



canadianavalancheassociation

WINTER BACKCOUNTRY USE TREND ESTIMATES FOR WESTERN CANADA

Prepared for:

Canadian Avalanche Association

NIF Project: Avalanche Decision Framework for Amateur Winter Recreationists
(ADFAR)

Prepared by:

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1. INTRODUCTION

The goal of this study is to estimate trends in non-commercial winter backcountry use in Western Canada over the last 25 years. A better knowledge of these trends will allow a more advanced understanding of current trends in avalanche incidents and accidents and provide insights into the effectiveness of the public avalanche bulletins and other avalanche safety efforts currently provided by the Canadian Avalanche Association and the Canadian Avalanche Centre.

The geographically disperse character of non-commercial backcountry recreation makes estimating backcountry use numbers a challenging task. Reliably estimating backcountry user days and related trends might only be possible with extensive long-term trail counter studies. As a shortcut for approximating trends, sales numbers of backcountry equipment such as snowmobiles, climbing skins or avalanche rescue gear are often suggested as potential measures for recreational backcountry use. For example, Couloir Magazine, a popular backcountry skiing magazine, estimates the size of its market based on the amount of backcountry skiing equipment sold in North America (Dostie, 2004; Couloir Magazine, 2004). However, sales are not only driven by the popularity of a particular sport. Other aspects, such as advances in technology and changes in spending power can significantly impact sales numbers. The resulting statistics might therefore be considerably different from actual backcountry use trends.

The present study took a different approach. Seventy five avalanche professionals were asked to provide feedback about the evolution of backcountry use over the last 25 years in the area most familiar to them. Having a number of professionals comment on the backcountry use history of the same area has the potential to provide the information necessary to reasonably estimate backcountry use trends over the last decades.

2. METHOD

A paper survey was sent out to 75 active avalanche professionals in Western Canada. These professionals were chosen primarily for their long-term experience and knowledge of non-commercial winter backcountry recreation in the study area.

The survey consisted of four main parts. First the professionals were asked to estimate the overall backcountry use history in a given area relative to a reference winter based on their personal observations. Second, they were asked to estimate the proportion of usage by the individual target groups of the ADFAR project for specific reference winters. The three target groups are: a) backcountry skiers and snowboarders; b) snowmobile riders and c) out-of-bounds skiers and snowboarders. Third, the professionals were asked to comment on the use history for each of these user groups individually. Finally, the professionals were asked to describe events that dramatically influenced backcountry use in the given area. The survey form is included in this report in Appendix A.

3. RESULTS

From the 75 surveys sent out to professionals only 18 were sent back completed (Table 1). This is equivalent to a response rate of 24%.

The low response rate might have been partially caused by the complexity of the survey form. In order to record the information according to the personal experience of the individual professionals the questions needed to be quite flexible. This resulted in a rather complex series of questions. Another reason for the low response rate might have been the timing of the mail-out. The survey was sent out in mid-November, just prior to the winter season of 2004/05. This is a time when most professionals are busy getting ready for winter operation.

Table 1:
Survey responses

Area	Number of surveys sent out	Numbers of responses
South Coast	16	3
North Columbias	12	3
South Columbias	15	2
Kootenay-Boundary	8	4
Central Rockies	13	1
Southern Rockies	8	4
North Coast	3	2
<i>TOTAL</i>	75	18

The regions listed are the forecasting areas for public avalanche bulletins used by the Canadian Avalanche Centre.

Due to the low response rate, it was not possible to calculate statistically valid trends of non-commercial backcountry use. Instead, the results of the survey are presented as a collection of personal observations and opinions about the backcountry use history across Western Canada. Overview maps (see Appendix B) were created to present the results in a qualitative way. All trend graphs are scaled to the winter season of 2003/04 (=100%). The user group specific maps also show estimates of the percentage of backcountry use by the group relative to the overall non-commercial backcountry use for the winter season of 2003/04.

3.1 Overall non-commercial backcountry use trends

The estimated overall trends in non-commercial backcountry use seem to indicate that the overall growth of backcountry use has been slowing down over the last decade. The only areas with an increasing growth in backcountry use are the Southern Rocky Mountains and potentially the Kootenay Pass area. Most areas seem to experience a slightly decreasing or steady growth. Areas such as Manning Park, Northern Rocky Mountains and Steward even show a decrease in backcountry use within the last five years. Several professionals reported a temporary drop of backcountry use during the winter of 2002/03. This winter was characterized by a particularly weak snowpack that resulted in an

exceptionally high number of recreational avalanche fatalities in Canada (CAC, 2005).

3.2 Non-commercial backcountry skiing/snowboarding trends

The trend estimates for backcountry skiing and snowboarding are generally more conservative than the overall trends described above. Most areas have been experiencing a slight decrease in growth in backcountry skiing travel over the time period examined. Similar to the overall trends, the area with the strongest increase in backcountry skiing is Southeastern British Columbia. Backcountry skiing in Whistler and Blue River was reported to be constant over the last 25 years. Professionals in the Northern Rocky Mountain and Steward areas reported a decrease in backcountry skiing.

The share of backcountry skiing and snowboarding of the overall local backcountry traffic was rated anywhere between 1 and 100%. The high numbers were primarily in national or provincial parks where mechanized backcountry travel is prohibited. Within in a given area, estimates often varied considerably. One of the primary reasons for these variations might be slight differences in the definition of the area described by individual avalanche professionals. Particularly in areas with ski resorts that show a high number and strong spatial concentration of out-of-bounds skiers, slight differences can have significant effects on the different user proportions.

3.3 Non-commercial snowmobile use trends

The map of snowmobile use only shows trend graphs of areas where mechanized backcountry travel is permitted. With the exception of Southeastern British Columbia and the Sea-to-Sky corridor all areas reported a decrease in snowmobile traffic growth in the last 5 to 10 years. However, none of the returned surveys covered areas that include any of the primary snowmobile destinations in British Columbia and Alberta (Revelstoke, Valemount, Crowsnest Pass, Golden and Sicamous). As a consequence, the trends presented in this

study are probably considerably below the true trends observed in these key areas of snowmobiling.

The snowmobile portion of the overall backcountry traffic was estimated between 40 and 95%. This is considerably higher than the values given for backcountry skiing in the same areas. In addition, since none of the most popular snowmobile riding areas were included in this study, it has to be expected that the true percentage values are even higher.

3.4 Non-commercial out-of-bounds skiing/snowboarding trends

Almost all areas with out-of-bounds skiing and snowboarding activity show an increasing growth over the last decade. In particular, areas with large ski resorts, such as Whistler, Lake Louise and Sunshine are reported to exhibit exponentially increasing use numbers. Areas with medium-sized ski resorts (e.g., Castle Mountain, Panorama, Whitewater) are reported to experience a steady increase. Constant or slightly decreasing numbers in out-of-bounds use were only reported from areas with smaller ski hills, such as Terrace and Manning Park.

Within the given areas, out-of-bounds traffic was reported to make up between 1 and 50% of the entire non-commercial backcountry traffic. As mentioned earlier, these percentages are highly dependent on the size of the area described by the professional. Within their close proximity, ski resorts clearly have the potential to provide easy backcountry access to a large number of recreationists that goes considerably beyond the use numbers of the other two user groups.

3.5 Comments on specific events affecting backcountry use

Avalanche professionals were also asked to make comments about the most influential events or developments that had a notable effect on backcountry travel in their area. The following list summarizes the comments from all survey responses for the different areas. The abbreviations BC (backcountry skiing),

SM (snowmobiling) and OB (out-of-bounds skiing) indicate what user groups were primarily affected by the specific development.

Sea-to-Sky Corridor (SW British Columbia)

- Paving of Duffy Lake Road (BC)
- Development of huts along the Duffy Lake Road: Keith's Hut, VanHorlick Hut, Blowdown Hut (BC)
- Backcountry ski tickets at half price of regular tickets in Whistler (BC, OB)
- More trail grooming (SM)
- More stores selling the equipment (SM)
- More female riders (SM)

Manning Park

- Trail and route maintenance discontinued in 2002 due to staff cutbacks (BC)

Central Coast Mountains

- Opening of Shames Ski Area in Terrace in 1990 (BC, OB)
- Depressed economy in the Steward area in later 1990's (SM)

Smithers Area

- Negative effect of unrestrained snowmobiling (BC)

Cariboo Mountains

- Construction of backcountry huts (BC)
- Growing network of logging road for easy backcountry access with snowmobiles (SM)

Blue River Area

- Significant increase in snowmobile traffic related to more aggressive advertising of Valemount as snowmobile area in mid 1990's

Nakusp and Slocan Valley

- Rapid expansion of logging road network in late 1980's and early 1990's (SM)
- Deactivation of Gardner Creek logging road in 1989 (BC, SM)
- Construction of backcountry huts in 1990's: Harlow Creek Touring Society Hut (BC)

Nelson Area

- Improvement in touring gear (BC)
- Construction of backcountry huts in 1990's (BC)
- Cultural shift towards more out-of-bounds use in Whitewater and Red Mountain in mid 1990's

Kootenay – Boundary

- Development of backcountry lodges expanded snowmobile access (SM)

- Improved backcountry equipment (SM, BC)

Kootenay Pass

- Area is featured in backcountry publications and extreme ski movies (BC)

Southern Purcell Mountains

- Plowing of forestry road into Forster Creek (SM)
- Replacement of hut at Jumbo Pass (BC)
- Mention of area in magazines and guide books (BC)
- Expansion of Panorama ski terrain (OB)

Southern Rocky Mountains

- Expansion of Fernie Ski Resort and growth of commercial snowcat skiing has forced backcountry skiers into more remote areas, often by snowmobile (BC, SM)
- Aging and more affluent skiers are switching to snowmobile riding (BC, SM)
- Formation of snowmobile clubs (SM)
- Expansion of trail grooming (SM)
- Improved snowmobile technology (SM)

Castle Mountain

- Installation of Red Chair in 1998/99 (BC, OB)

Kananaskis Country

- Opening of first access roads for winter season in 1978 (BC)
- Opening of Spray/Smith-Dorrian road in 1982/83 (BC)

Banff, Yoho, Kootenay National Park

- Access to Sunshine Meadows has become more expensive and more difficult (BC)

Northern Rocky Mountains

- Plowing of primary access road was discontinued due to priority changes in local logging (BC)
- Rapidly improving sled technology in mid 1990's (SM)

Even though there were too few responses to allow for conclusive results, the most important developments are clearly improved backcountry access in general, the construction of backcountry huts and advancements in backcountry gear. Other interesting influences mentioned by avalanche professionals are the aging nature of the backcountry skiing user group, the use of snowmobiles to access backcountry skiing terrain and a cultural change towards more out-of-bounds skiing at ski resorts.

4. CONCLUSIONS

The low response rate to the survey made it impossible to derive statistically valid backcountry use trends for Western Canada. However, a qualitative analysis of the responses was still able to provide a number of interesting insights. The primary conclusions are:

- Non-commercial backcountry traffic growth seems to have generally slowed down over the last decade.
- The area with the strongest relative growth is Southeastern British Columbia.
- The survey responses seem to indicate that out-of-bounds skiing is currently the non-commercial backcountry segment with the highest growth rate followed by snowmobile riding.
- Even though no absolute backcountry use numbers were collected in this study, the responses suggest that snowmobile riders are currently the largest backcountry user group. They are followed currently by backcountry skiers and the out-of-bounds skiers and riders. However, the fast growth of the out-of-bounds groups might make it the second largest user group in the near future.

As mentioned earlier, these conclusions do not have any statistical support at this point. They are primarily based on the personal observations of a limited number of avalanche professionals. Therefore this study can only be regarded as an exploratory effort. Only extensive long-term trail counter studies would be able to provide conclusive results on backcountry user trends.

5. ACKNOWLEDGEMENT

The design of this exploratory study was based on a personal conversation with Clair Israelson, the executive director of the Canadian Avalanche Association. Funding was provided by the ADFAR project of the Canadian Avalanche Association. I would like to thank all avalanche professionals who took the time to fill out the survey.

6. REFERENCES

- Canadian Avalanche Centre, 2005. Annual Report 2004-2005. Canadian Avalanche Centre, PO Box 2759, Revelstoke, BC V0E 2S0.
- Couloir Magazine, 2004. Media Kit (available online at http://www.earnyourturns.com/about_us/advertise/mediakits/v17_mkit.html) accessed in Nov. 2004
- Dostie, C., 2004. Personal Communication. Publisher of *Couloir Magazine* and *Telemark Skier*.

APPENDICIES

A Survey Form

B Overview Maps of Non-Commercial Backcountry Use Trends

- a) overall non-commercial backcountry use trends relative to 03/04
- b) non-commercial backcountry skiing trends relative to 03/04
- c) non-commercial backcountry snowmobile use trends relative to 03/04
- d) non-commercial out-of-bounds skiing trends relative to 03/04

October 31, 2004

RE: Estimation of non-commercial recreational winter backcountry use in Western Canada

Dear avalanche professionals and backcountry enthusiasts:

The Canadian Avalanche Association is currently leading several exciting initiatives, which have the common goal of improving the avalanche awareness and safety of recreationists. Improvements in the public avalanche bulletin and the NIF project for the development of an avalanche decision-making framework for amateur winter recreationists (ADFAR) are just two examples. The CAA is therefore highly interested in knowing more about non-commercial recreational winter backcountry use in Western Canada. Accurate approximations of backcountry use over the last 25 years are crucial for estimating the increased demand on our public services and properly interpreting trends in Canadian avalanche fatalities.

With this survey, we are trying to get a first estimate of non-commercial recreational winter backcountry by asking avalanche professionals and experienced recreationists that spend substantial amounts of their time in the backcountry to estimate the non-commercial backcountry use in their geographic area. By asking several people in the same region independently, it should be possible to get a fairly accurate first guess of backcountry use over the last 25 years in the different bulletin areas across Western Canada. Such first estimates can potentially be backed up by sales numbers of avalanche beacons, climbing skins or snow mobiles in a second step. However, these numbers are significantly affected by the introduction of new technologies, such as digital beacons, and their interpretation is not straight forward.

We would like to ask you to fill out our short survey about the development of non-commercial recreational backcountry use in your area. Your contribution is highly appreciated and will allow us to know our different target audiences better. Within the ADFAR project, we are currently working on another survey study for the upcoming winter season, where we use different monitoring and surveying techniques to further characterize and understand the behavior and decision-making of recreationists. This and many other exciting projects will be able to build on your contribution.

I would like to thank you for your contribution to this study. Please feel free to contact me by phone (604-773-0854) or e-mail (pascal@avisualanche.ca) if you have any questions regarding the survey.

Best regards and a safe winter to all of you.

Pascal Hägeli
(ADFAR Project Manager)



ESTIMATION OF NON-COMMERCIAL RECREATIONAL WINTER BACKCOUNTRY USE IN WESTERN CANADA

1. Name:

2. Email and/or phone number:

Your information will be treated confidential and survey results will only be presented in summarized ways. We will only use your contact information in case we have questions regarding your survey answers.

3. What are your main winter backcountry profession and/or your position in outdoor recreation clubs or federations?
(e.g., heli-ski operator, park warden, ski patrol, snowmobile guide, ...)

4. For how long have you been pursuing the above activity?

5. What are your recreational winter backcountry activities?
(e.g., backcountry skiing, snowmobiling, out-of-bound skiing/snowboarding)

6. For how long have you been recreating in the backcountry of Western Canada during the winter season?

7. On the map below (Fig. 1), please outline area(s) for which you feel most comfortable to give estimates about non-commercial recreational backcountry use. Please also indicate the location(s) of your professional activities with a cross (+).

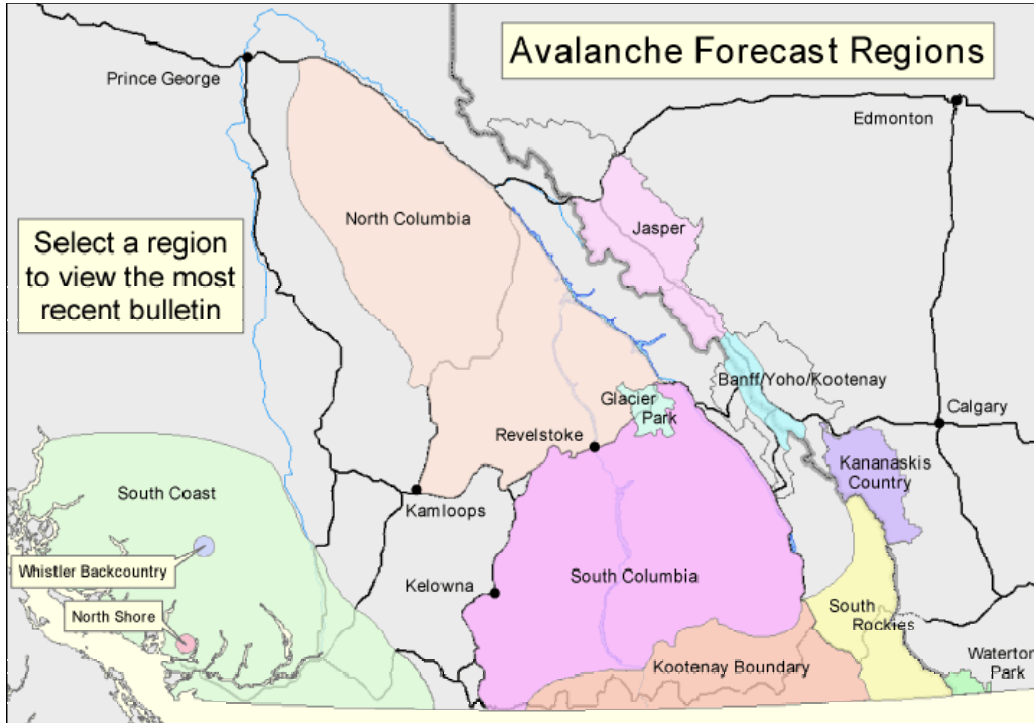


Figure 1: CAA public avalanche bulletin areas.

8. If the above map is not detailed enough to clearly outline your area(s), could you please describe it/them in a few words.

We are mainly interested in the estimation of the **overall** non-commercial recreational backcountry use over the last 25 year.

9. Using the graph below (Fig. 2), could you please sketch out the development of overall recreational non-commercial backcountry use in your area(s) of experience according to the following instructions.
 - a) Choose a reference year for which you assume the non-commercial winter backcountry use to be 100% (Most likely people will assume the use during the 2003/04 season to be 100%).
 - b) Mark the 100% at the appropriate winter season on the graph.
 - c) Go back and/or forward in time and sketch out the overall non-commercial winter backcountry use for your area according to your experience. Do only draw the graph for the time period you have experience. You are not required to draw all the way to 1978/79.

If you have experience in several areas that exhibit significantly different backcountry use patterns, please answer the remaining questions for each of these areas separately. If you use the graphs to give estimates for different regions, please use different colors and/or different symbols for the different regions and specify in the legends. You might give estimates over different time periods for the different regions.

Please be as specific as possible with your estimates. Fairly detailed estimates about small areas will be more useful than general estimates over large areas.

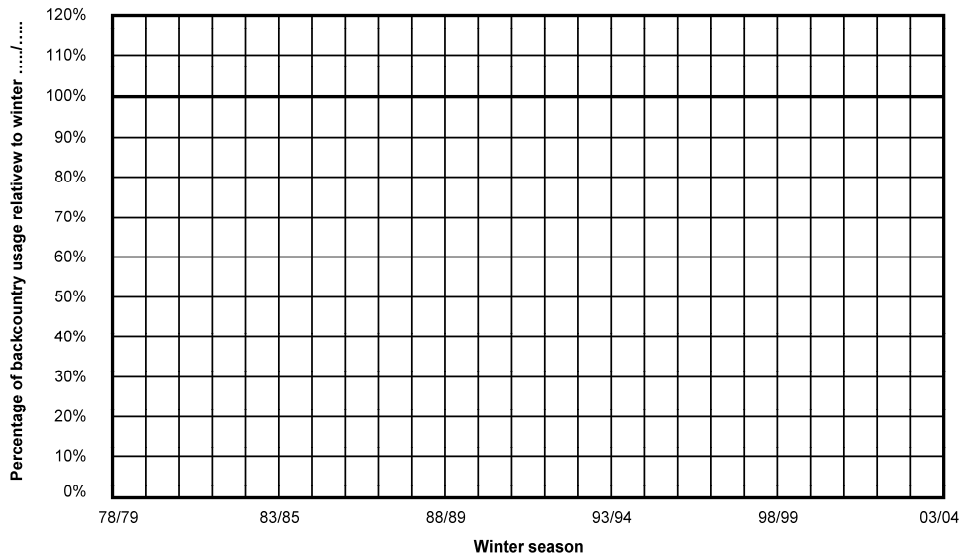


Figure 2: Graph of estimated overall non-commercial winter backcountry use.

Legend:

Region 1: _____ Symbol: _____

Region 2: _____ Symbol: _____

Region 3: _____ Symbol: _____

Region 4: _____ Symbol: _____

In the following questions, we would like to ask you to give us more detailed information about non-commercial backcountry use divided into the following **three main non-professional backcountry user groups**:

- 1) backcountry skiers/snowboarders (BC)
- 2) snowmobile riders (SM)
- 3) out-of-bounds skiers/snowboarders (OB)

10. In your reference winter, what percentages of use do you estimate for the different user groups (in the different areas)?

Region	_____	_____	_____	_____
1) BC	_____ %	_____ %	_____ %	_____ %
2) SM	_____ %	_____ %	_____ %	_____ %
3) OB	_____ %	_____ %	_____ %	_____ %
	100%	100%	100%	100%
Winter	(/)	(/)	(/)	(/)

11. If you can please draw the development of backcountry use for each of the different user groups in the following figures (Fig. 3-5) according to the following instructions:

- a) Mark your estimates given in question 9 at the appropriate winter season on the graphs for the different user groups.
- b) Go back and/or forward in time and sketch out the non-commercial backcountry use of the different user groups for your area according to your experience.

1) Backcountry skiers/snowboarders

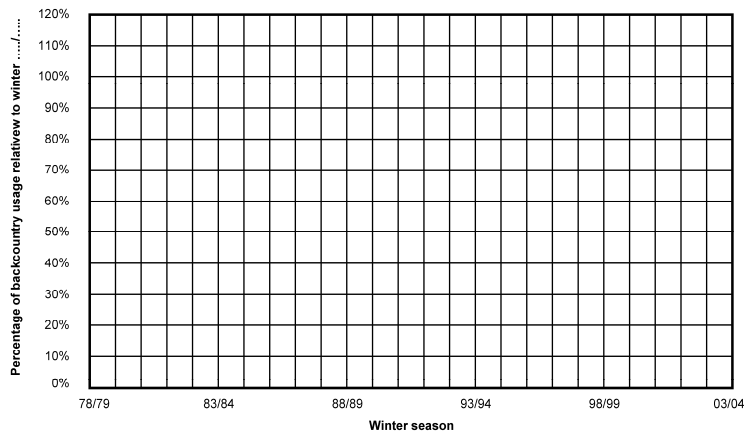


Figure 3: Graph of estimated non-commercial backcountry use by BC.

Legend:

Region 1: _____	Symbol: _____
Region 2: _____	Symbol: _____
Region 3: _____	Symbol: _____
Region 4: _____	Symbol: _____

2) Snowmobile riding

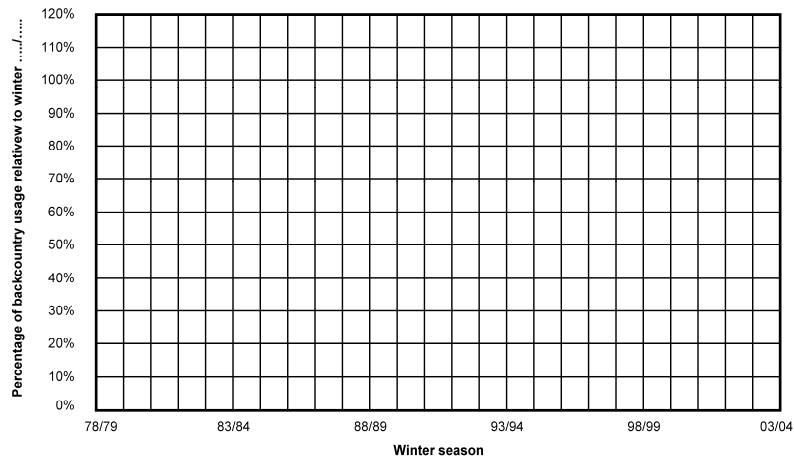


Figure 4: Graph of estimated non-commercial backcountry use by SM.

Legend:

Region 1: _____	Symbol: _____
Region 2: _____	Symbol: _____
Region 3: _____	Symbol: _____
Region 4: _____	Symbol: _____

3) Out-of-bounds skiers/snowboarders

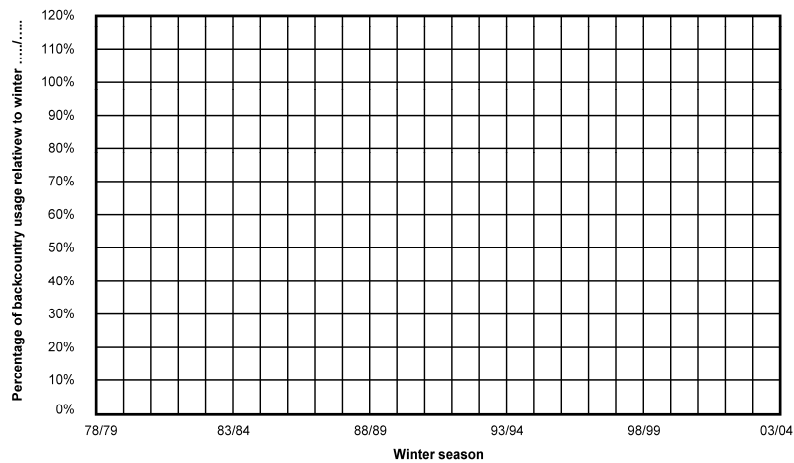


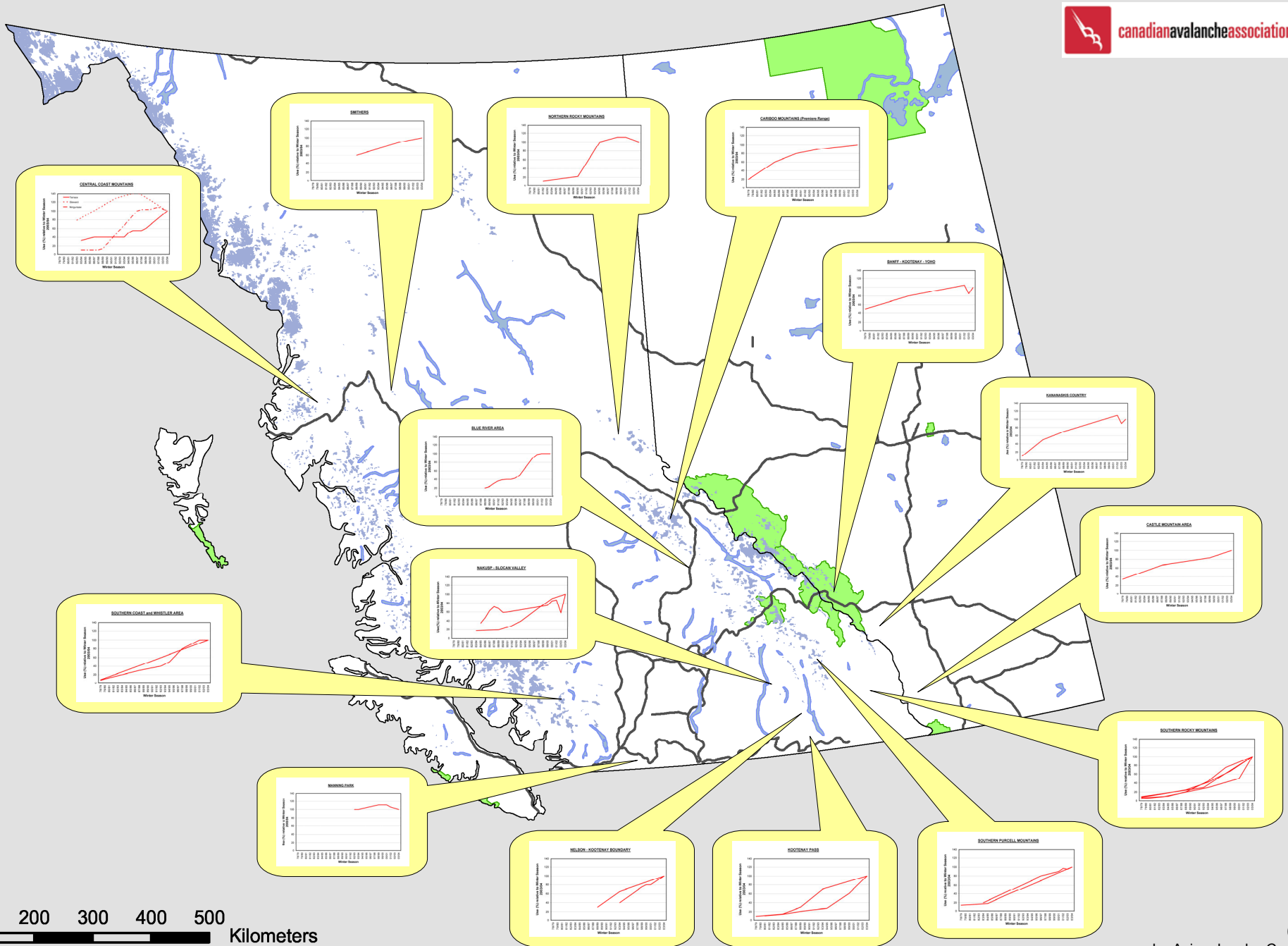
Figure 5: Graph of estimated non-commercial backcountry use by OB.

Legend:

Region 1: _____	Symbol: _____
Region 2: _____	Symbol: _____
Region 3: _____	Symbol: _____
Region 4: _____	Symbol: _____

OVERALL NON-COMMERCIAL BACKCOUNTRY USE TRENDS RELATIVE TO 03/04

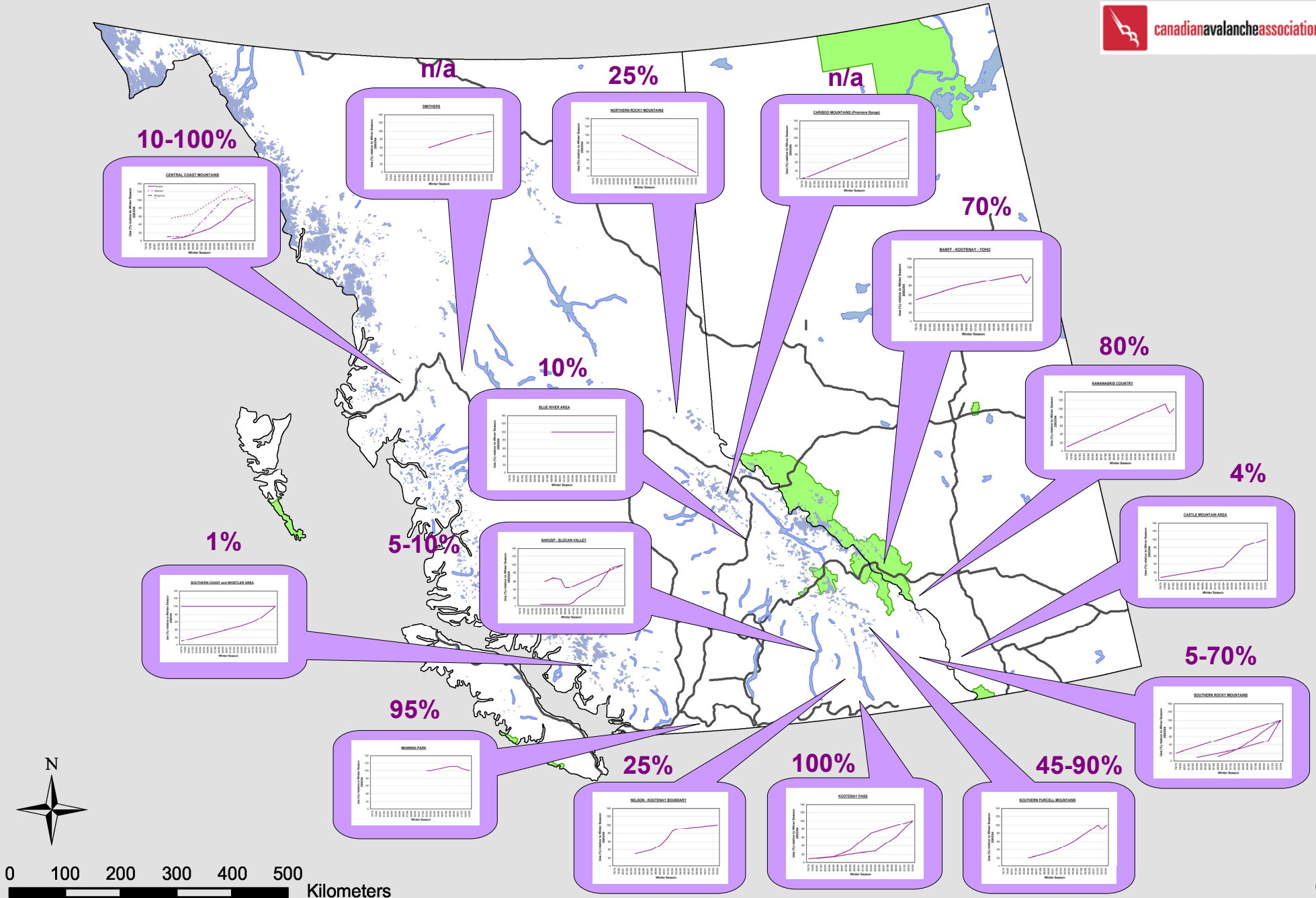
Information Source: Personal Observations of 18 Avalanche Professionals



0 100 200 300 400 500 Kilometers

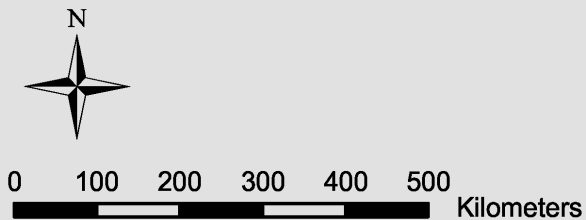
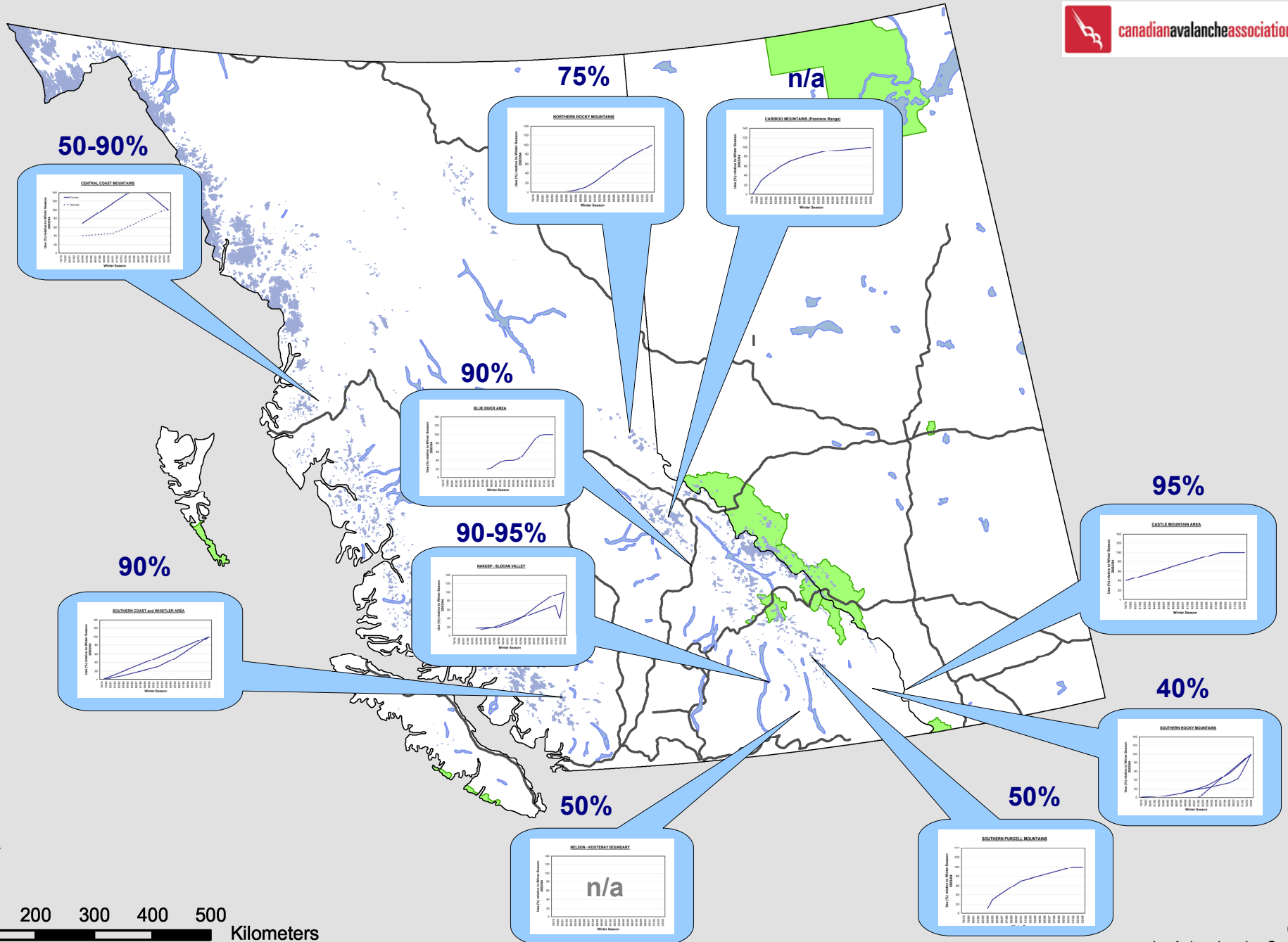
NON-COMMERCIAL BACKCOUNTRY SKIING TRENDS RELATIVE TO 03/04

Information Source: Personal Observations of 18 Avalanche Professionals



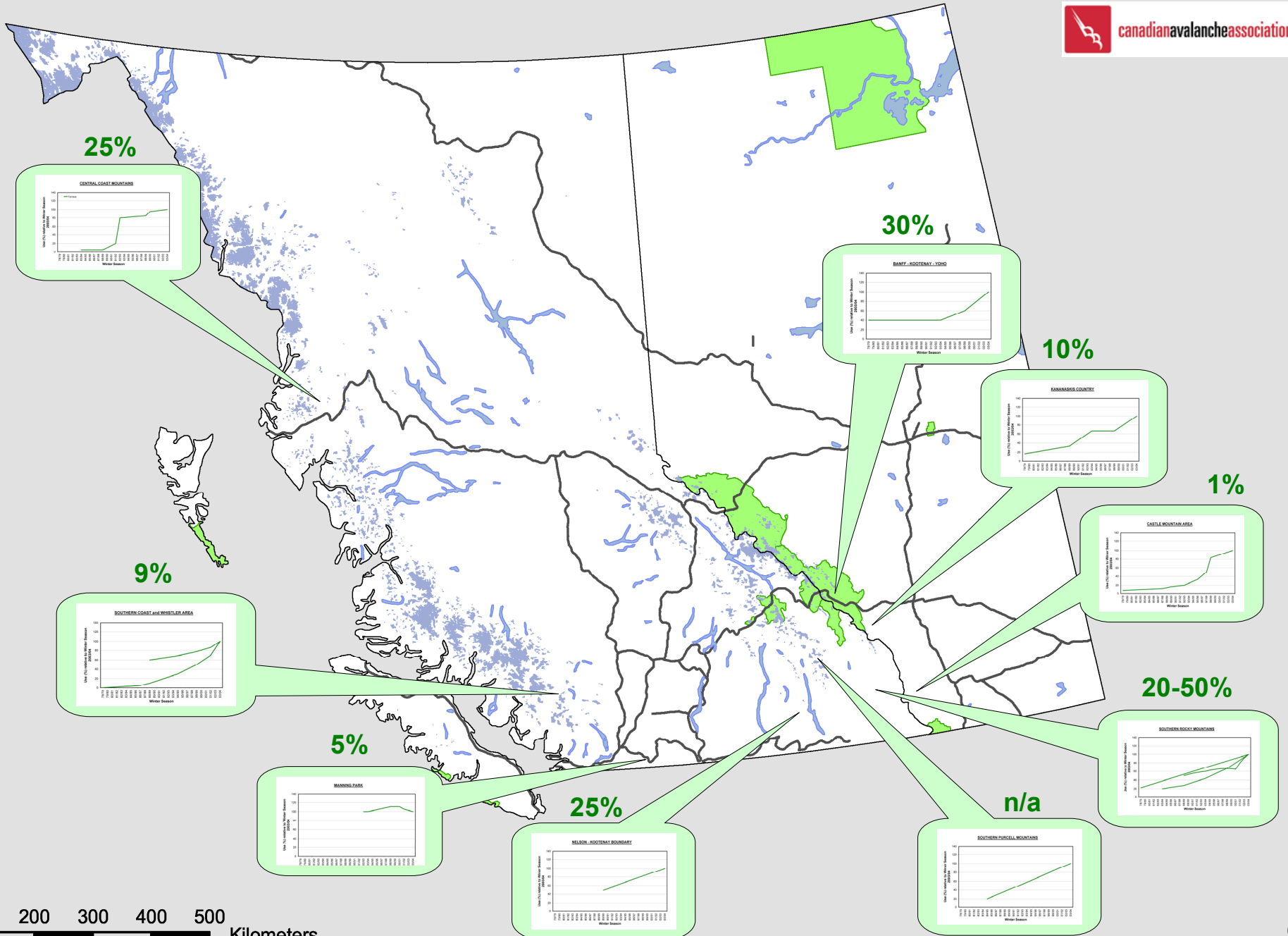
NON-COMMERCIAL BACKCOUNTRY SNOWMOBILE USE TRENDS RELATIVE TO 03/04

Information Source: Personal Observations of 18 Avalanche Professionals



NON-COMMERCIAL OUT-OF-BOUNDS SKIING TRENDS RELATIVE TO 03/04

Information Source: Personal Observations of 18 Avalanche Professionals



0 100 200 300 400 500 Kilometers