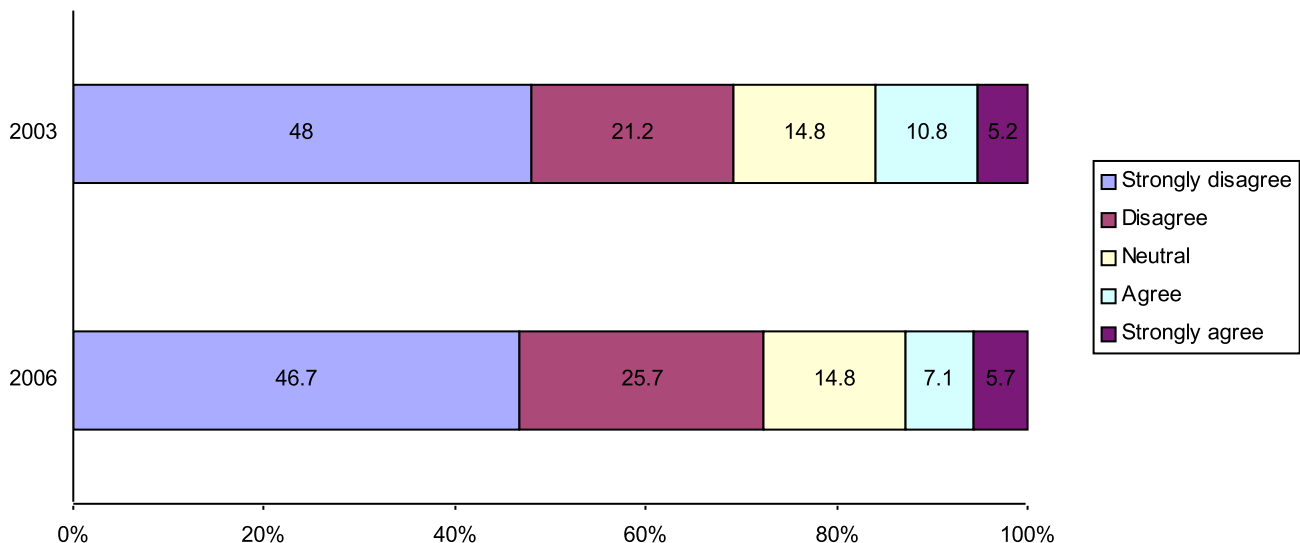


Figure 13. The thinning has a negative effect on my experience

Another way to gauge the effect of the restoration on visitors is to ask whether or not they like the look of the work that has been done. Once again respondents were asked to rate their agreement with a statement on a scale of 1 to 5.

In 2006, 78.5% of respondents agreed or strongly agreed that they like the look of the grassland/forest ecosystem (Figure 14). Among their comments for the way the campground looks now are the following:

- Were shocked at first but now that plants are growing in like the look of the area
- The campground looks better every year
- Are happy and supportive that Parks Canada is taking a pro-active stance
- Believe that the health of the area is more important than public opinion

In 2006, only 7.9% percent of respondents disagreed or strongly disagreed that they like the look of the grassland/forest ecosystem. Some of the people in this group were campers who had traditionally liked to camp in E loop (See Figure 1). E loop is one of the campground loops where more trees were cleared out – because E loop sticks off the edge of the campground it may be restored to wildlife habitat in the future as part of a wildlife corridor. Campers who were accustomed to the thick trees in E loop stated that they were shocked to see all the trees removed. Some of them have not yet got over that shock. There are campers who have been displaced from E loop into F and G loops (which are still more densely treed). We have no way of knowing how many people have stopped coming to the Redstreak campground because of the restoration, but it is encouraging to note that even if they do not like the restoration many people say they understand why it was done and that it will not deter them from coming to the Redstreak campground for their holidays in the future. They have been able to find a different space within the Redstreak campground that suits their needs.

There has not been much change in opinion regarding the look of the grassland/forest ecosystem between 2003 and 2006. Generally, slightly more people agreed or strongly agreed with the statement in 2006, and fewer people strongly disagreed, but the overall proportions remain fairly consistent from year to year.

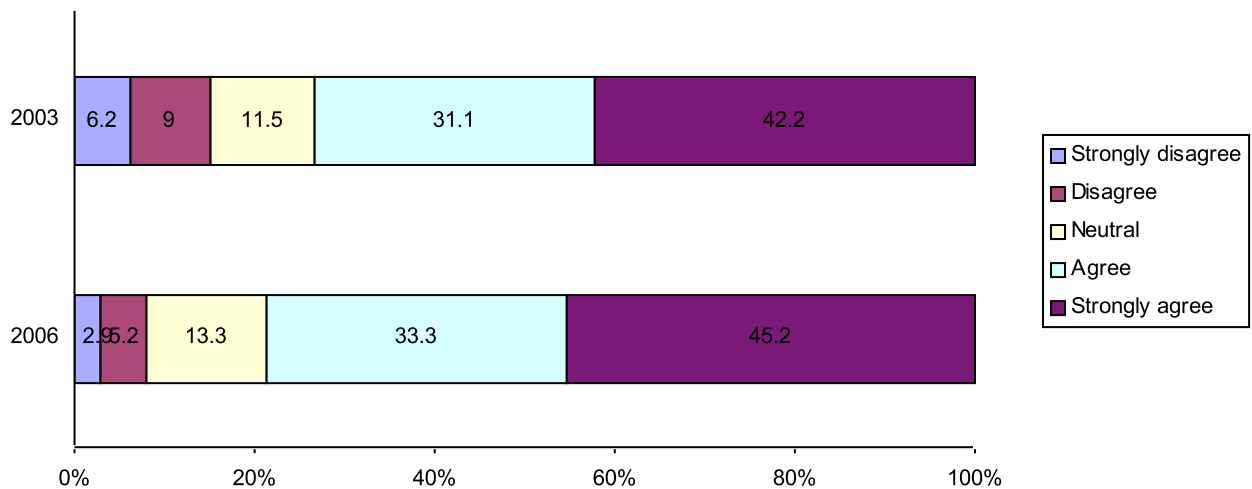


Figure 14. I like the look to the grassland/forest ecosystem

#### 4.2.5 Perceived Effects of Restoration on the Landscape

Respondents in 2003 and 2006 were asked to rate their agreement with the three following statements on a scale of 1 (strongly disagree) to 5 (strongly agree):

- The landscape around the campground is healthier now than it was before the forest thinning
- I think the campground is safer from fire now
- The Redstreak area is less attractive now than it was in the past

These questions were only asked of people who had been to the campground before.

In 2006, many people had difficulty responding to the first statement. They felt that they were not adequate or qualified judges of the health of the forest to be able to give a meaningful response. 88 people (41% of those to whom the question applied) did not answer this question. This pattern also applied in 2003, when 160 people (50% of respondents who were asked the question) replied “don’t know”.

Of those who did respond to the question, more people in 2006 than in 2003 felt that the landscape around the campground is healthier now than before the thinning (Figure 15). Some people spoke of the grass that had grown back in, seeing animals and birds in the campground that they had not seen before, and noticing how healthy the trees that are left look now. Some people also thought back to how dense the forest was before the thinning and remembered that in the past there was very little vegetation on the forest floor. They took these visible changes as signs of improved forest health.

In 2006, only 4.7% of people – compared with 16.8% in 2003 – did not believe that the landscape around the campground is healthier now than before the forest thinning. There were also people who agreed or were neutral on the issue but emphasised that although they saw the area as potentially healthier they did not like what had been done to the landscape.

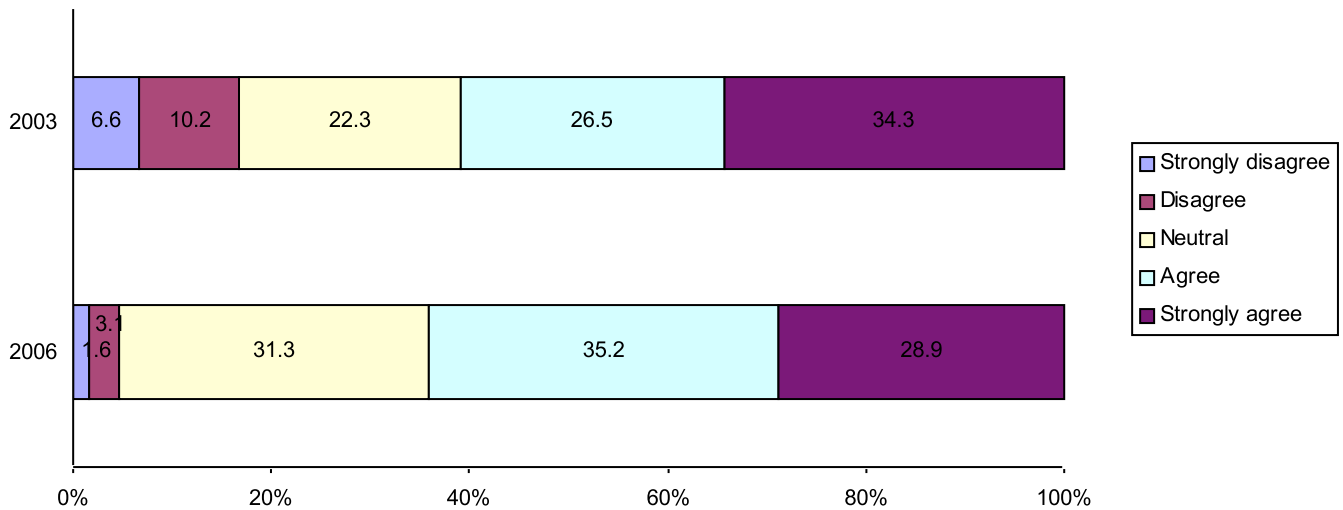


Figure 15. The landscape around the campground is healthier now than before the forest thinning

In both 2003 and 2006 over 80% of respondents agreed or strongly agreed that they felt that the campground is safer from fire now (Figure 16). However, this number has decreased slightly since 2003. In 2006 14% of people were neutral on the issue compared with only 4.5% of respondents in 2003. The number of people who disagree or strongly disagree with the statement has remained basically consistent. Generally, those who believed that the campground is now safer from fire recognised that fire is slowed down in open areas.

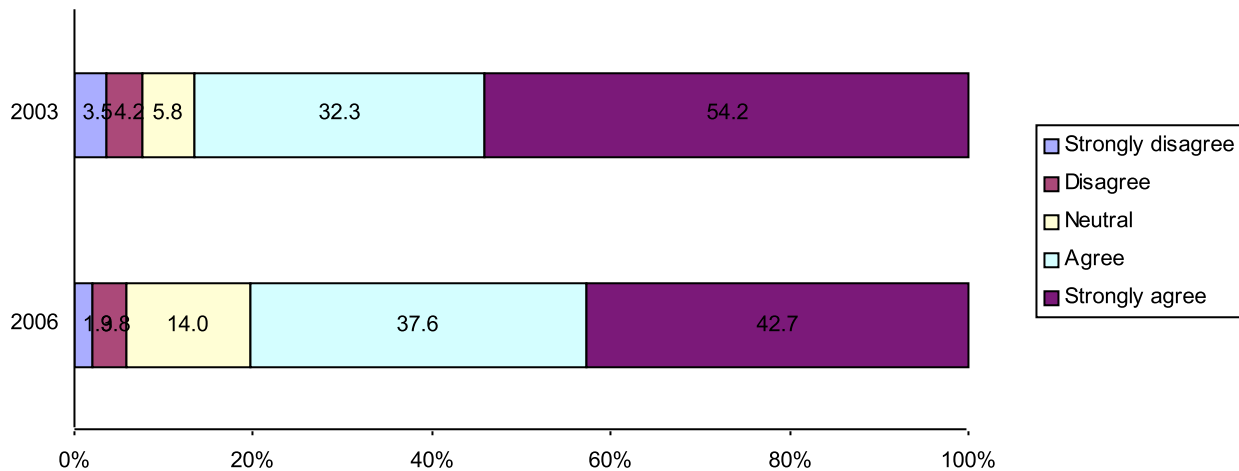


Figure 16. I think the campground is safer from fire now

In 2003 people were quite divided on whether the Redstreak area was less attractive than in the past. In 2006 the number of people who agree that the area is less attractive has diminished to 21.9% of respondents (Figure 17). In addition, a greater proportion of people see the area as more attractive now than did in 2003. This is probably due in part to the re-growth of vegetation in the area. The landscape now looks more “natural” than it did when the effects of the restoration project were still highly visible. It may be the current attractiveness of the area that affects awareness of the Redstreak restoration in general (Figure 6).

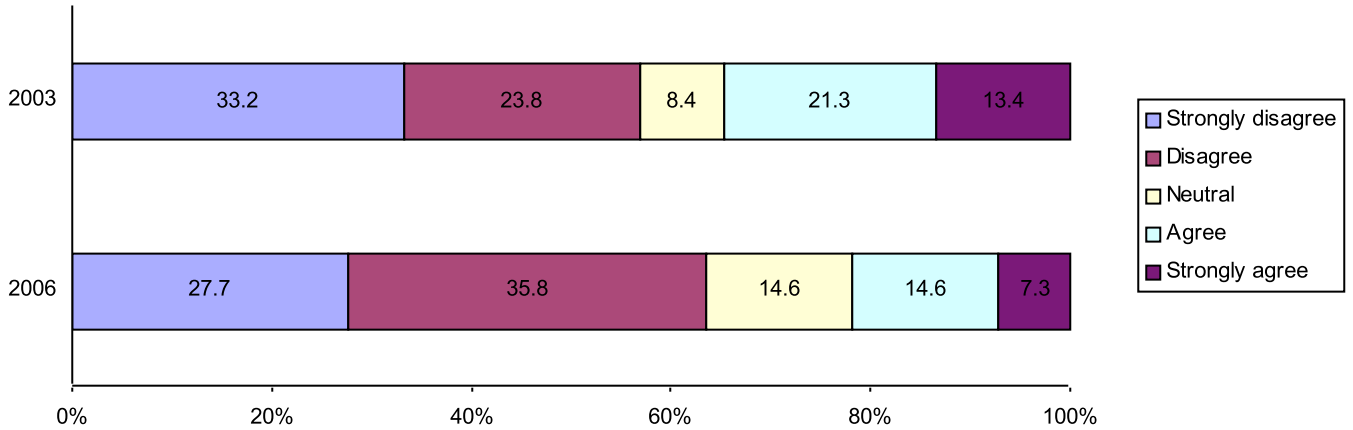


Figure 17. The Redstreak area is less attractive now than it was in the past

#### 4.2.6 Willingness to Return

All respondents who were aware that trees had been removed from the area around the Redstreak campground were asked whether the thinning project would make them more likely, less likely, or have no effect on their decision to return to the campground.

As shown in Figure 4, 94.4% of all campers in 2006 affirmed that they will probably return to the Redstreak campground. In 2003, 80.6% of respondents said that the tree thinning would have no effect on their decision to return; more people said it would make them less likely than more likely to return. We can see a modest change in opinion in 2006: 88.2% said the thinning would have no effect on their decision to return, and the remainder were equally split on whether the thinning would make them more likely or less likely to return (Figure 18).

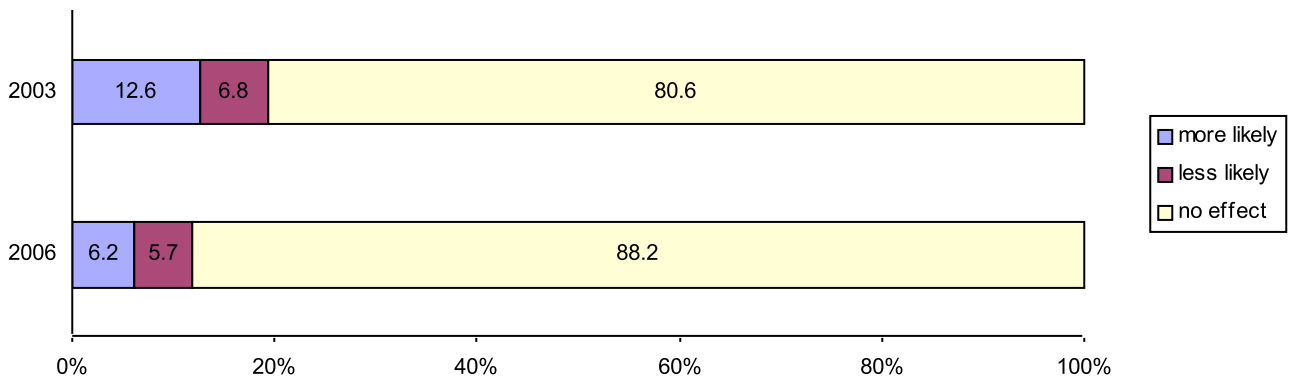


Figure 18. Effect of restoration on decision to return to the campground

### 4.3 Trail Users: Patterns of Use and Desire for New Trails

In order to establish current patterns of use on the existing trail network around the Redstreak campground, respondents were asked questions about their current patterns of use on the trail network.

Of the 413 respondents polled in 2006, 40% had used the trails in the area around the Redstreak campground this year and 33.4% said they intended to use the trail network on this visit. This shows that there is an existing demand for trails in the area.

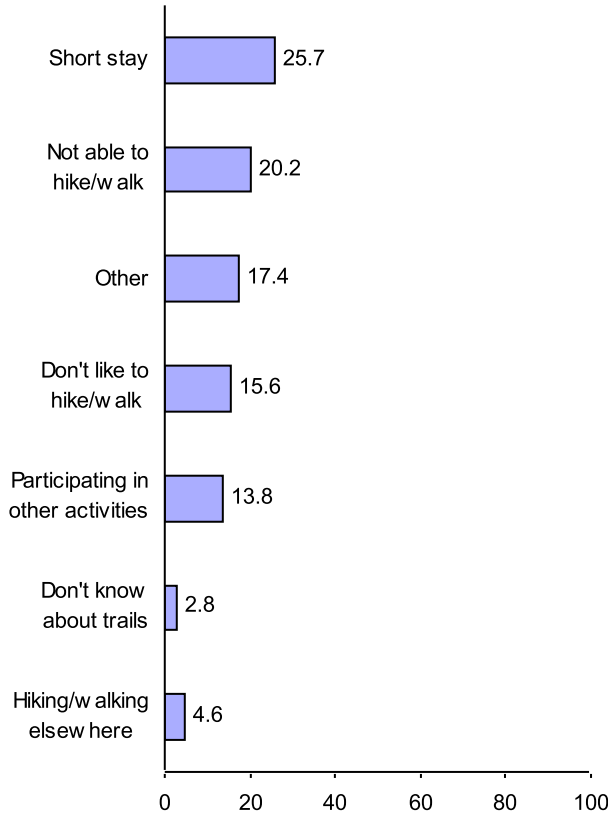


Figure 19. Reasons for not using trails

Respondents were asked without prompting which trails they have used or will intend to use (Figure 20). They were allowed to enter more than one response. For simplicity, campers who have already used the trails and those who intend to use the trails have been put together in one group.

By far the most popular trail is the trail to Radium Hot Springs. The Hot Springs are a very popular destination and many campers probably choose to stay at the Redstreak campground because of its proximity to the pools. The trail may also be popular because it is relatively flat, goes through nice forest, and is well travelled by other people.

Reasons varied for the 26.6% of campers who do not use the trails (Figure 19). In general people who did not use the trail said it was for reasons unrelated to the condition or availability of trails that suited their needs. Only 2.8% of people had not used the trails because they did not know that they existed.

Respondents who did not intend to use the trails usually fell into one of the following categories:

- Only here for a short stay
- Not able to hike or walk
- Don't like to hike or walk
- Participating in other activities

Many parents of young children said that they can not use the trails at this point in time but look forward to hiking with their children when they get a little older.

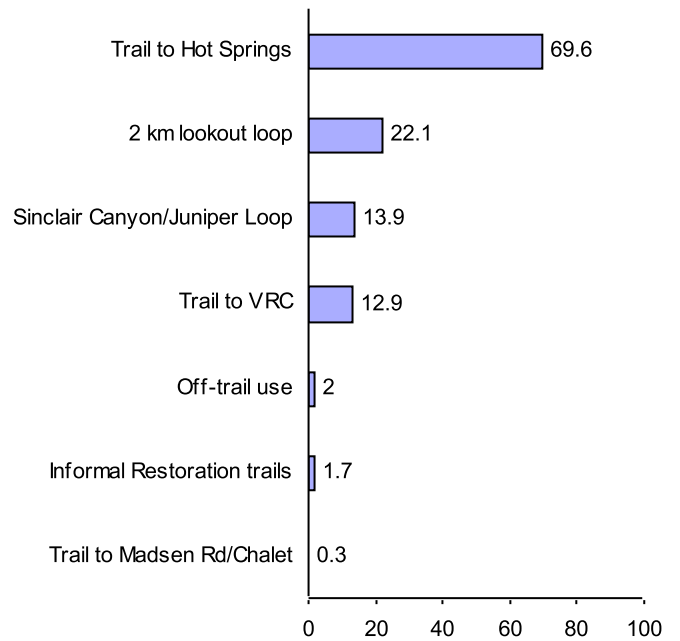


Figure 20. Which trails have you used or intend to use?

The 2km lookout loop, Sinclair Canyon/Juniper loop, and the trail to the Visitor Resource Centre (VRC) all see moderate use.

Very few people walk off trail. Five people (1.7% of the total) knew of the informal trails in the Redstreak Restoration (see Figure 1) and stated that they intend to use at least part of these trails, if not the entire informal loop around the Redstreak Restoration.

When asked length of trail they would be most likely to use, half of the respondents said they would prefer to walk for between half and hour and an hour (Figure 21). The rest of the group was fairly evenly split between people who would walk for over an hour and those who would prefer 15-30 minutes. Only four people stated that they would prefer to walk for less than 15 minutes; the majority felt that this would not be long enough or that they could meet their needs for a short walk by walking around the campground.

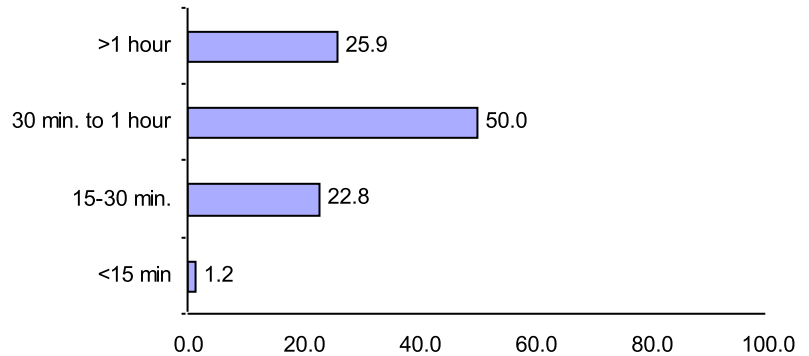


Figure 21. What length of trail would you be most likely to use?

Because of the current popularity of mountain bike use, respondents were asked how they felt about the issue of mountain bike use on trails in the area around the campground (Figure 22). 69.6% of people felt that it is okay to have mountain bikes on all or some of the trails. Generally people who agreed with the use of mountain bikes in the area were okay sharing the trail as long as mountain bikers ride in a courteous manner. 21.5% of respondents felt that there is no place for mountain bikes on the trails around the campground. Often these people described previous negative experiences on trails with bikes moving too quickly or in a dangerous manner (not necessarily on Parks Canada trails). 8.9% did not have an opinion on whether or not mountain bikes should be allowed on trails. Generally these people did not ride themselves and felt that the presence of bikes would not impact their experience.

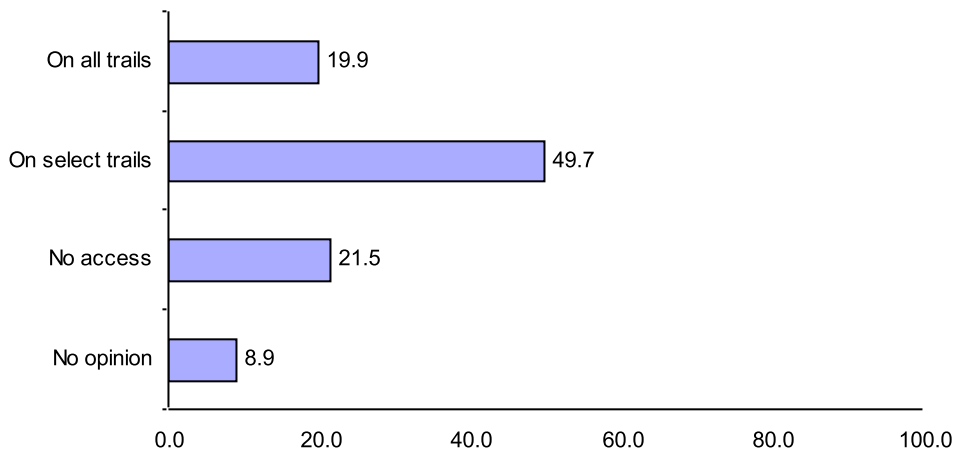
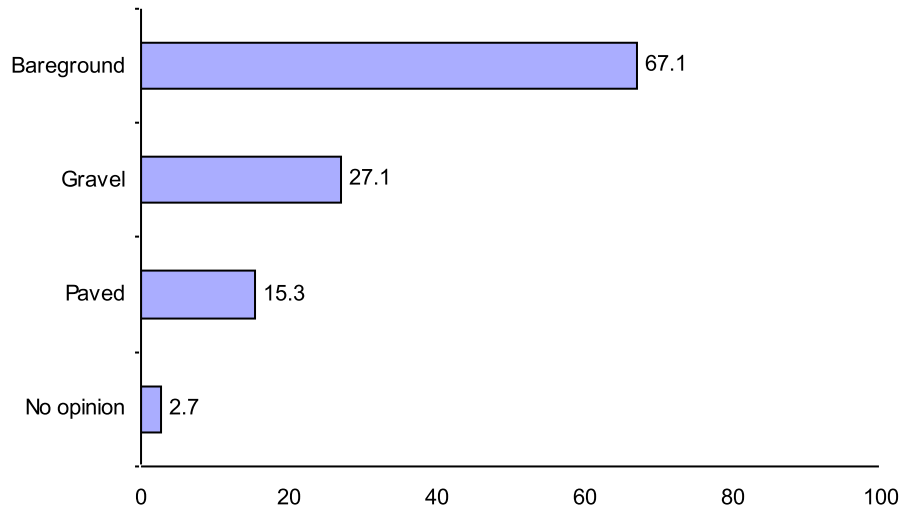


Figure 22. Acceptance on mountain bike use on trail network

Respondents were asked what type of trail surface they would prefer; in this case they were allowed to give more than one response because many people had a hard time choosing just one option. The question was

asked without prompting, but in many cases people were confused or did not know the options so the list of three options (paved, gravel, bare ground) were read off in these cases.

Over two thirds of people gave bare ground/natural as their favoured option (Figure 23). The trails around the Redstreak campground are currently bare ground and people seem to enjoy this type of trail surface as long as it is not too muddy or full of roots. 27.1% of respondents liked the option of having a gravel surface while 15.3% preferred a paved trail. So overall 42.4% of respondents like to have some sort of maintained trail



surface.

Figure 23. What type of trail surface would you most like to see?

Respondents were given the option to give additional input on what kind of trail they would like to see in the area. Some common responses were:

- Flat, easy, family friendly hiking and biking trails
- Moderate to challenging longer trails
- Scenic trails to a viewpoint or landmark of interest such as a mountain top or water (this was a very common response)
- Interpretive panels and benches along the trail
- Trails that take you in a loop
- Keep it natural and don't disturb the area too much

There is an old forestry road that travels along the edge of the Columbia wetlands between the village of Radium Hot Springs and Invermere. This road is being converted to a hiking/biking trail – called the Greenway – through participation with between both towns as well as other stakeholders. Parks Canada is considering linking the expanded trail network in the Redstreak restoration to the Greenway to give visitors the option of connecting in to this longer scenic trail.

The idea of linking a trail to the Greenway was described to campers. They were told that Parks Canada is considering linking a trail to a Greenway in the Columbia wetlands that would connect Radium Hot Springs and Invermere. They were also informed that it would take approximately 45 minutes to reach the wetlands and that going to Invermere would be a full day hike. They were then asked how likely they would be to use either part or all of this trail. Because Parks Canada is interested in the feasibility of connecting the campground trail network with the Greenway it was not necessary to separate people who would use the whole trail from those who would use only part of it – the intention of this question was just to gauge whether or not there is demand for a trail of this type.

Respondents had three options when answering this question: very likely, somewhat likely, or not at all likely. Responses are very evenly divided between the three choices, with only a slightly larger proportion saying they would be very likely to use the trail compared with the other two options (Figure 24).

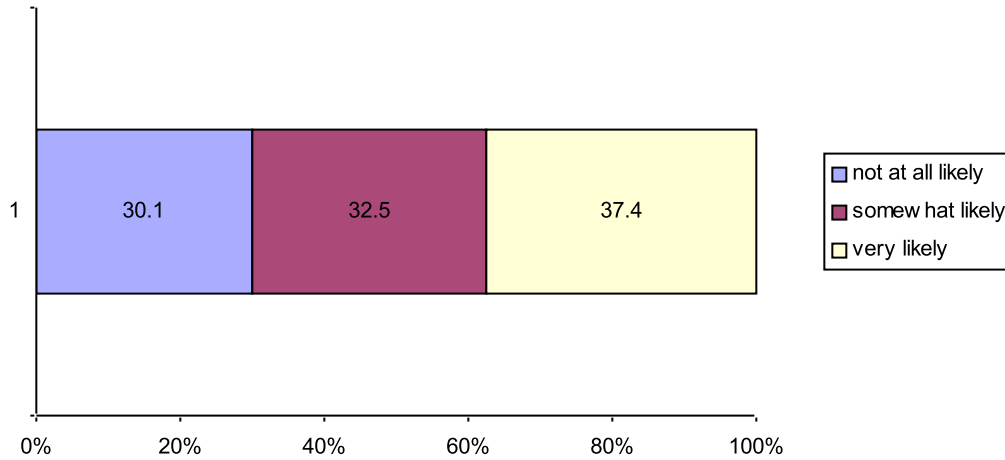
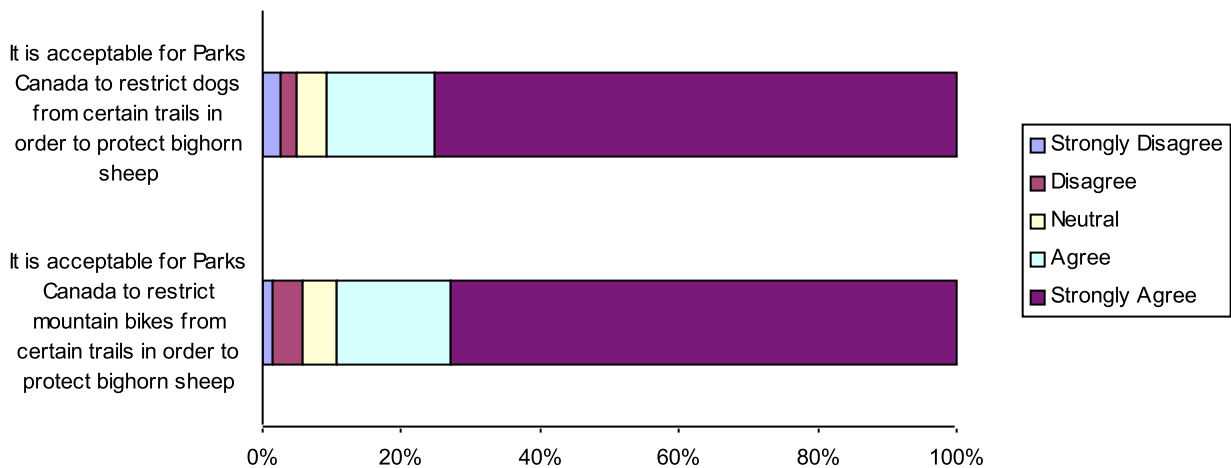


Figure 24. Likelihood of Greenway use

#### 4.4 Acceptance and Effect of Proposed Restrictions

As noted in the objectives section of this report, Parks Canada would like to know how accepting users are of restricting access of dogs and mountain bikes on certain trails while they are being used for by bighorn sheep.

Overall, people are very accepting of both of these restrictions: they feel that it is important to protect the bighorn sheep (Figure 25). Of the total number of people asked, only 16 people disagreed or strongly disagreed with the idea of restricting dogs from certain trails. In general these people felt that well trained and well behaved dogs are not a problem for the sheep – they were often themselves owners of dogs that they believed to be well behaved. More people disagreed with the idea of restricting mountain bikes in order to protect bighorn sheep. It can be difficult to see the impact that a mountain bike has on bighorn sheep compared to the



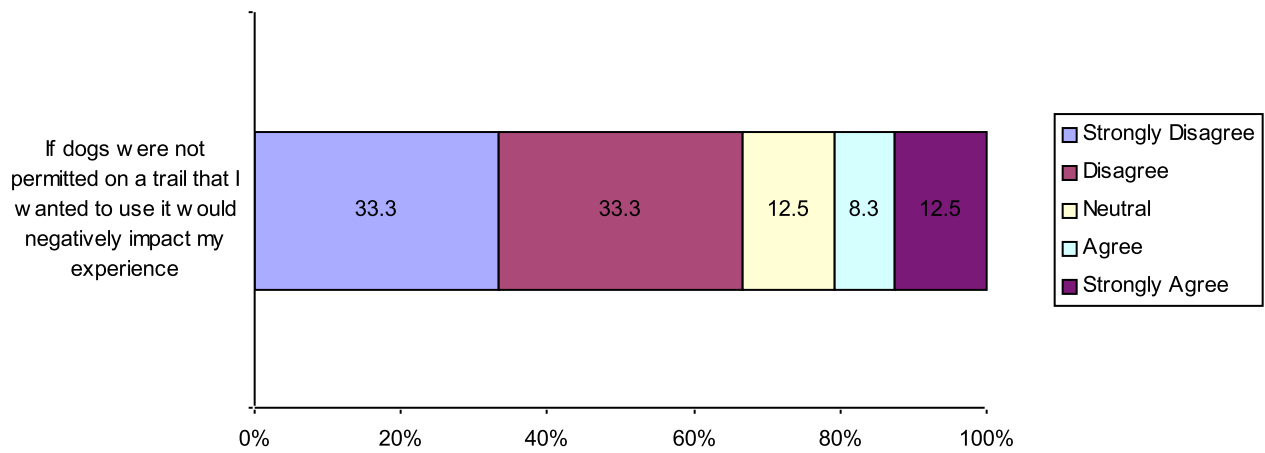
impact that a dog has on the sheep.



Figure 25. Acceptance of proposed restrictions

Sometimes people can be accepting of a restriction in theory but feel differently when the restriction applies directly to their own experience. To see how the restrictions would affect people in practice, those who had earlier stated that they had already either taken their dog or mountain bike on the trails around the campground were asked if the restriction would negatively impact their experience.

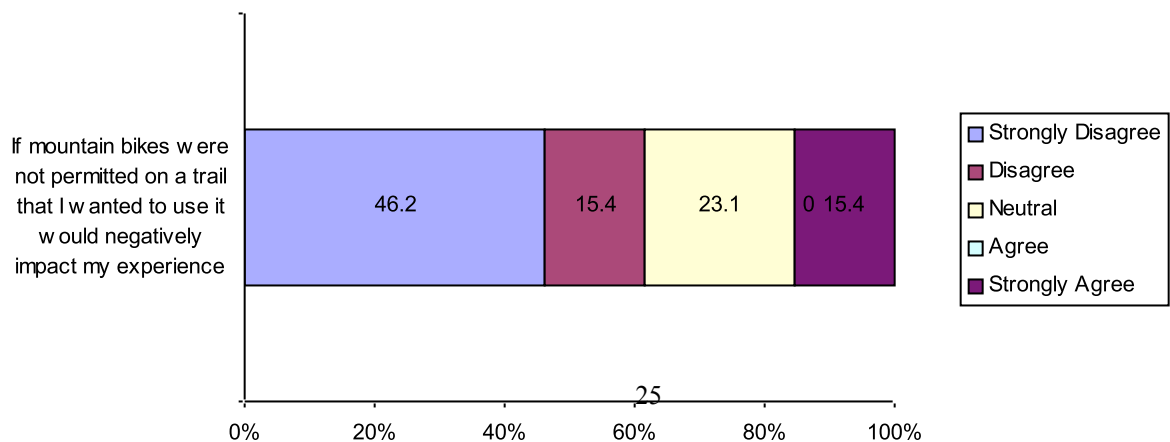
15.2% of people had already taken a dog with them on the trail. Two thirds of these people did not believe that the restriction would negatively affect their experience (Figure 26). They often felt that they could walk their dog somewhere else or that the safety of the sheep is more important than being able to use every trail in the park with their dog. They often stated that as long as the restriction only applies to certain areas they would not have a problem with it. Again, some people felt that their dog was well trained and that the restriction



should not apply to them.

Figure 26. Restriction impact on experience: Dogs

7.9% of people had already used a mountain bike on the trail network around the campground. In general people do not feel that the restricting mountain bikes would have a negative impact on their experience (Figure 27). However, a fairly large proportion are neutral on the issue. Interestingly, no one chose the "agree" option.



Instead, people who felt that the restriction would negatively impact their experience chose the “strongly agree” option – they represent 15.4% of the total number of people to whom the question applied.

Figure 27. Restriction impact on experience: Mountain bikes

#### **4.5 Intercept Survey: Preliminary Results**

The intercept survey boxes are still in place in the field, so the following is a preliminary summary of findings. It must be remembered that this is not a final report of the Intercept data, rather it is just a brief summary of some information to provide a different perspective compared to the comprehensive Redstreak campground data.

- Most people were either with family or alone
- More people had been on the trail before than those who were first time users
- People either stumbled on the trail by chance or stated that they have always used trails
- 30 minutes was the minimum amount of time that most people planned to walk for
- Common comments about the most enjoyable part of the trails are that they are quiet, beautiful, peaceful, full of birds, and have nice open views
- Common comments about the least enjoyable part of the trails are that they are overgrown, the brush piles are still there and that there are no signs to tell you where you are
- In general, current users of the Redstreak Restoration seem less accepting of the proposed dog and mountain bike restrictions than campground users are
- Most people feel fairly uninformed about the Redstreak Restoration project
- Only six out of 18 users were from the Columbia valley, one person lived in Alberta and had a condo in Radium
- Some suggestions for trail improvement included: mark the trails, keep them clearer, and add more trails for bikes

Because the sample size is so small (18 surveys have been collected to date), it is difficult to draw conclusions from the Intercept survey. The lack of data tell us, if anything, that the informal trails do not currently see very much use. However, those who do use the trails seem to like the effect that the Redstreak Restoration project has had on the landscape and go to the Restoration to have an experience that can not be obtained on other, more traditional, trail in the rest of the park.

## **5. Discussion**

The discussion of the results obtained will address the results from the perspective of the five objectives discussed earlier.

### **5.1 Changes in Visitor Satisfaction**

In both 2003 and 2006 campers were very satisfied in general with their experience in the campground. People continue coming to the campground and are happy enough with their experience that they will recommend the campground to others. It does not seem that camper satisfaction has been impacted very much by the Restoration project. Complaints were generally about the cost of camping and the cost of a fire permit. Except for a few people who seem not to have gotten over the initial shock of the change in the appearance of the campground, most people remain highly satisfied with the Redstreak Campground.

### **5.2 Understanding and Acceptance of Restoration**

Overall people have at least a basic understanding of why the Restoration project was conducted. Even if they are not aware of both goals of the project, of those who do know about the restoration most know at least one of the reasons why. However, a growing number of people compared with previous years do not know why the work was done or are not even aware that the work has been done. In terms of Parks Canada's active management of the forest, the majority of people show a very high level of support.

### **5.3 Access to Information**

In 2003, many people had accessed Parks Canada information about the Redstreak Restoration. In 2006 far fewer people had been informed by Parks Canada about the restoration. The most common sources of information are those that require the least amount of effort on the part of the camper – an interpretive show they are already at or a sign that they encounter on their way to somewhere else. In the case of campers at the Redstreak campground, lack of information should not be confused with lack of interest in the Redstreak Restoration. Many people were interested to find out more information once they had been told a little bit about the project.

### **5.4 Visitor Use on Landscape**

Most campers currently are very active while they are at the campground. The majority spend at least some of their time walking or hiking in the area around the campground. Walking to the Hot Springs is a very popular activity. They like trails that are between 15 minutes and over an hour, and most people prefer bare ground as a trail surface. The proposed restrictions on dogs and mountain bikes in the Redstreak Restoration seems like they could be implemented without too much disturbance – as long as the people being impacted by the restriction are informed about the reasons for the restriction.

### **5.5 Desire For New Trail Network**

Although people have not been asking for new trails to be put into the area they seem very receptive to the idea. They gave a variety of input on what they would like to see in terms of new trails and the area around the Redstreak campground seems to be the kind of place where many of these needs could be met within one trail network. There does seem to be user desire for improvements and additions to the existing trail network.

## **6. Conclusion**

As vegetation in the Redstreak restoration has returned the visible effects of disturbance have all but disappeared. Accordingly, public awareness of the restoration has diminished. However, this has not lessened public support for active management of the forest by Parks Canada. Support remains high. Because fewer people are aware of the restoration now than in the past it may be a good idea to continue education efforts in the campground, such as mentioning the restoration in campground interpretive programs and on signs in visible places in the campground (as was done in 2006). As most people do not hear about the Redstreak restoration before they arrive at the campground, perhaps increased publication of this Parks Canada success story would be a good idea. It could serve to increase public interest in and support of Parks Canada's active management of the forest.

Although there remain some veteran campground users for whom the restoration continues to be viewed as a disaster, the majority of campers like the way the Redstreak restoration project has affected their experience. If they are aware of the restoration, most people agree with the reasons for it and are accepting of the results. Seeing change in action on the landscape has been an interesting process for many return visitors; within a very short time span they have witnessed regeneration of an ecosystem. Many campers find the changed landscape aesthetically pleasing. Overall campground satisfaction is very high and we will most likely continue to see return visitors.

Campground users vary on what they would like to see in terms of additional trails in the area. Hopefully trails can be designed to meet these different needs. The landscape around the Redstreak campground seems like an ideal place to build trails that would incorporate views of the Columbia valley into short trails with longer more challenging options. Interpretive panels placed along the new trails would be an option to continue educating trail users about the Redstreak restoration project. Through careful planning the variety of needs could be successfully met. It will be important to inform campground users and local residents about the new trail network once it has been created.

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