Northwest Territories Environment and Natural Resources

Mr. Jonas Lafferty
Interim Chair
Wek'èezhìı Renewable Resource Board
4504 49th AVE
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NOV 2 4 2015

Dear Mr. Lafferty:

WRRB Meeting September 23-24, 2015 and Caribou Recommendations: Listing of Studies

The Tłı̨chǫ Government (TG) and the Department of Environment and Natural Resources (ENR) will jointly be responding shortly to your letter of September 25, 2015 with recommendations for the Bathurst and Bluenose-East caribou herds. One of the Wek'èezhìı Renewable Resource Board recommendations in the September 2015 letter is listed below; it was a request for study results in a number of areas. The recommendation is as follows:

Recommendation #16-2015: *The Board requests that study results focused on the Bathurst caribou herd, including studies of caribou winter range use in burned and unburned areas, the effects of insect harassment in the summer, ongoing studies via remote sensing of changes in vegetation quality on the summer range, a study of dust around the diamond mines in the Bathurst caribou herd range, and a study of the effects of the 2014 NWT fires on vegetation, be provided.*

An annotated studies list is attached and the reports will be made available by ftp (file transfer protocol) as the memory space is too much for email. TG may have additional studies which they may want to provide.

I hope these studies and proposals will be of interest.

Sincerely,

Lynda Yonge
Director of Wildlife Division, ENR

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c. Grand Chief Edward Erasmus, TG

Chief Clifford Daniels of Behchokǫ̀, TG

Chief David Wedawin of Gamètì, TG

Chief Johnny Arrowmaker of Wekweètì, TG

Chief Alfonz Nitsiza of Whatì, TG

Ms. Laura Duncan, Tłı̨chǫ Executive Officer, TG

Mr. Sjoerd van der Wielen, Lands Protection Manager, TG

The Honourable J. Michael Miltenberger, Minister, ENR

Jan Adamczewski, Ungulate Wildlife Biologist, ENR

ATTACHMENT

List of reports addressing this recommendation:

1. J. Baltzer and others. 2014. CIMP proposal on study of NWT fires, lead J. Baltzer (Wilfrid Laurier University): the proposal outlines the scope of the work initiated in summer 2015. The title is "Impacts of wildfire extent and severity on caribou habitat: from woodland to barren ground."

2. J. Baltzer and J. Johnstone. 2015. Report on a Yellowknife workshop on 2014 NWT fires 12-14 Jan. 2015, Title is "The 2014 NWT Fires – Developing a research framework".

3. Barrier and Johnson 2012. The influence of fire history on selection of foraging sites by barren-ground caribou. Ecoscience 19: 177-188. Part of Tara Barrier's MSc thesis on winter range ecology of Bathurst caribou.

4. Barrier, T. 2011. Factors influencing the distribution of Bathurst barren-ground caribou during winter. MSc thesis, UNBC. Study of winter range use by Bathurst caribou in burned and unburned areas.

5. Boulanger, Poole, Gunn and Wierzhowski. 2012. Estimating the zone of influence of industrial developments on wildlife: a migratory caribou and diamond mine case study. Wildlife Biology 18: 164-179. Included here because part of this study was modeling likely dispersion of dust from the mines, as a possible mechanism for the zone of influence or avoidance by caribou.

6. W. Chen and many others. 2014. Assessing the impacts of summer range on Bathurst caribou's productivity and abundance since 1985. Natural Resources 5: 130-145. Study correlated a composite index of summer range productivity from remote sensing records with caribou spring calf:cow ratios, with a time lag. Mechanism suggested is that poor summer range productivity correlates with poor cow condition in the fall and poor calf:cow ratios one and a half years later.

7. W. Chen and many others. 2013. Monitoring habitat condition changes during winter and pre-calving migration for Bathurst caribou in northern Canada. Biodiversity 14: 36-44. Study tracking changes in snow conditions on Bathurst winter range over time.

8. W. Chen and many others. 2014. CIMP proposal titled Satellite monitoring for assessing resource developer's impact on Bathurst caribou. Initial field work in summer 2015, part of study is to look at dust levels at various distances from Ekati diamond mine.

9. K. Joly and others. 2011. Linkages between large-scale climate patterns and the dynamics of Arctic caribou populations. Ecography 34: 345-352. Study assessing

influence of large-scale weather patterns like the Pacific Decadal Oscillation on trends in Alaskan migratory caribou herds. Influences were found but varied among herds.

10. M. Klaczek, C. Johnson, D. Cluff. 2015. Den site selection of wolves in response to declining caribou density in the central Canadian Arctic. Polar Biology (in press): part of M. Klaczek MSc thesis on wolf ecology on Bathurst summer range.

11. M. Klaczek. 2015. MSc thesis at UNBC. Denning ecology of barren-ground wolves in the central Canadian Arctic. Studies in Bathurst caribou summer range.

12. L. Witter. 2010. MSc thesis at UNBC. Interrelationships between weather, parasitic insects, and barren-ground caribou behaviour in Northwest Territories and Nunavut. Summer study of caribou responses to biting flies in Bathurst summer range.

13. Witter and others. 2012. Gauging climate change effects at local scales: weather-based indices to monitor insect harassment in caribou. Ecological Applications 22: 1838-1851. Part of Witter thesis; insect severity can be linked to weather variables.

14. Witter and others. 2011. Behavioural trade-offs in response to external stimuli: time allocation of an Arctic ungulate during varying intensities of harassment by parasitic flies. J. Animal Ecology 81: 284-295.

15. G. Rickbeil and others. 2015. The grazing impacts of four barren ground caribou herds (Rangifer tarandus groenlandicus) on their summer ranges: an application of archived remotely sensed vegetation productivity data. Remote Sensing of Environment 164 (2015) 314–323. Remote sensing data used to assess possible grazing effects of caribou at high numbers on summer range; some effects but probably not major herd drivers.