

# Winter data collection in Canada's mountain parks

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For three consecutive years, winter backcountry use data was collected at sites in Banff, Glacier, Kootenay and Yoho national parks. Research focused on levels of use and user demographics, motivations, and degrees of preparedness and experience. Back-country (off-piste) skiing and snowboarding, cross-country skiing and ice climbing figured in the study.

## *Background*

Located along the Rocky and Selkirk mountain ranges in western Canada, the research sites comprise four of the seven national parks that are collectively known as Canada's mountain national parks. The Parks Canada Agency is responsible for national park management.

In 2009, knowledge on levels of backcountry winter use and the people who are 'out there' was identified by Parks Canada managers as a gap in the information they needed to effectively meet Agency goals for protection, visitor experience and education. Queries were linked to the allocation of resources for track setting, safety concerns, ski trail expansions, out-of-bounds skiing and conflicts between user activities (i.e. skiing and snowshoeing).

## *Methods and Limitations*

To gather information on levels of use, TRAFx infrared counters were installed at up to 55 selected sites. Data was collected each year between October and April with variable dates between sites. The following research limitations arose when using this methodology: a) routes change over the season due to snow fall levels, avalanche hazard etc.; if the new route does not pass in front of the IR counter, use is not recorded, b) occasionally counters malfunctioned due to moisture in the unit and temperature, c) counters recorded humans *and* wildlife, d) snow buried the infrared scopes, and e) counters provided a level of use but could not differentiate the 'type' of use, for this one needs to employ cameras. Simple remedies included the use of lithium batteries, calibrating the counters with cameras and repositioning scopes after heavy snowfalls. Parks staff conducting winter field work are required to attain a minimum AST 1 to access "simple" terrain where infrared counters were placed, in tandem with MRG winter orientation training. Training schedules occasionally caused the postponement of fieldwork.

Demographic, motivation and experience-based data was collected using surveys and semi-structured interviews. Attempts to conduct trail head surveys on cold and 'bad weather' days proved fruitless; 'good weather' days were somewhat fruitful though informants were usually keen to get on the trail and reluctant to stand around while being surveyed. Fortunately, surveying was more productive at avalanche awareness nights, onsite promo events and, especially, at the Rogers Pass Visitor Center where winter trail users are required to register before entering the backcountry. Data collected was analysed using SPSS, Microsoft Excel software and inductive content analysis. Reports were presented to managers at the end of each winter season.

## *Rogers Pass*

Winter research in Glacier National Park was of particular interest since this area receives over ten meters of snowfall annually. Situated in the Selkirk Range in British Columbia, Rogers Pass, in Glacier National Park is known around the world as an unrivalled ski touring and ski mountaineering destination. The terrain in Rogers Pass is steep, serious and complex. All ski destinations in the park require knowledge of travel in avalanche terrain, and skiers are urged to wear avalanche transceivers and be prepared for self-rescue. There are over 250 avalanche start zones, resulting in over 130 avalanche paths, which threaten the roughly 40 kilometres of the Trans-Canada Highway that transects Glacier National Park from east to west. Avalanche control is practiced though-out the winter in order to keep the highway open to traffic for as many days as possible. A Winter Permit System reduces backcountry users' risk by restricting entry to specific areas when scheduled avalanche control is underway. Permits are obtained at the Rogers Pass Discovery Center. Individuals entering a Winter Prohibited Area or a Winter Restricted Area that is closed to entry, or not complying with permit conditions, may be prosecuted, resulting in a maximum fine of \$5000 and/or permit cancellation (Parks Canada 2014).

Our three years of data confirmed that levels of use were increasing – rather dramatically in some areas. The multi-year levels of use were charted against weather and snow-fall data to assess potential correlations.

During winter 2010/2011 John Cattie, a graduate student from Lakehead University, joined the study. Based in Rogers Pass, he conducted 377 surveys and 20+ interviews. His work revealed that the great majority (89 per cent) of backcountry skiers/snowboarders consider themselves to have intermediate or advanced skills in their chosen winter sport. Very few (8 per cent) had less than one years experience and many (37 per cent) had more than 10 years experience. Eighty (80) per cent said they were in the backcountry more than 10 days per winter. Avalanche conditions, weather and terrain were the key factors that influenced the choice of a backcountry destination. The most used pre-trip planning tools, in order of preference, were: a) weather forecast, b) avalanche bulletins c) CAA website and d) guide books. Almost all (87 – 80 percent) said they carried beacons, probes, shovels, and extra clothing. Eighty-two (82) per cent of the respondents had some level of avalanche awareness training; 71 percent had attended a course in the last five years (Cattie 2012).

### *Next Steps*

Current data is 'patchy' with some sites being removed from the 3-year study due to Parks Canada budget cut-backs. Research needs to continue in order to establish a solid baseline and conduct trend analysis in the future. 'Emerging' types of use, such as snowshoeing, need to be included in the study. Existing primary source data could be mined for relevant information on user profiles and motivations. Results from this region could be compared with study results from other winter-activity regions. Importantly, universities, the Canadian Avalanche Association and winter tourism agencies should be considered potential research partners.

### *References*

Cattie, John (2012) Recreation Specialization, Avalanche Training and Avalanche Safety Practices of Backcountry Skiers in the Canadian Mountain National Parks. Lakehead University, Ontario.

Parks Canada (2014) [www.pc.gc.ca/eng/pn-np/bc/glacier/activ/activ1.aspx](http://www.pc.gc.ca/eng/pn-np/bc/glacier/activ/activ1.aspx)