



## **Additional Questions & Answers from the “Factors Affecting Moose Populations in Interior B.C.” Zoom webinar on March 31, 2021**

**In spring had you looked a collaring large black bears and Grizzly with cameras to check calf predation?**

No, we have not. Most studies of rates and causes of neonate moose mortality indicate bears are an important predator of young calves everywhere it has been measured in North America. With exception of a recent study from Minnesota where wolves were found to be the dominant predator of young moose calves. We know that up to approximately 50% of moose calves die in their first couple weeks in many areas and years here in interior B.C. and I suspect we would learn similar that predation is a dominant factor here in B.C. with potential for variation across the landscape as to which would be the dominant predator.

**Are you seeing impacts from caribou management actions in nearby areas that may be affecting moose in your studies?**

The only study area overlapping with caribou recovery management actions currently is the Entiako study area and as caribou recovery actions have just recently been implemented there, we should have some information on this soon.

**A 50 to 70% reduction of moose populations in a decade or more is horrendous. It does not seem we are any closer to identifying management activities to counter this. Do you think our ability to deal with this is funding limited? Is there not enough funding being allocated to this to develop management solutions?**

To some extent, funding limitations have prevented us from evaluating all important parameters we believe to be influencing moose populations simultaneously in all study areas (e.g., causes and rates of mortality for calf moose in all areas, direct measurements of moose body condition in all areas, etc.). However, the other issue is that this is a large complex issue across a big portion of the province and moose appear to be experiencing different issues in different areas at least to some extent. It just takes time to thoroughly evaluate these kinds of things and collect data over a long enough period that appropriate variation is captured.

**Could you please send me the link to the Progress Report?**

Here is a link to the documents associated with this research, including all the progress reports.

<https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/wildlife/wildlife-conservation/moose/moose-research>



**What is the mean age where cow moose generally stop reproducing?**

Pregnancy rates start declining at approximately 10-12 years of age.

**Any plans to collar bulls beyond recruitment?**

No, we have been focusing on the reproductive components of moose populations to evaluate the factors contributing to moose mortality for most important components that contribute to moose population dynamics (e.g., cows and calves).

**Could I please get a copy of the Results Management Recommendations?**

Please see the link above to moose research documents. The latest list of management recommendations is in the 2020 progress report.

**Are there any previous studies from these areas to compare data to? I am curious to know the predation mortalities vs 20+ years ago.**

We do not have data to compare to from that long ago in these areas unfortunately.

**If we have high starvation rates in PG South, and if moose prefer deciduous in all study areas at all times of year, how would allowing more deciduous regeneration not be helpful?**

I would not suggest we have high starvation rates for moose in PG South. However, I do not believe the abundance of food to be limiting for moose on the landscape, especially given the relatively low densities of moose on the landscape, and therefore the provision of additional forage alone is unlikely to solve the issue of moose population declines. There may be other reasons moose starve, such as winter severity or longevity and various health factors, which is why we term these mortalities “apparent starvation”. The term “starvation” refers to a lack of food, which is only one way that moose could starve. I do believe deciduous species should be maintained on the landscape though for moose and all other wildlife out there though and we have suggested this as a formal management recommendation.

**Do you feel maintaining the current ratios and targets/objectives on the right path for recovery, or should these be looked at and be adjusted?**

I am assuming this question is referring to ratios, targets and objectives around managing hunter harvest. To date, hunting has been observed to be a very insignificant component of moose population change to the extent that if we remove the rate of hunting mortality observed entirely from these moose populations, moose would be in the same state they currently are. Therefore, simply changing the ratio objectives or targets would not be expected to have any effect. Much more significant management action will be required.



**Can we reverse these trends by allowing more deciduous in regenerating cutblocks?**

No, allowing more deciduous to grow in cutblocks, while I believe we should be doing anyway, simply from a biodiversity perspective, is not expected to reverse the observed trends. If moose do not have access to food, they won't be living there and as stated above, I don't believe the abundance of forage is limiting moose on the landscape.

**Question about wolves and how far they can travel region to region, rather than looking at one region how about looking at the provincial numbers? Does this change the facts?**

I am not sure what the facts that are being referred to here, but wolves are wide-ranging carnivores that obviously move amongst regions at times. Wolves do establish and defend territories which vary in size and therefore the extent they move amongst regions probably varies with the specific locations of these territories relative to regional boundaries and there are always transient individuals or dispersing individuals that can and do move long distances, across multiple regions at times.

**Have you looked into thermal coverage and protection of mature timber in moose wintering habitat or lack thereof as a result of intensive logging of critical winter thermal coverage forest?**

This is certainly a concern, and it is being considered.

**You mentioned how 85% is the survival rate for cows for stable population. What is the calf recruitment rate and calf/cow ratios that are required for a stable and growing population? Where are we with respect to that?**

The level of calf recruitment required to maintain stable moose populations varies directly with the specific level of adult female survival, so the specific requirements to maintain stability vary annually and spatially. If adult female survival rates are normal and near 85%, required calf ratios at age 1 are somewhere around 30 calves/100 cows. We have seen moose calf ratios below this level, and well below at times, in many areas in many years in recent times.

**What action is the Ministry taking based on information gained from the studies to date? Or are we remaining in the status quo action plan till further study?**

Stay tuned. We need to complete some of the ongoing analyses and generate the list of management recommendations that will be most effective to address moose population declines. Some of the information is already being used to inform some habitat treatments, habitat designations and inform other processes, such as the cumulative effects work ongoing in the province.