

Mountain Caribou Recovery Implementation Plan Progress Board

Annual Report on Activities and Accomplishments of the Mountain Caribou Recovery 2012-13

Prepared by:
Mountain Caribou Recovery Implementation Plan
Progress Board
March, 2013

Background

On October 16, 2007, government announced the Mountain Caribou Recovery Implementation Plan (MCRIP), which had the support of the forest industry, commercial and public recreation sectors, environmental sector representatives, and First Nations. The goal of the MCRIP is to halt the decline of the mountain caribou population within seven years for each planning unit and to recover mountain caribou to 1995 population levels (2500 animals) across the mountain caribou range within 20 years in those planning units with more than 10 animals.

One of the management actions within the MCRIP was to institute a cross-sector progress board to monitor the effectiveness of recovery actions. The Progress Board meets annually to provide comments and recommendations on government delivery of actions necessary to achieve government's MCRIP recovery objectives.

The Progress Board met March 13, 2013 in Vancouver for a briefing on MCRIP management activities undertaken in 2012/13. A copy of the briefing report is attached. The meeting was attended by Archie MacDonald (Council of Forest Industries), Joe Scott (Mountain Caribou Project), John Bergenske (Wildsight), John Dunford (Tolko Industries), Jim Hackett (Interior Lumber Manufacturer's Association), Jesse Zeman (BC Wildlife Federation), Dave Butler (Heli-Cat Canada), David Moore (Heli-Cat Canada) and on the phone by Angie Threatful (BC Snowmobile Federation). The meeting was also attended by MCRIP staff, including Steve Gordon, Chris Pasztor, Darcy Peel and Chris Ritchie. This report summarizes comments and recommendations from the Progress Board at the meeting on March 13, 2013.

Two recurring themes arose in discussion of activities conducted in 2012/13. One was that the Mountain Caribou Science Team (MCST) should be used to help provide analysis and technical insight into the work contemplated and undertaken. The Progress Board saw value in having some reporting by the MCST to the Progress Board on specific items. This would improve the Progress Board's ability to making meaningful comments on MCRIP activities. The other theme was to take a more herd-specific view in determining management needs and possible solutions. This was referred to as an "area based approach" in the 2012 report. It will help address the unique needs of each herd and more efficiently achieve the MCRIP objectives. This approach could also be helpful to address predator management strategies, assess additional habitat protection needs, and determine appropriate augmentation techniques.

RECOVERY ACTION #1: PROTECT 2.2 MILLION HECTARES OF MOUNTAIN CARIBOU RANGE FROM LOGGING AND ROAD BUILDING

Since 2007, approximately 2.2 million ha of caribou habitat has been protected from logging and road building. Guidelines have been developed to manage impacts to habitat from mineral exploration and helicopter and snow-cat skiing infrastructure activities. There has been limited activity on habitat protection in 2012/13.

Comments from Progress Board: It would be helpful to look at habitat conditions for individual herds to help understand and address unique aspects related to habitat management. Some members of the Progress Board expressed frustration that vehicle speed limits could not be established on select portions of highways where caribou congregate near Kootenay Pass. Some members of the Progress Board expressed concerns that commitments to research on the implications of managing the matrix habitat were unresolved.

PROGRESS BOARD RECOMMENDATION:

1. Try to link input from the Mountain Caribou Science Team (MCST) into analysis of the habitat program to help understand and address unique aspects for habitat management program.
2. MCRIP staff will consult with appropriate MCST members to consider the value in undertaking an assessment of the effects of logging in matrix habitat on local caribou populations.

RECOVERY ACTION #2: MANAGE HUMAN RECREATIONAL ACTIVITIES

Since 2007, approximately 1.0 million ha of caribou habitat has been excluded from recreational snowmobile use. Stewardship Management Agreements have been signed with snowmobile clubs in 3 regions. Since the changes to the Wildlife Act, which enabled increased compliance and enforcement, government's ability to undertake compliance and enforcement monitoring of areas closed to snowmobile use has also increased. An outstanding policy issue remains around areas of caribou habitat closed to snowmobile use, but subject to logging. This issue needs resolution to ensure the credibility of government's management efforts and consistent application of management objectives.

Memoranda of Understanding have been signed with major helicopter and snow-cat skiing operators to ensure data and monitoring results are submitted to government. There is a moratorium on new commercial recreation tenures in areas of caribou habitat.

Public Recreation

Comments from Progress Board: The amount and quality of effective communication has improved. Two positive aspects are improving the reporting of monitoring patrol results to local clubs and the installation of information and closure signs.

PROGRESS BOARD RECOMMENDATION:

1. Consistent with a recommendation provided in 2012, the provincial government should implement a registration and licensing program for snowmobiles to enable more effective management of this sector.
2. MCRIP staff involved in compliance monitoring and enforcement patrols should continue to work with local clubs, and the Association of BC Snowmobile Clubs and BC Snowmobile Federation to share the results of patrols including evidence of non-compliance with closures in their area as soon as possible. An effort should be made to improve the “quantification” of monitoring results to permit a more accurate description of problem areas and to enable trend assessment in the future.
3. Investigate and describe the specific circumstances where caribou habitat is closed to sledding but remains available to logging and report back to the Progress Board with recommendations
4. Trail cameras are seen as a viable tool for compliance monitoring. Continued use of cameras and reporting of results to the Progress Board is recommended

Commercial Recreation

Comments from Progress Board: To ensure that this management lever is fully addressed all tenure holders in the sector need to be treated equitably in terms of reporting requirements and effective management of impacts to caribou. This issue has been raised in past years. To date, only those companies in HCC and Mike Wiegele HS are involved in mountain caribou recovery. All commercial recreation tenure holders (e.g. non-HCC helicopter and snow-cat skiing businesses, commercial snowmobile tour companies, backcountry lodges, etc) operating in caribou habitat should be involved.

A third-party audit to assess compliance with agreements is supported by HeliCat Canada to promote consistent management of caribou values by all operators.

The Progress Board is interested in seeing the Master’s Thesis from Thompson Rivers University on heli-skiing and caribou.

Progress Board Recommendation:

1. MCRIP staff should continue to work with the Forest Practices Board and the helicopter and snow-cat skiing sector to develop a third-party audit for the helicopter and snow-cat skiing sector but also use expertise and experience on the Progress Board to assist.
2. MCRIP staff should identify and collect information on all commercial recreation tenure holders not currently under a Memorandum of Understanding that operate in caribou habitat to help determine where to invest effort to develop either Memoranda of Understanding, or impose conditions on commercial recreation businesses effecting caribou. Staff should engage with commercial recreation tenure holders to either develop an MOU or tenure conditions in management plans to ensure there is no displacement of caribou as a result of these businesses.

RECOVERY ACTION #3: MANAGE PREDATOR POPULATIONS

Since 2007, trapping and hunting seasons on wolves and cougars have been modified to encourage removing these predators near caribou habitat. Wolves have been monitored, using aerial surveys or radio telemetry to assess pack home ranges. A project was implemented to assess the effectiveness of sterilizing dominate wolves in a pack to help increase caribou numbers by limiting wolf predation on caribou. A critical review of this project was completed by Bob Hayes in 2013. The report notes that treated packs maintained their home range, that the treatment lasted, and that wolf density can be maintained at lower levels through this method. However, the duration of the project was not long enough to demonstrate an increase in caribou survival. A predation risk project is underway with a graduate student from University of Victoria.

Comments from Progress Board: any measures taken for wolf control need to have a demonstrable effect in achieving the MCRIP recovery objectives. The Progress Board would like the opportunity to discuss predator management with the MCST.

PROGRESS BOARD RECOMMENDATION:

1. Government should approve the use of aerial removal of wolves in select situations as the most humane and effective means to achieve MCRIP recovery objectives. Any measures taken to affect predator management should be undertaken on a herd and circumstance specific basis as appropriate..
2. Continue to support the wolf sterilization project in Cariboo Region, but follow recommendations in Bob Hayes' review. Engage the MCST to help ensure effective implementation of recommendations. Carefully consider the investment in the project, both sunk costs and new funding requirements and returns to caribou recovery.

RECOVERY ACTION #4: MANAGE THE PRIMARY PREY OF CARIBOU PREDATORS

Since 2007, two moose reduction projects have been initiated to determine if modified hunting of moose can result in reduced wolf density and predation on caribou, which could increase caribou

numbers. These two moose control projects continue to be monitored to determine if they are having a positive benefit to local caribou populations

PROGRESS BOARD RECOMMENDATION:

1. Continue to monitor the results of these projects and report the results to the Progress Board for further review and possible application to other areas of mountain caribou range with high predation-related mortality

RECOVERY ACTION #5: BOOST CARIBOU NUMBERS IN THREATENED HERDS

Since 2007, MCRIP has supported development of several potential augmentation tools. A transplant to the Purcells South herd occurred in 2011. A maternal penning trial is being developed in the Revelstoke/ Columbia North area. An MOU has been signed with Parks Canada and the Calgary Zoo to develop captive breeding capacity.

Comments from Progress Board: The Progress Board is supportive of augmentation work and projects, but want to be confident that the most appropriate tools are being deployed. Careful consideration is needed when determining the investment in an augmentation project, both the sunk costs and new funding requirements, and the returns to caribou recovery. MCST may be a strong asset to help inform a decision.

Purcells South Transplant

Comments from Progress Board: The Progress Board is interested in having access to the work by Heather Leech (UVic graduate student) (e.g. Wildlife Society Meeting abstract, poster), if it can be released by UVic. Members expressed a wide range opinion on whether to support additional transplant work. Several Board members have received inaccurate portrayals of the budgets for caribou recovery overall and the transplant costs specifically from third party sources. This inaccuracy should be corrected.

PROGRESS BOARD RECOMMENDATION:

1. MCRIP staff should confirm the likelihood of success (e.g. learn from the experiences from Phase 1) before undertaking the second phase of the South Purcell transplant,
2. The Progress Board members should be informed of the actual costs of the transplant so they can inform their constituents and correct ongoing inaccurate perceptions regarding the costs of this management effort.

Captive breeding

Comments from Progress Board: The Board recognizes the value of having knowledge and insight on all tools that may be effective at achieving recovery objectives. Careful consideration is needed when determining the investment in a captive breeding project, both the sunk cost and

new funding requirements, and the returns to caribou recovery. Starting new initiatives should not strain financial or partner support such that it compromises completion of existing projects. However, it is clear that a strong understanding of all possible augmentation tools and demonstrated success, will improve effective delivery of the MCRIP. Carefully consider earlier work and analysis on captive breeding (e.g. Chris Steeger 2008) when making investment decisions.

PROGRESS BOARD RECOMMENDATION:

1. Continue development of operational aspects of captive breeding protocols if it does not compromise financial or partner support to existing projects.

Maternal penning

Comments from Progress Board: The Board recognizes the value of having knowledge and insight on all tools that may be effective at achieving recovery objectives. Careful consideration is needed when determining the investment in a maternal penning project, both the sunk cost and new funding requirements, and the returns to caribou recovery. Starting new initiatives should not strain financial or partner support such that it compromises completion of existing projects. However, it is clear that a strong understanding of all possible augmentation tools and demonstrated success, will improve effective delivery of the MCRIP. NCASI (National Council for Air and Stream Improvement) may have some information and advice on handling caribou in confined situations like maternity pens.

PROGRESS BOARD RECOMMENDATION:

1. Government should support maternal penning type of augmentation by providing some funding. Partnerships, such as the Revelstoke Caribou Rearing in the Wild, are a good approach. Ensure that development of operational aspects of maternal penning trial does not compromise financial or partner support for existing priority projects.

RECOVERY ACTION #6: SUPPORT ADAPTIVE MANAGEMENT AND RESEARCH AND IMPLEMENT EFFECTIVE MONITORING PLANS

Since 2007, adaptive management projects have been conducted to test caribou use of designated habitat.

Comments from Progress Board: There is some confusion about what constitutes adaptive management vs. continuous improvement of project design and technique. Report from program could have a better description of what is in the adaptive management realm versus continuous improvement of projects.

RECOVERY ACTION #7: INSTITUTE A CROSS-SECTOR PROGRESS BOARD TO MONITOR THE EFFECTIVENESS OF RECOVERY ACTIONS

In 2007, a review board of stakeholders was established to review government progress on the MCRIP. The group meets periodically by phone or face to face meetings to discuss operational matters related to mountain caribou recovery. The Progress Board also holds an annual meeting to conduct a review of the previous year's work and to prepare and file a report to government.

Comments from Progress Board: Progress Board members feel the Board is an effective tool to enable open communication between sectors with a significant stake or interest in mountain caribou. It allows the stakeholder groups to work collaboratively towards the common goal of mountain caribou recovery. It is important to find the right balance with regards to technical input and involvement. The Progress Board feels that while there has been significant progress on many aspects of the MCRIP, there are concerns that the 2014 objective (i.e. stop the decline in herds) will not be met.

PROGRESS BOARD RECOMMENDATION:

1. Government should continue to support the Progress Board as an effective means to provided informed feedback on MCRIP progress.
2. The Progress Board should meet with MCST in a separate session (e.g. a workshop) to have a technically-oriented discussion on some key aspects of the MCRIP.

Annual Report on Activities and Accomplishments of the Mountain Caribou Recovery Effort

(March 2013)

Prepared by:
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Mountain Caribou Recovery Implementation Plan
March 6, 2013

Background

On October 16, 2007, government announced the Mountain Caribou Recovery Implementation Plan (MCRIP), supported by the forest industry, commercial and public recreation sectors, environmental sector representatives, and First Nations.

The goal of the MCRIP is to halt the decline of the mountain caribou population within seven years for each planning unit and to recover mountain caribou to 1995 population levels (2500 animals) across the mountain caribou range within 20 years in those planning units with more than 10 animals.

The goals of the MCRIP will be achieved by implementing the following management actions:

1. Protect 2.2 million hectares of mountain caribou range from logging and road building, capturing 95% of the caribou's high suitability winter habitat.
2. Manage human recreational activities in mountain caribou habitat to minimize the disturbance and displacement of caribou from their preferred habitat.
3. Manage predator populations of wolves and cougar where they are preventing the recovery of mountain caribou populations.
4. Manage the primary prey of predators of mountain caribou.
5. Increase caribou numbers in threatened herds with animals transplanted from elsewhere to ensure that herds achieve critical mass for self-sufficiency.
6. Support adaptive management and research, and implement effective monitoring plans for habitat, recreation, and predator-prey management.
7. Institute a cross-sector progress board in spring 2008 to monitor the effectiveness of recovery actions.

This report updates the accomplishments reported in the March 2012 report entitled "Update on Activities and Accomplishments of the Mountain Caribou Recovery Effort". An interim report was presented to the Progress Board in October 2012.

Management Activity Update

RECOVERY ACTION #1: PROTECT 2.2 MILLION HECTARES OF MOUNTAIN CARIBOU RANGE FROM LOGGING AND ROAD BUILDING

Since 2007, approximately 2.2 million ha of caribou habitat has been protected from logging and road building. Guidelines have been developed to manage impacts to habitat from mineral exploration and heli-skiing activities. There has been limited activity on habitat protection in 2012/13.

Forest Health General Wildlife Measures

The approach of using exemptions to the management prescription associated with established mountain caribou ungulate winter ranges and wildlife habitat areas to address forest health issues is supported by government and sector representatives. There is a general concern from the sector, however, that this approach may not work in the future when forest health issues are expected to increase. This is a shared concern by government and will be addressed in the future when budgets permit and issues arise.

Next Steps:

- Continue to monitor the management of designated areas for mountain caribou habitat.

RECOVERY ACTION #2: MANAGE HUMAN RECREATIONAL ACTIVITIES

Since 2007, approximately 1.0 million ha of caribou habitat has been excluded from recreational snowmobile use. Stewardship Management Agreements (SMAs) have been signed with snowmobile clubs in 3 regions. A compliance monitoring and enforcement program has been in place since 2010. Memoranda of Understandings have been signed with major heli- and cat-ski operators to ensure best practices are conducted in a manner that supports caribou recovery. There is a moratorium on the development of new commercial recreation tenures.

Public Recreation

Monitoring snowmobile activity in the SMAs and closed areas continues to be a top priority for the MCRIP. Last year, the *Wildlife Act* was changed to allow greater delegation of enforcement authority. This change has significantly improved enforcement efforts. It allows compliance and enforcement staff from several sections of government, previously unavailable for enforcement work under the *Wildlife Act* to enforce the closures and monitor snowmobile activity across the recovery area. This has greatly increased the presence in the field and availability for special events.

Although compliance continues to be a concern to the overall recovery effort, there have been many examples of the snowmobile community working to ensure the MCRIP message is getting out to their riders, to maintain and expand signage, and to avoid riding within closed areas. It is

expected that there will be an increase in the number of tickets issued this year. This is likely an artifact of increased enforcement capacity and not due to an increase in people riding in closed areas.

A new development in compliance monitoring is the establishment of trail monitoring through the installation of camera monitoring stations. These stations have been established on trails which provide access to closed areas. The primary objective is not to catch individuals going into these areas but rather to monitor these trails and establish a long-term data source which over time will provide an indication of compliance trends.

In early December 2012, a group of concerned snowmobilers from the Cariboo (and the BC Snowmobile Federation) met with the MCRIP team and MLA Bob Simpson. Several items of concern related to trail closures and general closures were brought up by the local group. As a result of that meeting, a number of changes to closures were recommended. These recommendations were reviewed by local caribou experts and the MCRIP team, and some of the trails have been recommended to have the closure lifted. These recommendations are currently working their way through the regulatory system. During the development of the MCRIP, habitat protection and snowmobile management were not completely harmonized and there were some areas which did not completely overlap (i.e. have both snowmobile and logging prohibitions). The result is some areas which are now clear-cut but are closed to snowmobiling. This has caused some confusion in the snowmobiling community and some questions for the MCRIP team. Staff are currently reviewing options with respect to this problem. One potential option may be to consider a time-bound, short-term permit for the area until habitat recovery is neutral or positive to caribou conservation.

SMA's in the Cariboo Region have expired and need to be re-signed. In the absence of a SMA, the area will be closed to snowmobile use under the *Wildlife Act*. Government is prepared to re-sign these agreements but is having difficulty identifying a suitable legal partner. The Quesnel Highland Management Society signed on behalf of the local snowmobile clubs in 2009. Representation from that group has indicated that they wish to re-negotiate certain parts of these agreements. Staff are attempting to clarify the legal status of this group to determine if they remain an appropriate SMA signatory.

Next Steps:

Ongoing work/recommendations:

- Need to re-sign the SMA's in the Cariboo region. The MCRIP team feels the SMA's were working quite well and is prepared to recommend sign-off to the regional authority. Without a suitable legal partner, however, the default position is to revert to closure under the *Wildlife Act*.

- Collect and assess trail cameras data as it starts to come in later in the year.
- Develop a legal and policy position on new clear-cut areas in snowmobile closures.
- Continue the compliance monitoring and enforcement program to encourage compliance with closures.
- Attend the Western Canada snowmobile show in Edmonton in fall of 2013 to increase awareness of potential caribou conflicts with snowmobile recreation and promote compliance with regulations.

Commercial Recreation

Under the established sector compliance and effectiveness monitoring strategy and the MOU with government, twelve operators have agreed to annually submit wildlife sightings and operator information to government. This information is being collected and tracked to ensure operators are complying with best practices for adaptive management purposes. The report entitled “Mountain Caribou Compliance Monitoring: Interactions between Mountain Caribou and Heli-ski and Snow-cat skiing Operations during the 2011-12 Skiing Season” (available on the Sharepoint) examined sector reporting performance for the 2012-13 skiing season. Certain operators made adjustments during the 2011-12 skiing season to improve on the reporting requirements, but the sector did not demonstrate any improvement from previous year’s reporting and were non-compliant with government standards and indicators of performance.

Government representatives and operators met in Revelstoke, British Columbia, in October 2012 to discuss the outcomes of the report and to find possible solutions and areas for improving reporting requirements prior to the 2012-13 skiing season. Several solutions were identified at that meeting to possibly better improve on the sector’s reporting performance. Those solutions and outcomes of that meeting will be assessed in spring 2013 when the annual submissions of wildlife sightings and operator information is received by government. If sector performance does not improve, government will need to consider additional measures such as closing areas of activity to ensure that the management of this sector is supporting mountain caribou recovery efforts. Officials that manage commercial recreation tenures in regions were made aware of the need for remedial measures if performance does not improve.

The original moratoria on the development of new commercial recreation tenures in mountain caribou habitat was set to expire on March 31, 2013 with the expectation that it would be re-assess and appropriate actions taken. No mountain caribou herds have yet demonstrated recovery. To help support achieving the MCRIP recovery objective, the moratorium will be extended for an additional 5 years across the recovery area.

Next Steps:

- Continue to monitor commercial recreation sector performance.
- Complete renewal of the Commercial Recreation Tenure Moratorium
- Continue development of a 3rd Party Audit with assistance of the Forest Practices Board.

RECOVERY ACTION #3: MANAGE PREDATOR POPULATIONS

Since 2007, trapping and hunting season on wolves and cougars has been modified to encourage removal across mountain caribou habitat. Wolves are monitored using aerial surveys or radio telemetry to assess pack home ranges.

Quesnel Highlands Sterilization Trial

The Quesnel Highland wolf sterilization pilot project has operated from 2001-2012 and is designed to assess whether a combination of fertility-treatment and lethal methods effectively reduced wolf abundance. To capitalize on some staffing constraints, Bob Hayes was contracted to complete a retrospective review of the results to date. Hayes' review (available on the Sharepoint) noted a number of challenges in the project including: temporary cancellation of the project in 2004, lack of predicted responses and proper experimental design, and limited the assessment of wolf fertility-control on caribou responses. However, the project did provide reliable information about the distribution in wolf pack home ranges from year to year, and the effects of fertility-control on pup production. It demonstrated that sterilized adult wolves maintained their territories, displayed normal survival rates and sustained sexual pair bonds, effectively stopped reproduction, and strongly limited the wolf rate of increase. Since 2008, 39-77% of wolf packs were fertility-treated, and wolf densities were reduced by 39-48% from 2009-2012. Sterilization alone maintained wolves at low density in 2011 and 2012.

However, there has been no change in Quesnel Highland caribou recruitment with reduced wolf densities and the recruitment trend was not different than comparison herds. Moose harvest was increased after 2001 in an attempt to reduce prey biomass for wolves, but there was inadequate monitoring to assess moose population response.

Bob Hayes made several recommendations:

- Continuing the project for three more years to allow for sufficient time to assess responses of caribou.
- Continue previous methods for monitoring caribou.
- Add radio-collared adult caribou to monitor changes in adult survival, provide seasonal calf/cow ratios, and supply annual sightability correction to better estimate caribou abundance.
- Conduct moose counts by 2016 to measure response to human harvest since 2008 and reduced wolf densities since 2009.

Predation Analysis

To support the request to senior government to get support for wolf removal, staff completed a herd specific predator management assessment. Staff familiar with each of the mountain caribou herds were requested to examine the predation pressure on the herd, identify the predator species, and recommend control measures and duration necessary for the herd to contribute to the MCRIP recovery objective. This analysis will help inform discussions about the feasibility of meeting the 2017 recovery population objective with different levels of predator management. The analysis of the Purcell South herd will help inform decisions on Phase 2 of the transplant.

Wolf and cougar management

Wolf packs were monitored with or without the benefit of radio-collaring in three regions.

In the Thompson Region, planned wolf surveys cancelled due to weather and lack of available wildlife staff. Wolf monitoring is limited to reviewing reports from the Conservation Officers on wolves they have removed as part of their duties.

In the Cariboo Region, 3 complete wolf monitoring flights were conducted during December, January and February (over 5 days due to weather and equipment issues). Findings include:

- Confirmation that six sterile, reduced packs remain within the study area. Packs range from 2-4 members with an average of 2.7 wolves/pack (Swift, Hobson, Wasco, Keithley, Cariboo R. and Gotchen packs) and that these 6 packs did not produce surviving pups last spring.
- It is possible that an additional three sterile, reduced packs (of 2-3 members) are still present but have not been successfully relocated during this 3 month monitoring period. Some of these packs are typically difficult to locate due to extensive territory size and/or extreme ruggedness of home range.
- It is assumed that the three GPS collars that were functioning last March have failed.
- Although contact with quite a few collars has been lost during the project lapse, we are fortunate that the distribution of remaining collars equates to 6-9 sterile packs that we can remain in contact with.
- The Heningram wolf pack resides mainly outside the study area. There is a collared member but the dominants have not been sterilized. It has always been difficult to observe pack numbers. However 8 black wolvens were observed in January, giving a good indication of what uncontrolled pack sizes might look like in the study area.

In the Purcell South area of the Kootenay Region, wolves were part of a research project with the University of Victoria (see below). However, continuous problems with collar malfunctions have limited the amount of data available, reducing its statistical value. Despite this setback, enough data was received over one year on two of the four or five packs in that area to establish some movement patterns. The range of one pack did not overlap with occupied caribou habitat. Individuals from the other pack travelled into occupied caribou habitat sporadically between mid August and mid October. There was no evidence of this pack preying on caribou during this

time. Attempts are currently underway to collar other packs in the area, using a different brand of collar.

Capturing wolves and maintaining radio-collars has presented challenges to wolf management in each region.

University of Victoria Predation Risk Research

Research continues at the University of Victoria, Department of Geography, Laboratory for Landscape and Wildlife Ecology. Seasonal movements of four resident Purcell South (PS) caribou, 19 translocated Level Kawdy caribou, 16 resident Level Kawdy caribou (a “control” group) and seven cougars were analyzed using GPS collar data to determine patterns of movement in relation to step lengths, travel rates (km/day), elevational movements and tortuosity. Translocated caribou that remain alive were able to conform to PS resident caribou movement patterns more closely than translocated caribou that expired. Cougars and some translocated mortality caribou spent some of their time at similar elevation ranges, which increased the translocated caribou’s risk to predation.

Work on this research is ongoing and includes the following:

- Refining caribou seasons using cluster analysis to define homogenous space-use behaviours, based on both the use of habitat attributes (i.e. land cover type, elevation) and movement characteristics (i.e. speed, turning angles)
- Developing state-space models to describe seasonal movement patterns in relation to predation risk of translocated and resident caribou and cougars in the South Purcell Mountains
- Developing predation risk model based on seasonal resource selection functions of radio-collared wolves and cougars

Next Steps:

- We will continue to pursue approval from senior officials to conduct aerial wolf removal in specified circumstances.
- Continue to support the University of Victoria research program in the South Purcell Mountains.
- Use results from retrospective analysis of the Cariboo wolf sterilization trial to determine future application of this management tool.

RECOVERY ACTION #4: MANAGE THE PRIMARY PREY OF CARIBOU PREDATORS

Since 2007, 2 projects have been initiated to determine if modified hunting of moose can result in reduced wolf density and, as such predation on caribou. Neither project has demonstrated a positive effect on caribou populations.

Moose Reduction Pilot Projects

Two pilot moose-reduction projects continue in the Parsnip (Region 7) and Revelstoke (Region 4) areas to assess the effectiveness of reducing moose densities to reduce wolf densities.

The caribou herd in the Parsnip was surveyed in March 2012. (Heard et al., 2012, available on the Sharepoint). A total of 111 caribou were observed, of which 9% were calves. An estimated 129 caribou reside in the Parsnip block. In comparison, in the adjacent Hart South block 348 caribou were counted, of which 11% were calves, with an estimated 404 caribou in the Hart South block. Between 2002 and 2012 the trend of both the Parsnip and the Hart South caribou numbers was stable at about 600 caribou, but the estimates since 2006 (the year the Parsnip caribou recovery experiment started) suggest numbers declined in both areas. The herd may continue to decline because the 2012 calf recruitment of only 11% was below the 15% threshold considered necessary for herd stability.

The Parsnip block will be surveyed again in March 2013.

In the Revelstoke pilot treatment area, wolves numbers declined by 50% from 2007 to 2012 as a response to the reduced moose numbers.

Based on 2012 survey data for the Revelstoke pilot (Serrouya et al., 2012, available on the Sharepoint), moose recruitment has demonstrated a steady increase since 2003, climbing from approximately 22 calves:100 cows to 35 calves:100 cows in 2012. This increase appears to be a result of a lower moose population, which has declined from 1650 in 2003 to approximately 500 animals in 2011. Increases in recruitment will have to be considered when planning moose harvests in this region.

Caribou calves comprised 12.9% of the Columbia North subpopulation. Although this value is higher than the previous two years, low sample size makes it difficult to conclude if caribou are responding positively to the moose reduction experiment. Current recruitment is still below the 19% value recorded during the mid 1990s when the caribou population was stable or increasing, and below what is required for a stable population (15%). Efforts that reduce predation on adult caribou are needed but may be insufficient given the very small and fragmented groups that are increasingly vulnerable to chance events.

The herd was planned to be surveyed in 2013, but has been cancelled as low snow conditions are unsuitable to enable comparison of results with previous years

Rob Serrouya, the project lead, is scheduled to complete his PhD in May 2013 which will result in reporting out on this project.

Next Steps:

- Continue to conduct caribou, wolf, and cougar surveys in the moose reduction treatment areas to measure response to moose and wolf reduction.

RECOVERY ACTION #5: BOOST CARIBOU NUMBERS IN THREATENED HERDS

Since 2007, several potential augmentation have been initiated. A transplant to the Purcells South herd occurred in 2012. A maternal penning trial is being developed. An MOU has been signed with Parks Canada and the Calgary Zoo to develop captive breeding capacity.

Purcells South Transplant

A summary of the transplant and early results was previously reported to the Progress Board in a report entitled “2012 Purcells-South Mountain Caribou Herd Augmentation”. Quarterly progress reports were also produced and circulated in June, September and December 2012. (Available on Sharepoint).

Since their release in March 2012, the majority of transplanted caribou have died. At the time of this report, only 3 of the original 19 transplanted caribou remain alive: 5 have died due to cougar predation, 2 to wolf predation, 3 to accidents, 1 to malnutrition (weakened by ticks), 3 to unknown non predation, and 2 due to unknown causes. Most of the predation-related mortalities occurred when transplanted caribou moved into low elevation areas not considered suitable caribou habitat.

The movements of 2 of the 3 remaining collared caribou in the Purcells-South herd continue to be monitored remotely via ~ weekly download of data from Iridium GPS collars. The collar on one of the remaining transplanted cows has failed. This cow is believed to be in the Golden area; tracks from a solitary caribou were spotted within a distance that this animal could have travelled in an area without resident caribou. Since the VHF transmitter may still be working, opportunities are being sought to fly the area and confirm this cow’s status and location.

The GPS movements of the collared caribou indicate that calving likely occurred in early June. Helicopter surveys were curtailed to avoid disturbance to the caribou at this sensitive time so it is unknown how many calves were actually born. Surveys conducted in mid-February 2013 indicate that the population of resident caribou in the South Purcells has increased from 15 in 2011 to 20 in 2013. This does not include the remaining transplanted caribou as the three remaining transplants are not in the survey area.

Complete herd composition surveys were not possible, because the survey was conducted by fixed wing. Helicopter flights for collar replacement in 2012 indicated there were 3 calves in the larger group of 14 earlier this winter. In view of the extreme sensitivity these caribou have

demonstrated in response to aircraft over flights, further surveys are not being conducted this winter, to avoid risking further disturbance or displacement of these animals.

Due to the high mortality of the 2012 transplants, a second transplant has been deferred to 2014. Logistical planning is underway for the second phase of the transplant project, including a review of all aspects of the project. In particular, the donor herd and release methods are being reviewed. Expert advice is being sought from the Mountain Caribou Science Team and other experts to ensure that future transplanted caribou are given the greatest chance for survival.

While the natural tendencies of the Level Kawdy caribou (northern ecotype) is to move to lower elevations in the winter, we expected that by releasing them near resident caribou they would bond and adopt the residents' movement patterns. This expectation was based on transplants in the 80's and 90's when Itcha-Ilgachuz caribou (also northern ecotype) moved into the South Selkirks did bond when they encountered residents.

The main difficulty in finding suitable donor herds of mountain ecotype caribou is that all mountain caribou herds are in decline. The only potential donor herd that has been identified is the Hart Ranges herd near Prince George. Discussions are underway with species experts to assess the viability and advisability of removing a number of caribou from this herd for the next transplant attempt.

To increase the likelihood that transplanted caribou will bond with residents, a "soft release" is being considered, in which transplanted animals will be penned for a short period of time in the South-Purcells prior to release. A small number of resident caribou may also be captured and kept in the same pen prior to release of the transplanted caribou into alpine habitat, in the hopes of promoting this bonding. A suitable site has been identified for a temporary holding pen to enable a soft release to occur. Discussions are ongoing with technical/species experts regarding next steps.

In spite of the number of mortalities that have occurred post-release, a transplant remains the best hope to avoid extirpation of the Purcells South herd.

Government staff (Leo DeGroot, Steve Gordon, Mark Williams) led a Conservation North-West "webinar" August 15, 2012. The webinar can be viewed at: <http://greatnorthernlcc.org/event/243>

The transplant project was presented the North America Caribou Workshop in September, 2012. The presentation can be viewed at: <http://www.youtube.com/watch?v=s313QqpVG0Q>

Next Steps:

- Complete logistical planning for the second phase of the transplant, including development of a rationale to support use of a mountain caribou herd as the donor population and the soft-release approach.

Maternal penning

A mountain caribou maternal penning project has been initiated by the Revelstoke Caribou Rearing in the Wild Society (RCRW). RCRW is a community based partnership, consisting of a cross representation of individuals and organizations, including First Nations. The website www.RCRW.ca provides a complete summary of the objectives and current status of the project. RCRW is currently raising the profile of the project (e.g. on Twitter, Facebook, weekly local newspaper articles) to assist in a \$100K social media campaign sponsored by Shell Canada (www.fuellingchange.com) and preparing the pen site. The Splatsin, Simpcw, ONA, and Okanagan Indian Band are actively engaged in the project.

Year 1 (2014) anticipates capturing 10 cows and holding cows and calves until 4-6 week post-partum in pen. Subject to success in year 1, 20 cows will be involved in subsequent years. First year costs are estimated at \$500K, of which \$128K is confirmed including \$48K from MCRIP. Operational budget for subsequent years is estimated at \$350K/year. The maternal pen may need to operate for up to 10 years to increase the Columbia North herd to 2007 MCRIP value of 250 animals.

Significant progress to date includes:

- RCRW Board established 2012;
- 20 letters of support received representing First Nations, Provincial & Federal Government, Forestry Companies, ENGOS, snowmobiling sector, rod & gun club, heli and cat skiing operations, and municipal government including several offers of monetary and in-kind support;
- Map Reserve established and half of the 9 ha pen site brushed and pruned in 2012;
- Website and other social media developed;
- Agreement with guide outfitter to use facilities & equipment for personnel & project;
- Fence design and budget completed;

Next Steps:

- Complete brushing and pruning of the pen site – spring 2013.
- Construct fence: Spring - Fall 2013
- Hire shepherds and supervisors and conduct training – Summer 2013
- Develop animal care protocols, acquire necessary permits – Fall 2013
- Order feed & collect lichen – Winter 2013
- Capture and pen 10 pregnant cow caribou – late winter 2014
- Year 1 neonate release July 2014

Captive breeding

There has been limited activity on this part of the MCRIP. Parks Canada is in the process of confirming senior government support, including funding, for their involvement.

Next Steps:

- Continue liaison with Parks Canada and the Calgary Zoo

RECOVERY ACTION #6: SUPPORT ADAPTIVE MANAGEMENT AND RESEARCH AND IMPLEMENT EFFECTIVE MONITORING PLANS

Since 2007, an adaptive management project has been conducted to test caribou use of designated habitat. The Purcells transplant, wolf sterilization and moose reduction projects are each closely monitored and changes made in response to results and operational experience

Adaptive management work is currently investigating three questions:

1. Does the distribution of mountain caribou reflect the distribution of designated areas and protected areas; the distribution of protected high suitability habitat?

According to Paige et al. (2012), caribou distribution appears to reflect the distribution of areas designated to support their recovery. This question will be addressed every three years to monitor caribou distribution for adaptive management purposes.

2. What is the compliance with commercial recreation operating practices?

According to Pasztor (2012), the commercial heli- and cat-skiing sector did not comply with government standards and indicators of performance as expected. If sector performance does not improve, government will need to consider additional measures such as closing areas of activity to ensure that the management of this sector is supporting mountain caribou recovery efforts.

3. What is the compliance with snowmobile closures and SMAs?

The 2012-13 snowmobile season marks the first year of a three year monitoring program to document and quantify the compliance with snowmobile closed areas established to support mountain caribou recovery. The program will utilize remote cameras and aerial flights to measure compliance. A report is expected to be completed each summer following a snowmobile season and used as outreach to inform snowmobile clubs of the level of compliance. Monitoring results will be used to inform management for adaptive management purposes.

Next Steps:

- Continue to assess the degree of non-compliance of snowmobile activity in closed areas.
- Continue to monitor compliance of practices established for commercial recreation activities.
- Begin to design an approach to assess the effectiveness of habitat protection measures.
- Continue monitoring caribou movements and survival in support of the Purcells South transplant.
- Assess success of the Purcells South transplant and review the applicability to other areas
- Develop funding proposals in support of additional translocations if deemed viable.

RECOVERY ACTION #7: INSTITUTE A CROSS-SECTOR PROGRESS BOARD TO MONITOR THE EFFECTIVENESS OF RECOVERY ACTIONS

In 2007, a Progress Board of stakeholders was established to review government progress on the MCRIP. The group meets periodically on phone or face-to-face to discuss operational matters. The Progress Board has an annual meeting to conduct a review of the previous year's work and file a report with government.

Communication between the Progress Board membership and MCRIP staff has continued to be effective. An update conference call occurred in October 2012 and an annual review meeting is scheduled for March 2013. Individual Progress Board members have assisted in arranging meetings with membership of their sector to discuss matters of significant concern.

Next Steps:

- Continue to promote open communications between the MCRIP Progress Board and MCRIP staff.

ADDITIONAL ACCOMPLISHMENTS ASSOCIATED WITH THE MCRIP

MCRIP staff assisted in organization and presentation at the 14th North American Caribou Workshop held in Fort St. John in September 2012. The Purcells South herd transplant was presented part of the technical program.

MCRIP Progress Board Annual Meeting March 2012 Update – Attachments

The reports noted in the Annual Report are available for MCRIP Progress Board members on the designated MCRIP Sharepoint site. Please note that documents on this sharepoint have not been approved for broad distribution and are provided strictly to inform the Progress Board

Literature Cited

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Previous Progress Board Reports for boarder distribution can be found on the provincial caribou website at <http://www.env.gov.bc.ca/wld/speciesconservation/index.html>