Review of:

Experimental Wolf Reduction to Enhance the Recovery of the Threatened Quintette Caribou Herd in the South Peace
and
South Selkirk Mountain Caribou Wolf Management Plan

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Summary

The wolf reduction plans for the Quintette and South Selkirk Caribou herds were reviewed. The Quintette Plan is thorough and well presented. I found no issues with the rationale, objectives, removal strategy, and monitoring plan. Two minor recommendations related to monitoring and performance are suggested. The South Selkirk plan is less tight stemming from the state of the caribou herd (small size) and management having less background information on the structure of wolf packs in the area. I support the plan as outlined recognizing that the chances of recovery of this herd are lower given its small size.

Background

Wolf control has been proposed as one management tool to prevent further reduction of declining woodland caribou herds in Western Canada. There is a growing body of information indicating that increased predation rates on both calves and adult females are a major component of recent documented declines. Wolves form an important component of the predator community that also includes bears and cougars. All caribou recovery strategies proposed to date entertain wolf control as a possible tool to achieve objectives. It is clear that unless there is an immediate reduction in the loss of caribou to predation, recovery is not likely. There are only two possible ways to achieve this; removal of predators or protection of caribou from predators by use of maternity pens or large scale fences. The use of maternity pens is still in an experimental phase and the use of large predator exclusion fences has not been tried. Removal of bears has not been implemented to any degree and removal of cougars has been relatively ad hoc. Wolf control has been implemented for two woodland caribou herds and results of these programs are summarized in Seip (2014). In general, aggressive removal of

wolves to increase ungulate densities has led to increased survival of calves in treated areas which has improved population trajectories. However, it should be noted that the cases of well-documented predator control remain low so any planned wolf control programs should be considered experimental in nature. By this I mean that it is important to obtain scientifically rigorous information on effectiveness of the removal program (number of wolves removed as a proportion of the resident population) and response of the targeted caribou herd (adult survival and calf recruitment and population size if possible). The caribou information should be obtained for the experimental and control herds if at all possible. All of the above background is well captured in Seip (2014).

Assessment

The proposed wolf control program for the Quintette Herd is thorough and well-designed. The emphasis on "experimental" is important as is the attention to: 1) achieving effective wolf removal, and 2) setting clear indicators of caribou response. The proposal is realistic in outlining that many things can lead to targets not being met and it is fundamental to collect quality ongoing information to understand any potential outcome.

The efficacy of any wolf control program is a direct function of the effectiveness of actual wolf removal. The "rule of thumb" is that 80% of the resident population should be removed and this should be repeated in successive years. This level of control is only achievable by aggressive aerial shooting. There is no evidence that trapping can effectively achieve the required levels of removal. I fully concur with the proposed plan to remove wolves by aerial shooting using ongoing radio-collaring and prior knowledge of wolf pack locations to achieve the objective of removing all wolves from the range. It is unlikely that the removal program will be able to keep the range free of wolves throughout the year because of rapid immigration back into the area. However, if the number of wolves can be kept to <20% of pre-removal densities, the objective of 10% increase in the caribou population is achievable. The extensive working knowledge of wolf packs in the area increases the chances of overall success substantially.

The rationale for choosing the Quintette Herd for the wolf removal experiment is sound. Its current size and the background information on the herd and wolf packs in the area make it the best candidate. Performance measures are also clearly outlined as are the expectations for the length of time that active wolf removal will be required. I especially appreciated the explicit mention of a re-assessment in 4 years to determine next steps. **However, I do recommend that a more explicit definition of whether the program "isn't working" is required.** Does this mean that the 10% per year caribou population increase was not achieved? That all wolves could not be removed? That adult survival was not improved? It is relatively easy to make the targets quantitative and it is important to do so now. In the end the targets will likely just serve as guides rather than hard targets but is important to remove as many vagaries as possible.

Overall, the proposed monitoring program is excellent and is in keeping with the "experimental" focus of the program. In many cases there is the tendency to focus monitoring on the treated herd only and I fully support the need for monitoring concurrent control herds as outlined. Given that the control herds are small and possibly experiencing different ecological conditions (Bearhole/Redwillow subgroup), **I recommend that the number of females to be tracked to determine survival should be increased to 20 from 10.** In addition, it is important to get some measure of moose, elk, and deer numbers as their numbers should also respond to the wolf removal.

The wolf removal plan for the South Selkirk Herd represents a more desperate situation. The extremely small herd size, limited knowledge of wolf packs in the area, and the overlap of international boundaries contribute to the chances of wolf control achieving caribou recovery being less likely. That being said, wolf removal must be a consideration given the circumstances. Although overall information is limited, there appears to be enough information to proceed and I strongly support the decision to conduct wolf removal using a more "staged" approach whereby collaring and tracking of wolves is used to gain knowledge of pack structure before removing individuals to reduce the risk of fragmenting any packs that exist.

The proposed monitoring program associated with the wolf removal could be bolstered. The proposal to monitor wolf populations every 3 years is not appropriate. It seems that monitoring must occur yearly to allow for yearly removal plans to be instituted. Unlike the Quintette plan, there is no explicit statement as to when and how the overall efficacy of the removal program will assessed. This should be provided. In addition, there is less emphasis on the experimental nature of this program. I would like to see greater effort put into tracking "control" herds in the adjacent area.