



Economic Impacts to HeliCat Canada Members Associated with Changes to Caribou Management in B.C.

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Executive Summary

The helicopter and snowcat skiing industry is a valuable part of the economic and social landscape in much of rural BC. Although the industry has been directly involved in caribou conservation for more than ten years, ongoing pressure to protect mountain caribou habitat may threaten the viability of these businesses and the industry unless solutions unique to the sector are implemented. This study was conducted to demonstrate the value of the industry - economically, socially, and environmentally - in the context of decisions made with respect to mountain caribou recovery.

Industry businesses were asked to consider a worst-case scenario for their operations in which all current tenure areas identified as federally-mapped caribou habitat were closed in order to support recovery efforts. The businesses estimated how many skier days they would lose if they were unable to operate in these areas. These businesses represent 64.2% of the industry in terms of total skier days (2017) and 58.7% of the land tenures. **Six businesses estimated that they would have to cease operations if they lost use of the parts of their tenure that overlapped with federally-mapped caribou habitat.**

Although they would not lose their entire business, an additional five operators would see a reduction in their skier days and revenues. Six more reported projected limitations in their ability to grow their business. When this decrease in skier days was applied to the economic impact results generated in the HeliCat Canada 2016 Socioeconomic Impact Assessment, the estimated losses were assessed as follows:

- \$55.2 million in revenue
- \$13.0 million in goods and services produced
- \$71.1 million in output
- \$35.1 million in GDP
- 466 full time equivalent jobs
- \$20.3 million in household income
- \$6.7 million in federal, provincial and local tax revenues

This does not take into account the investment of tens of millions of dollars in infrastructure in these areas that would no longer be viable, such as lodges, radio repeaters, fuel caches, marketing and IT systems, staff training, etc.



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Introduction

With recent negotiations between the governments of British Columbia and Canada to develop a Section 11 Conservation Agreement and an impending Section 80 Emergency Order, both under the Species at Risk Act (SARA), as well as an upcoming provincial Mountain Caribou recovery strategy and the development of a provincial Species at Risk Act, members of the helicopter and snowcat skiing (helicat) industry are concerned about the ongoing viability of their businesses. In the face of these changes, they are exposed to significant uncertainty regarding the impact of potential loss of tenured ski terrain and the economic viability of their current and future businesses. To assess the potential economic and social impact of the above actions, HeliCat Canada has undertaken the following socio-economic impact study. The results describe the potential impact of decisions made by the governments of BC and Canada with respect to mountain caribou recovery on the helicopter and snowcat skiing sector in British Columbia.

Background

For more than a decade, the helicopter and snowcat skiing industry has been directly involved in mountain caribou recovery processes. The establishment of mountain caribou habitats and the use of ski terrain by guided industry groups are two very dynamic and ever-changing systems which impact the landscape. Both caribou and guided ski groups move across the land in response to a wide range of technical and environmental factors. For caribou, these can relate to food, security or snow depth/stability. For guided skiers, it can be about snowfall, avalanche hazards, wind, visibility, skier ability, public accessibility, or the presence of wildlife.

In recognition of this, the industry has made considerable efforts in support of mountain caribou recovery. This has ranged from research and monitoring, to dramatic changes in how the sector behaves on the landscape, changes that often result in significant and costly operational shifts to avoid the displacement of animals, including mountain caribou, mountain goats and other species such as wolverine. This work has been ongoing for many years and will continue far into the future.

Despite the industry's efforts, the introduction of the above-noted provincial and federal management strategies has created a higher level of uncertainty regarding the security and viability of the tenure areas in which helicopter and snowcat skiing businesses operate, and the significant investments made in those areas. While the potential loss of access to these tenures will negatively impact the businesses in significant ways, there will also be a trickle-down impact on rural economies and communities. As a result, it is critical that decisions about mountain caribou recovery be made with a full and complete understanding of biological, social and economic costs and benefits. In the case of the helicopter and snowcat skiing sector, it is important to understand the implications of changes to wildlife management regimes on this globally-unique industry that brings in large amounts of export dollars to British Columbia. It's also critical to understand that by implementing solutions unique to the sector, these impacts can be mitigated.

Objective

The objective of this study is to provide HeliCat Canada and federal, provincial and municipal government politicians and staff with a better understanding of the degree to which changes to



management approaches for mountain caribou and other species-at-risk, specifically those that may involve restrictions on access to tenures, could impact this unique sector.

The objectives of this report are as follows:

- **To tell the story of caribou conservation** and how it intertwines with the helicat industry;
- To demonstrate **the complex relationship between land tenures** and helicopter and snowcat skiing businesses;
- **To estimate the economic value** of those areas of land tenure that overlap with caribou habitat; and,
- To broaden the estimate to **include the potential social, cultural and economic impacts** of terrain closures on communities in British Columbia, and the sector's ability to be involved in conservation programs.

Baseline Measurements

There are 41 businesses that make up this vibrant and growing industry by offering helicopter and snowcat skiing in BC. In 2016, HeliCat Canada conducted a socioeconomic impact assessment of the industry based on data collected from 2013 through 2015. This study resulted in the following economic impact for the industry in BC:

- \$150.4 million in revenue
- \$128.6 million in goods and services produced
- \$192.9 million in economic output
- \$95.3 million in GDP
- 1263 full time equivalent jobs
- \$55.1 million in household income
- \$18.2 million in federal, provincial and local tax revenues

According to 2018 data, the industry continues to grow at an average of 3.5% per year. Most of these businesses are located in remote areas and contribute to rural economies. These communities gain value from these jobs, and the presence of these businesses helps to dampen the cycles normally associated with resource extraction. There is a significant economic consequence to any action to reduce helicopter and snowcat skiing and an even greater potential to limit the future growth of the industry.

What is important to note is that these economic impact estimates represent a loss in economic value of the industry at its 2017 skier volume. Since these businesses with tenure overlapping with federally-mapped caribou habitat would be reducing their current operating terrain, they would also lose the ability to grow in the future. Therefore, the economic impact of a loss of these tenure areas would increase over time, as these businesses are unable to realize this trend of growth.

Methodology

As a foundation for this project, tenured helicopter and snow-cat skiing businesses were asked to consider a worst-case scenario in which access to those portions of their tenured operating areas that overlapped with federally-mapped caribou habitat under SARA were no longer available for business



operations. This assumption required businesses to estimate the impact the potential loss of ski terrain due to caribou habitat closures would have on their operations.

The economic value of these areas was calculated by assessing the economic impact per skier day as calculated in the 2016 HeliCat Canada Social and Economic Impact Assessment. This economic impact was applied to the estimated number of skier days lost resulting in a total economic impact.¹

Survey Skier Day Data Collection and Analysis

HeliCat Canada initiated data collection from all member businesses with tenures that overlap federally-mapped caribou critical habitat under SARA. The businesses were provided a map showing how their tenure overlapped with federally-mapped caribou habitat and were then asked to determine the impact on their businesses.

Businesses were also asked to estimate the number of skier days they would be able to accommodate using only the tenure area falling outside federally-mapped caribou habitat. The skier day metric is a measurement used to annually report to government for the purpose of calculating land rental.

Businesses were also given the opportunity to tell the story of their operation's involvement with caribou during their typical ski season, including caribou recovery research and programs. This narrative data was compiled using grounded theory research techniques, which summarizes the collective themes and stories heard in the survey responses.

Limitations

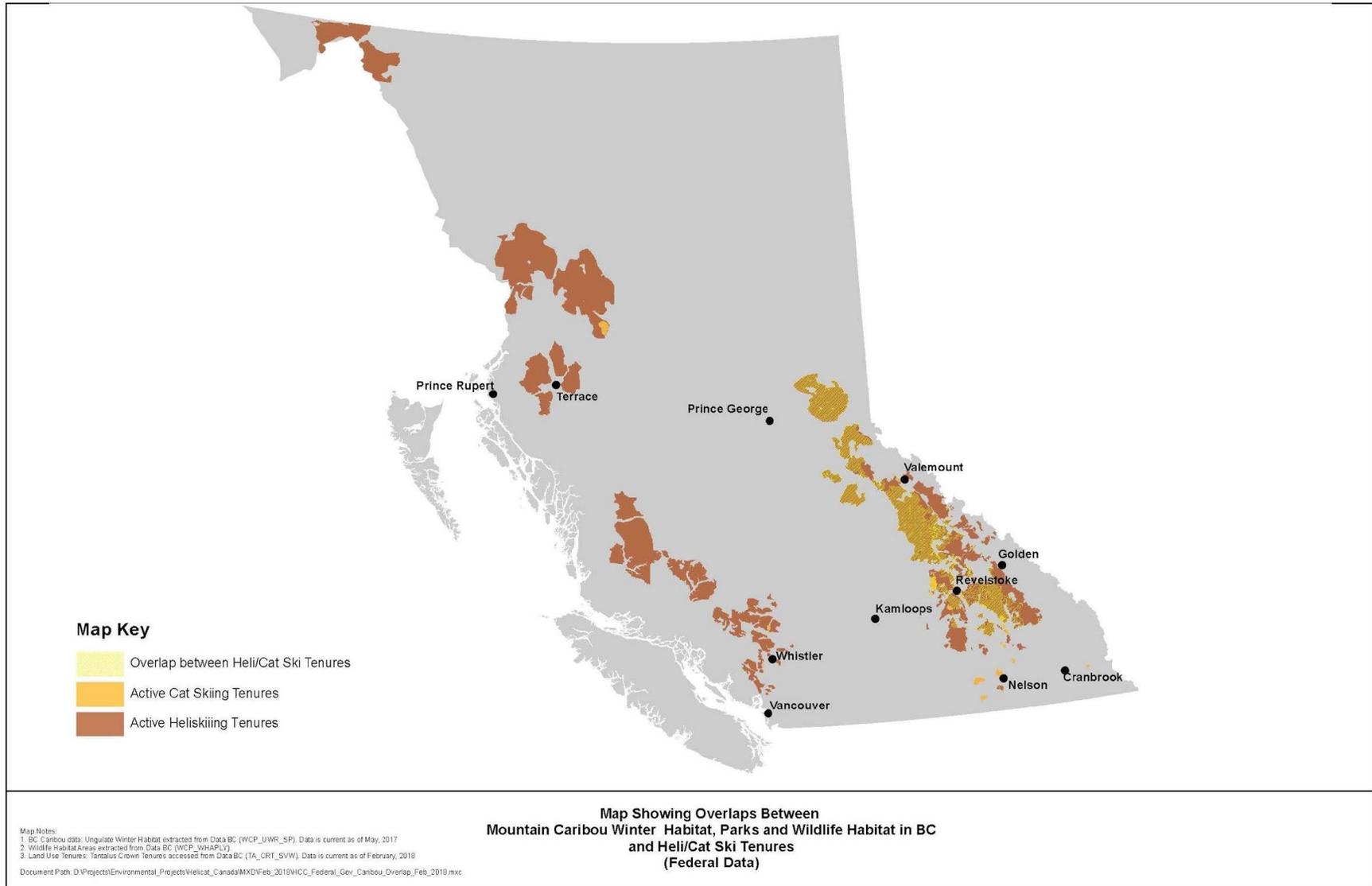
The survey respondents included 16 businesses of the 19 with tenure in caribou habitat. By skier day, this sample represents 87.8% of the businesses and 82.8% of tenured area. The results presented have been extrapolated to include the 3 remaining businesses. Extrapolations are estimated, using the average terrain loss for the surveyed businesses based on percentage of overlap. This extrapolation is appropriate as the average percentage of tenure overlap for the businesses that did not contribute data was higher (67.9%) than the sample population (56.8%).

The estimates of skier days are a limiting factor for these calculations. There are many factors that affect the appropriateness of terrain for skiing and the capability of a business to conduct viable operations within a tenure such as weather, snow conditions, terrain steepness, competency of client group, presence of wildlife, etc. Therefore, individual businesses were asked to provide estimates on their ability to run their businesses without the portion of their tenure that overlaps with federally-mapped caribou habitat. This question draws on their depth of knowledge and experience with the logistics necessary for that terrain and the characteristics of their operation when making these estimates.

The economic impact data used to calculate these impacts was taken from the 2016 Social and Economic Impact Assessment using data collected from the 2013-15 winter seasons. Because the industry has demonstrated growth of approximately 3.5% per year, the estimations of socio-economic loss will be conservative.

¹ Elevating Adventure: A Social and Economic Impact Assessment of Helicopter and Snowcat Skiing in British Columbia: HeliCat Canada, 2016 < https://drive.google.com/file/d/0B_2rsFOgCq8VdkRBdXBISDRnX2M/view>

Figure 1: Government of Canada Mountain Caribou Winter Habitat and Helicopter and Snowcat Ski Tenure Overlap





Results

Tenure Overlapping with Caribou Habitat

Of the 41 helicat tenure holders in British Columbia, 19 have a portion of overlap with caribou habitat as defined by the federal government.

According to this definition, 24.6% of all helicopter and snowcat skiing tenure in British Columbia overlaps with caribou habitat. Of the tenures with habitat overlap, 58.7% of the total area of the tenures overlaps with caribou habitat.

Table 1: Tenure area overlapped with caribou habitat calculated from federal map data

	Total Tenure Area	Tenure Overlapped with Federal Habitat
Whole industry (square km)	80,386.91	19,813.35
	100%	24.6%
Businesses with Habitat Overlap (square km)	33,754.94	19,813.35
	100%	58.7%
Survey Respondents (square km)	27,953.96	15,873.86
	100%	56.8%

These 19 businesses with caribou habitat overlap represent 75,115 skier days of a total of 116,959 skier days in 2017, or 64.2% of the total skier days in the industry.

Caribou impacting business operations

Currently, all helicat operations with tenure that overlaps federally-mapped caribou habitat report impacts on their operations due to addressing the needs of caribou. In some cases, where the overlaps are minor or where the populations of caribou are very small, the impacts may be limited to the costs of staff training, tracking and reporting observations, or voluntary contributions to specific conservation initiatives, such as maternal penning. In other cases, the impacts are dramatic, with major shifts in operations occurring because of the presence of caribou. This can range from closures of specific runs for 48 hours or more, up to the closure of larger areas for longer periods. On days when there are no other options due to avalanche hazard, this can result in down-days and significant refunds to guests.

Guides, pilots and snowcat drivers are becoming sensitive to caribou and are using innovative approaches to shift operations to ensure no displacement. But, as noted above, using these approaches does regularly restrict the terrain available for skiing.

“Mountain caribou have the right of way.”² In rare cases when evidence of caribou is observed, operations will close runs or areas for at least 48 hours. The areas are only re-opened if/when the

² Social survey respondent quote



absence of animals is confirmed. This is outlined as one of the terms of an MOU between HeliCat and the Province of British Columbia.

Survey Respondents

Of the 19 businesses with caribou habitat overlapping their tenure, 16 responded to the economic value survey. These 16 businesses represent 82.8% (27,953.96 sq. km) of the total area of tenures that contain caribou habitat overlap and 87.8% (75,115) of the total skier days skied by these affected operations. These results have been extrapolated to include the whole industry.

Estimated Loss of Skier Days

At current operational levels, the affected businesses would lose 40.6% of their skier days if they lost access to areas of their tenures that overlap with federally-mapped caribou habitat. This represents 26.1% of the total industry skier days and the associated economic impact, which would be felt across the province.

While the impact is large for the industry province-wide, there is a larger impact on specific operations. Of the 16 surveyed businesses, **six estimated that they would not be able to operate and would lose 100% of their current skier days if they lost access to the caribou habitat.**

Table 2: Potential loss of skier days in caribou habitat overlap areas (at current capacity)

	Surveyed Skier Days Lost (16 surveyed businesses)	Extrapolated Skier Days Lost (all 19 businesses)	% of Surveyed Skier Days	% of Total Industry Skier Days ³
Federal Habitat Map	30,528	34,790	40.6%	26.1%

On a localized level, the concentration of federally-mapped caribou habitat in the Kootenay/Rockies area of British Columbia means that communities in this region would see a dramatic negative economic and social impact if closures were to occur. For example, within the Columbia Basin, located in an area roughly bordered by Nelson, Valemount and Cranbrook, there are 20 helicat operations that conduct business. As demonstrated in the map in Figure 1, there is also a very high degree of tenure that overlaps with federally-mapped caribou habitat in this area.

At present, businesses undertake a series of operational changes to address the needs of mountain caribou. In doing so, these businesses remain viable and sustainable. However, **unilaterally losing access to ski terrain will have an immediate and dramatic effect on these businesses.**

Economic Value of Tenure Areas Overlapped with Federally-Mapped Caribou Habitat

In order to demonstrate the economic value of helicat tenures, the 2016 Social and Economic Impact Assessment conducted by HeliCat Canada calculated the economic value per skier day and multiplied this value by the estimated loss of skier days determined by the survey data. As such, the economic impact numbers are estimated based on the annual average calculated using data from 2013 to 2015.

³ Current operating levels of 2017 skier day data collected from 41 industry businesses: 116,959 skier days



Because of industry growth since that time, this data represents a conservative estimate of the potential current economic impact of the loss of these areas.

The following tables represent 47.3% of the skier days that were surveyed in the 2016 Social and Economic Impact Assessment. Skier days include all of the skier days from the six businesses that expect to go out of business, and additional skier days from the five businesses that will lose a portion of their business.

Table 3: Percentage of total skier days considered in 2016 Socio-Economic Impact Assessment used to multiply economic impact results and estimate value of tenure areas in federal caribou habitat

	Skier Day Loss	% of Total Skier Days Surveyed in 2016 Economic Impact Assessment (73,604)
<i>Losses at current operating levels:</i>		
Federal Habitat	34,790	47.3%

Table 4: Potential employment losses from tenure areas in federal caribou habitat (using 2016 data)

	Revenue (\$)	Goods and Services Produced (\$)	Output (\$)	GDP (\$)
2016 Socio-economic impact	116,842,562	27,500,000	150,500,000	74,300,000
<i>Losses at current operating levels:</i>				
Federal Habitat	55,228,111	12,998,457	71,137,012	35,119,468

Table 5: Tax revenue loss from tenure areas in federal caribou habitat (using 2016 data)

	Total Industry Employment	# of Employees	FTE Employment	Household Income (\$)
2016 Socio-economic impact	1,315	1,584	985	43,000,000
<i>Losses at current operating levels:</i>				
Federal Habitat	622	749	466	20,324,861

Table 6: Tax revenue loss

	Tax Revenue (\$)	Federal (\$)	Provincial (\$)	Local (\$)
2016 Socio-economic impact	14,200,000	7,700,000	5,300,000	1,200,000
<i>Losses at current operating levels:</i>				
Federal Habitat	6,711,931	3,639,568	2,505,157	567,205

These economic figures do not include the investment dollars made by industry businesses in areas overlapping with federally-mapped mountain caribou habitat. These investments include helicopter- and snow-cat skiing lodges and hotels that are valued in the tens of millions of dollars, along with other



physical infrastructure such as radio repeaters, base fuel storage and delivery systems, remote fuel caches, staging areas, and access roads, including bridges and culverts. It is important to note that the globally unique nature of this sector means that most businesses are booking clients from around the world up to a year in advance. In addition, all industry businesses make significant investments in global marketing, IT systems, transportation infrastructure, staff training, as well as partnerships with community stakeholders such as food banks, women's shelters, public safety (avalanche) training, youth leadership programs and First Nations. A loss of access to ski terrain puts all of these investments at risk.

Social Narrative Data

The second part of the survey asked businesses to tell the story of their operation's involvement with caribou during operations, as well as their contributions to research and programs related to conservation and recovery. This survey was completed by the 16 businesses surveyed above. The results of this narrative data have been compiled using grounded theory research methods to create the following discussion of the industry and their involvement with caribou.

The Nature of the Loss

The survey reports four levels of impact on businesses if they lose access to tenured ski terrain because of mountain caribou decisions. These levels include:

- Ceasing operations;
- Considerable reorganization of business models;
- Significant operational changes; or
- No impact.

Of the 19 survey respondents:

- Six operations would be forced to completely shut down their businesses due to a loss of access to terrain to a degree that no longer makes the business viable.
- Five respondents would be forced to significantly reorganize their business model to operate at a reduced level. It is unclear if these businesses could realistically continue to operate in the long-term.
- Six other businesses would be affected significantly, either by rearranging their ski program logistics, or by marking a loss in their operations.

For operations that would be able to stay in business despite significant changes to their logistics and business model, there are other concerns. With more terrain closures, there could be problems with more density in usage of available terrain, and potential crowding of areas already tight with public recreation users. The impact of heavier use on other habitat could also cause pressure for operations to avoid other wildlife and to comply with other environmental requirements.

Social Value of Tenure Areas That Overlap With Federally-Mapped Caribou Habitat

The potential direct and tangible impacts of mechanized skiing on mountain caribou are difficult to measure. With a fleeting presence on the landscape, in comparison to resource extraction impacts on longer term habitat, any impact is temporary and controllable. Considering some of the helicopter procedures involved to chase and capture caribou for conservation efforts and other uncontrolled



industrial and recreational helicopter use, there is a great disparity between this sort of intentional interaction and the 500m flight distance minimums required by the helicat industry found within the Province of BC MOU. However, there are large tangible benefits to caribou conservation through an alliance with the helicat industry. Travelling through the mountains daily means operators have a working knowledge of the seasonal locations the herds use for habitat. Because of their commitment to conserving the animals' habitat, they use this knowledge to proactively plan to ski in areas without caribou. When they do see animals, they report these sightings to government. Without skiing operations, this type of daily monitoring with field teams would not be feasible given the high cost, and the ability to get this intimate data would be lost. In fact, a decade of HeliCat caribou observation data is currently being analyzed in a 10-year retrospective analysis. This type of collaboration would not be possible without the presence of mechanized backcountry ski operations in these areas.

Regulatory Compliance and Monitoring

HeliCat businesses who operate in caribou habitat have a dedication to following all regulatory and provincial MOU requirements. This includes close monitoring of wildlife movements that is recorded and tracked daily to submit to government. **Replacing this type of consistent monitoring and data collection would be incredibly expensive** and not feasible by other conservation efforts.

Potential Larger Impacts

On a broader front, the loss of helicat operations would have a significant impact on the observations and monitoring of snowpack data for contribution to the industry InfoEx avalanche forecast and the creation of public avalanche bulletins by Avalanche Canada. Reducing the availability of avalanche and snowpack monitoring as well as trained staff available for emergency response to businesses, would reduce the level of public safety and knowledge that has been achieved with the help of the industry. The value of this data collected by HeliCat businesses has been estimated at up to \$20 million per year. Closure of HeliCat businesses could mean that Avalanche Canada would lose up to 50% of their snowpack data and severely limit their ability to produce regular and reliable public avalanche safety bulletins.

Going Beyond the Minimums

Businesses have gone above and beyond to contribute to caribou recovery and conservation efforts. Many businesses have given cash and in-kind donations of staff, time and resources to recovery efforts, including contributions to the Revelstoke maternal penning project. From a trade association level, HeliCat Canada has demonstrated an ongoing commitment and leadership with government to contribute to policy level decisions and act as a leader for other industries in wildlife conservation. Their influence and role modelling impacts many other adventure tourism sectors and helps the government raise the bar across a broad range of industry sectors.

Knowledge and Awareness

Businesses have an impact on their staff and clients' knowledge about caribou. HeliCat members have, at their own expense, engaged consultants to conduct training, to carry out assessments of their operational practices concerning caribou and make recommendations, and to increase their operating standards. Through training and involvement, guides are able to give information about the caribou to guests and **raise general awareness and concern about the animals.** Guests appreciate the information and the accommodation for wildlife enhances the authenticity of their experience with nature.



Research and Education Projects

HeliCat Canada funds approximately \$125,000 of research projects each year, much of which is related to wildlife management. This includes funding for both external and internally controlled projects completed by the University of Calgary, Simon Fraser University, WorksafeBC and professional consultants. The focus of these projects is on areas that impact the helicat industry and work to provide a better understanding of factors that can progress our knowledge, increase safety, understand our impact and work with stakeholders to address issues.

Topics of these past projects include:

- Funding for the University of Calgary Applied Snow and Avalanche Research program
- Funding for the Simon Fraser University Natural Sciences and Engineering Research Council Chair in Avalanche Risk Management
- Wolverine habitat and location research
- Retrospective analysis of caribou and the helicat industry
- Development of sustainability resources and guidelines for the industry
- Occupational health and safety work collaborating with WorksafeBC
- Accreditation program updates to standards for operators
- Wage and benefits research to help operators compare wages paid to staff
- Snowpit visualization tool development for avalanche professionals
- Incident research and development of an incident database
- Impact of forest glading on lichen production

Loss of Future Conservation Potential

The HeliCat industry is an engaged and dedicated partner with the federal and provincial governments and stakeholder groups in caribou conservation and recovery. **The industry has great potential to contribute to information and conservation efforts in the future.** As long as the industry can maintain their business operations, they are motivated to do what they can to continue to raise operating standards.

Lack of Confidence in Government

Overall, **operators have low confidence in government to make decisions that take into account their tenure and business operations.** The sector's main concern is the potential for government to apply blanket solutions without a full understanding of the HeliCat industry, its operating needs, economic impacts, and scientific foundations before land management decisions are made. Helicopter and snowcat skiing are not responsible for the decline of mountain caribou populations in British Columbia; however, they can be valuable assets in finding a solution.

Conclusion

"We will continue to support conservation efforts as [we can] practically and financially. We fully support the concept and feel we have [gone] above and beyond in attempts to help the cause."⁴

HeliCat businesses have been more than diligent in their contribution to mountain caribou conservation efforts. When businesses took on tenure agreements they also took on great responsibility for that

⁴ Social survey respondent – helicat industry operator



land. To jeopardize a sustainable industry that is committed to excellence at all levels of operation would be a miscalculation.

Scientific data does not demonstrate an impact by the HeliCat industry and a reactionary reduction in business operations will have substantial, negative consequences on the economic and social fabric of many rural BC communities without adding any significant benefit to caribou habitat. Helicopter and snowcat skiing businesses are important and influential to rural BC residents, stakeholders, and wildlife. There is great concern that politically motivated solutions will be imposed which are driven by the influence of vocal groups instead of being motivated by scientific data and what is best for caribou, stakeholders, and the land itself.

One operator was able to summarize the impact to the sector in the survey's comments:

"The story of our company [and sector] is one of a dream, of hard work and ultimately the creation of a special, unique locally owned and operated small family business. We recognize we were given an opportunity when we were granted tenure, and with this opportunity came responsibilities, including the accommodation of other values such as mountain caribou. We have done that - we have always cooperated with government on management initiatives like the MOU, and are interested and invested in enhancing our role.

While we acknowledge the unique opportunity we have, we have done our part. Through untold hours of work, putting all our financial future in the line, the commitment to safety, the creation of a positive atmosphere for staff and guests, we have built something special here. This place has a significant positive impact on both our staff and many guests. It is our life's work. As a result, this dream has turned into a significant contributor to individuals and the [wider] economic well-being. All this has occurred in a small rural community where investment in traditional industry has been almost non-existent.

It would be a huge mistake for government to implement policies that jeopardize this type of business - a sustainable business committed to excellence in all things, including caribou management. This is what the province needs: low impact, sustainable businesses and jobs that highlight internationally what is unique and special about this province."⁵

⁵ Social survey respondent – helicat industry operator