

# NEWS BULLETIN

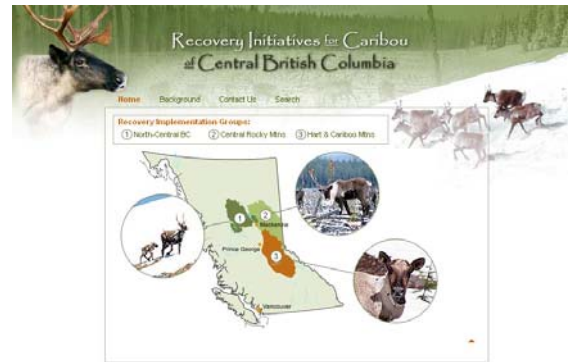
DECEMBER 2006 NEWSLETTER

## REACHING OUT...

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This first issue of our News Bulletin was made possible through collaboration with McGregor Model Forest Association. Last year, we became a partner in the association to further our collaborative research and formalize what has become an efficient, productive, and mutually beneficial team environment. Our bulletin is a way to extend news and updates on the projects that we implement together with McGregor and other partners. In addition to introducing our first News Bulletin, we also take this opportunity to direct our readers to a new website, which again was made possible through partnerships; this time with the McGregor Model Forest, the Ministry of Forest and Range, and the Ministry of Environment. The website, "Recovery Initiatives for Caribou in Central British Columbia", provides background information about woodland caribou and describes the work of 3 recovery groups working to develop actions targeted at ensuring the long-term survivorship of regional caribou herds. We hope you'll find the website and this News Bulletin to be useful information about the research activities we undertake within the region.



[www.centralbccaribou.ca](http://www.centralbccaribou.ca)

### POINTS OF INTEREST

- The Recovery Initiatives website has now been formally released
- AutoCHASE will allow for ongoing monitoring of caribou habitat
- The Recovery Action Plan for caribou in north-central BC is now available
- Model helps create protected area for mountain goat winter habitat

## MITIGATING RISK OF PREDATION FOR CARIBOU

Wildlife Infometrics is part of a province-wide research team focused on mitigating predation on woodland caribou populations. The decline of caribou in BC is the result of many factors including, but not limited to: global climate change, habitat modification from resource development, displacement by human activity, and increased mortality. Regardless of the most significant cause of the population decline or the best long-term solution to reverse it, in the short-term predation has the most serious and direct effect especially on the herds in southern BC, many of which number <50 caribou. Our objec-

tive is to evaluate the effectiveness of regulated trapping as a method to temporarily reduce predation on adult caribou as they migrate between winter and summer ranges. This objective comes after having monitored the movements and interactions among caribou, moose, and wolves in north-central BC for the past 7 – 15 years. The temporary nature of the management is intentional since we want only to maintain opportunities for the development and implementation of longer-term solutions to the population decline. The longer-term solution will include maintaining wolves as part of the natural system. In

the short-term we will monitor the reduction of wolves and any subsequent effect on survival of caribou. Results will be compared to predation rates in the control, Wolverine caribou herd where no management of wolves will occur. Results will also be compared to study in the Parsnip herd area, where moose are being reduced through an aggressive Limited Entry Hunt program implemented this fall. A replicate project similar to ours has been underway in southern BC for a couple of years. Outcomes of this research will help Government to make sound, science-based decisions about the recovery of caribou in BC.

PREDICTING WINTER HABITAT USED BY MOUNTAIN GOATS

Inventory of mountain goats can sometimes be difficult because finding them in their mountainous habitat can be “hit or miss”. A simple description of goat winter range would include alpine areas above tree line with steep, rocky terrain which goats use to escape from predators. Although the simple model would be accurate (i.e., that’s where 100% of goats are found) it is not very precise (i.e., more than half that area would not be used by goats). We teamed up with BC Ministry of Environment in Ft. St. James to see if we could predict mountain goat winter habitat with the same level of accuracy but with much better precision. Outcomes of this work would help us complete ongoing research focused on an efficient means to implement “effectiveness monitoring” for mountain goats. Our direct objective however, was to help Ministry of Environment officially define Ungulate Winter Range (UWR) under the Government Actions Regulation.

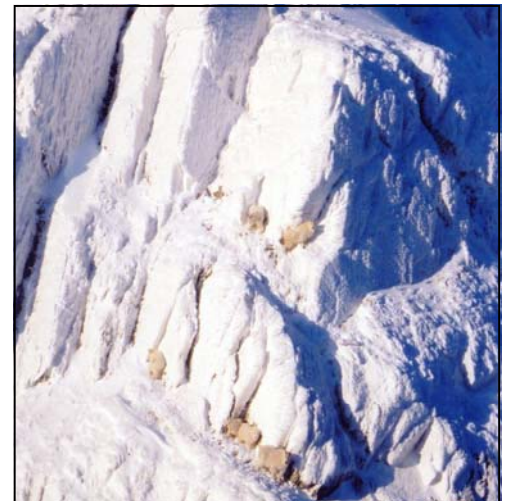
Our improvements to the simple model involved a variety of sophisticated geographic analyses using digital maps of topography, potential solar energy, and land cover. We first applied the model to our Ospika study area where we had 23 radio-collared goats and 232 winter-time relocations with which to assess

the new model. After some adjustment to the model, we then applied it in our Osilinka study area where we had 18 radio-collared goats and 184 winter-time relocations. After further adjustment, we re-applied the model to the Ospika and the Osilinka and to a third study area, the Akie-Pesika, where we had 14 radio-collared goats and 39 winter-time relocations. We were satisfied with this final application where we were able to predict winter range for goats which covered 92% of the observed relocations while reducing the amount of alpine area searched by 70%.

Randy Sulyma, the lead Government biologist, then tested our model in the northern ¾ of the Ft. St. James forest district (~ 2.8 million ha) by conducting a survey of goat habitat based on a stratified random sample of the modeled mountain goat winter range. Of 57 sites observed, 44 occurred in high-valued habitat which was modeled as being UWR and 7 occurred in low-valued habitat which was modeled as not being UWR (see table below). This result led to a correct classification rate of 89%. However, Randy observed 6 sites that the model predicted as being UWR that were only of low habitat value leading to a false-positive error rate of 46%. The 6 sites were deemed to have



Location of the 3 mountain goat survey study areas



incorrect digital map information. Of the 44 UWR sites that were correctly classified, 35 either had goats or goat tracks. Furthermore, no goats or sign of goats, were observed in of the 13 low-valued habitat sites.

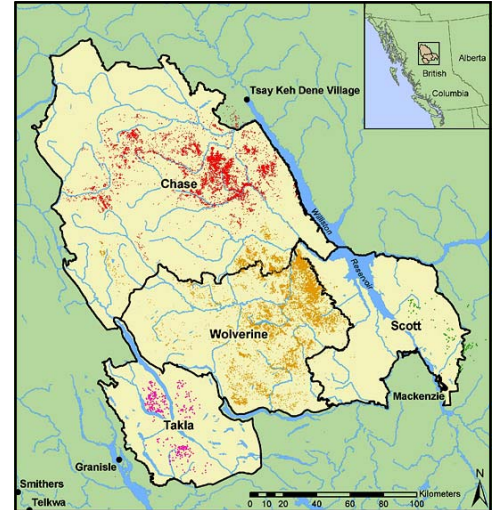
		Observed		
		High-valued Habitat	Low-valued Habitat	Total
	UWR <sup>1</sup>	44	6	50
<b>Predicted</b>	Other	0	7	7
	Total	44	13	57

1 - UWR = Ungulate Winter Range

## MUCH ADO ABOUT CARIBOU

The Northern Caribou Recovery Implementation Group for North-central British Columbia –the RIG for short – focuses on conservation of habitat for 4 local caribou herds: the Chase, Wolverine, Takla, and Scott herds. These herds range over 3.7 million hectares around Mackenzie, Ft. St. James, and outlying communities. They are part of the 16 herds of northern caribou (terrestrial lichen foragers) and 13 herds of mountain caribou (arboreal lichen foragers) that exist within the Southern Mountain National Ecological Area where caribou have been declared to be threatened of becoming locally extinct or extirpated. The declaration, made by the federal Council on the Status of Endangered Wildlife in Canada, means that Government must develop plans for recovery of the herds.

The ultimate goal of recovery is to restore caribou to a viable, self-sustaining population level, able to withstand stochastic events and other environmental variables of a non-catastrophic nature. The RIG, co-chaired by Dr. Scott McNay of Wildlife Infometrics Inc. and Mr. Doug Heard of the BC Ministry of Environment, is a 25 member team representing such diverse groups as the industrial forest sector, government agencies, First Nations, guide outfitters and trappers, environmental non-government organizations, university, snowmobile enthusiasts, and the District of Mackenzie. Having met 10 times since December 2003, the RIG has just provided Government with a draft Recovery Action Plan including ecologically-based recommendations for conservation of habitat and recovery of the local herds.



*Location of the 4 caribou herds addressed by the Recovery Implementation Group*

### FOR MORE INFORMATION

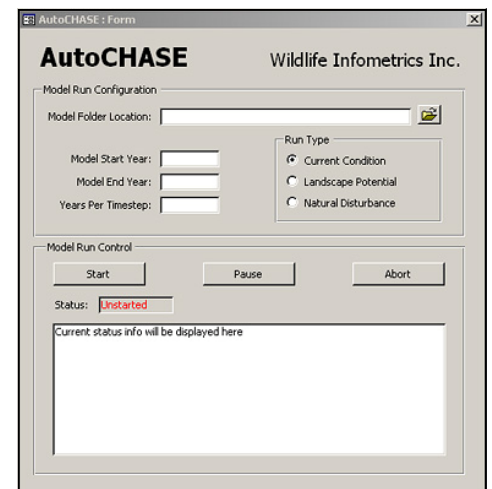
The draft recovery action plan, more detailed information about caribou, and background on this and other recovery initiatives are available at [www.centralbccaribou.ca](http://www.centralbccaribou.ca).

For further information contact Scott McNay at (250) 997-5700 or [scott.mcnay@wildlifeinfometrics.com](mailto:scott.mcnay@wildlifeinfometrics.com)

## AUTOMATION WILL IMPROVE FUNCTIONALITY

Our caribou habitat supply model, known as CHASE, has assisted planners in government and industry to manage habitat for woodland caribou. Though it has been successfully applied to identify winter ranges of legal status and to aid decisions about recovery of local herds, the power of CHASE as a monitoring tool has so far not been realized. Until now, each application has required trained technicians to perform time-consuming and repetitive procedures before habitat

results can be summarized. We have teamed with Refractions Research of Victoria to automate the CHASE operating procedures via a simple user interface called AutoCHASE. We think the automation will allow broader use of CHASE through: 1) an expanded user pool given the simpler implementation and 2) greater efficiency given a reduced user contact time. End result? AutoCHASE will provide caribou habitat monitoring capability at a lower cost than ever before.



*The AutoCHASE interface*



Photo by D. Dittich

## RECENT PUBLICATIONS AND PRESENTATIONS

McNay, R.S. 2006. Towards comprehensive and transparent use of ecological information in decisions about recovery of mountain caribou. Pp. 90-99, In: Multidisciplinary approaches to recovering mountain caribou in mountain ecosystems. Proceedings of a workshop held May 29-31, 2006 in Revelstoke, British Columbia. Columbia Mountains Institute of Applied Ecology. Revelstoke, BC.

## Publications in Press

McNay, R. S., B. G. Marcot, V. Brumovsky, and R. Ellis. 2007. A Bayesian approach to evaluating habitat suitability for woodland caribou in north-central British Columbia. *Can. J. For. Res.* xx:xxx-xxx.

McNay, R. S., R. Sulyma, R. Ellis, and D. Heard. 2006. A recovery action plan for northern caribou herds in north-central BC Version 3. Wildlife Infometrics Inc. Report No. 161. Wildlife Infometrics Inc., Mackenzie, British Columbia, Canada.

## Publications and In-House Reports in Preparation

McNay, R. S., V. J. Brumovsky, L. Giguere, and J. Voller. In Prep. Decomposing bias in GPS-based relocations of northern caribou and moose in north-central British Columbia. *J. Wildl. Manage.* xx:xxx-xxx.

McNay, R.S. and J. Voller. In Prep. Survival rates and cause-specific mortality of woodland caribou in north-central British Columbia. *Can. J. Zool.* xx:xxx-xxx.

McNay, R.S. and R. Sulyma. In Prep. Use of Bayesian modeling to identify winter range for mountain goats in north-central British Columbia. *BC J. Ecosys. Manage.* xx:xxx-xxx.

McNay, R.S. In Prep. Estimate for the reduction in net timber harvesting land base due to riparian area management in the Mackenzie TSA, north-central British Columbia. Wildlife Infometrics Inc. Report No. xxx. Wildlife Infometrics Inc., Mackenzie, BC, Canada.

## PROPOSED WORK FOR 2007-2008

1. Mitigating risk of predation for woodland caribou
2. A science-basis for recovery of woodland caribou
3. Strategy for harvest of Mountain Pine Beetle-killed timber on Ungulate Winter Ranges
4. Habitat supply for marten, fisher, and wolverine
5. Map-based ungulate conservation values in Mackenzie
6. Change in caribou range values 2000 - 2007



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Wildlife Infometrics Inc. was established April 2002 in Mackenzie, British Columbia. With our full time staff ranging from 6 to 10 employees, we focus on the collection, management, and interpretation of data concerning aquatic, avian, and terrestrial wildlife resources values. Our strength is turning collected data into information that can be easily used by industrial resource developers. Our motive is the promotion of conservation conscious development. To that end, we offer project development, data collection, data management, and data and information transfer services to clients from a variety of government and business sectors.

