

ONTARIO FEDERATION OF ANGLERS & HUNTERS



Ontario Conservation Centre

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May 4, 2021

Honourable John Yakabuski
Minister of Natural Resources and Forestry
Whitney Block, 6th Floor, Room 6630
99 Wellesley Street West
Toronto, Ontario
M7A 1W3

Dear Minister:

Subject: The Importance of Moose Aerial Inventories

The Ontario Federation of Anglers and Hunters (OFAH) is Ontario's largest, non-profit, fish and wildlife conservation-based organization, representing 100,000 members, subscribers and supporters, and 725 member clubs. Moose are incredibly important to our membership, the broader hunting community, and many Ontarians. In addition to being a highly valued game species that supports important hunting traditions which contribute over \$200 million to the Ontario economy annually, moose are an indelible part of Ontario's cultural landscape and a key component of a diverse ecosystem. Ensuring sustainable moose populations today and into the future is a major OFAH priority and moose aerial inventories (MAI) are key to ensuring that outcome.

By providing direct estimates of Ontario's moose populations, MAIs generate the core information needed to track population status, identify and address conservation concerns, and allocate sustainable moose hunting opportunities. Due to this paramount importance, the OFAH is asking the Government of Ontario through the Ministry of Natural Resources and Forestry (MNRF) to increase investment in the MAI program to ensure that MAIs are conducted at a frequency that supports the responsive adaptive management of moose, at a precision that allows population trends to be adequately quantified, and at a scale and complexity that is supported by science. We also raise concerns about the vulnerability of MAIs to climate change and ask that the MNRF begin working on proactive solutions.

Funding

As stated above, moose are incredibly valuable to not only hunters, but to the Ontario's broader public. Moose, much like the Common Loon and the North American beaver, are animals that are intimately associated with Ontario's ecological and cultural landscape. We feel that this shared importance justifies continued and additional investment in the MAI program. Additional funding is necessary to not only achieve the actions detailed below, but also to ensure that the current level of the program is maintained as costs such as salaries, equipment and fuel increase with inflation.

Through the contribution of licence sales to the Special Purpose Account, hunters directly fund the MAI program. However, because the benefits of healthy moose populations extend far beyond just hunters, we desire to see increased investment from the broader public. In addition to their important contribution to Ontario's biodiversity, healthy moose populations create jobs and support important industries, especially in Northern Ontario. While we recognize the fiscal constraints imposed by the COVID-19 pandemic, modest investment in the MAI program will net disproportionately positive benefits.

- **Recommendation:** Increase investment in the Moose Aerial Inventory Program, including money from general taxpayer revenue to complement funds from the Special Purpose Account.

Frequency

The current policy of the MNRF is to survey the moose populations in core moose wildlife management units (WMU) on a three- to five-year rotation and most, but not all, have been sampled within that time frame. However, the results of the 2020 MAIs clearly demonstrate that even five years can be simply too long of an interval and that moose populations can decline significantly within that time period. For example, the moose populations in WMUs 21B and 22 declined by 34% and 39%, respectively, over the five years between MAIs. WMU 54, previously one of the most productive units in the province, experienced a 46% decline over the six-year interval between MAIs. It is unlikely that the MNRF's primary tool for addressing moose population reductions, hunter harvest management, is capable of reversing declines of this magnitude which could be driven by a number of factors instead of, or in addition to, hunter harvest.

Continuing to conduct MAIs on a three- to five-year rotation means accepting significant population swings as part of moose management along with the associated disruption to sustainable hunting and the businesses that rely on them. In our view this is not acceptable and MAIs should be conducted on a shorter time frame that allows population fluctuations to be identified and, if necessary, addressed within a window that is still feasible. Adaptive management is a fundamental concept for wildlife management in North America, but it is not feasible if the monitoring is conducted on a time frame that is disjunct from the time frame of management actions.

- **Recommendation:** Ensure that MAIs are conducted frequently enough (i.e., every three years in core moose range) to allow moose population fluctuations to be identified and addressed within a time frame dictated by the available management strategies.

Precision

As is often the case with wildlife, moose are challenging to count and, therefore, the results of MAIs are estimates bounded by confidence intervals (CI) and not exact figures. Due to the fundamental importance of population estimates to moose management, it is crucial to ensure that the results of MAIs are as precise as possible. This allows true changes in the population to be distinguished from statistical variance. Current MNRF policy direction is to fly sufficient survey plots to achieve a level of precision of +/- 20% at 90% CI. This is a reduced level of precision than was used in the past (+/- 20% at 95% CI). Ensuring accurate and comparable moose population estimates allows for more effective moose management and avoids unnecessary fluctuations in the number of tags issued to licence hunters. Hunters will accept reductions in harvest opportunities in response to population declines; however, minor tag fluctuations resulting from statistical noise drives hunter frustration.

- **Recommendation:** Ensure that sufficient plots are sampled to ensure the established level of precision of +/- 20% at 90% CI is met. As survey methodology is improved such that fewer plots are required to meet this level of precision, rather than flying fewer plots the MNRF should fly more plots in order to improve precision.

Given the challenges inherent with counting moose, the MNRF should make use of additional available sources of information to evaluate the population estimates obtained from MAIs. Mandatory hunter reporting, as was implemented in Ontario in 2019, is improving the quality of the data collected from hunters on hunting effort and animal observations. While not a replacement for rigorously conducted MAIs, observational data, such as the number of moose seen per hunter day, can provide useful indices of the trend in the moose population over time. It is even more valuable because these data are collected annually as opposed to the three- to five-year interval between MAIs. Moose seen per hunter day are not currently explicitly considered when evaluating moose population trends, despite the fact that doing so would be in line with the MNRF's own stated moose policy. Section 4.0 (Assessing Moose Population Objectives) of the 2009 *Moose Population Objective Setting Guidelines* states that "Where possible, more than one method should be used to evaluate the population status to independently confirm results or trends. Harvest and sightings information may be used to enhance or confirm other population information results." While the switch from voluntary to mandatory reporting will require further analyses to quantify the relationship between hunter observational data and MAI results, formally incorporating these data into moose management will result in a more robust system. It will also demonstrate to hunters that the information they are now required to submit contributes to effective wildlife management and is not simply a bureaucratic exercise.

- **Recommendation:** Formally incorporate hunter observational data (i.e., moose seen per hunter day) into moose management as a method for evaluating the results of MAIs.

Scale

The OFAH’s position is that the WMU is the appropriate scale for moose management, especially the allocation of sustainable hunting opportunities. At the same time, we recognize the value in considering some aspects of moose management over broader, more ecologically relevant scales. However, we are concerned about the increased use by the MNRF of Wildlife Landscape Zones (WLZ) for moose management, especially the practice of flying combined MAIs over multiple WMUs within a WLZ. Our specific concern is that the MNRF has not demonstrated that WLZs represent an ecologically-relevant scale on which to manage moose. WLZs define an intermediate-scale between the fine-scale WMUs and the broader-scale Cervid Ecological Zones (CEZ) defined in the 2009 *Cervid Ecological Framework*. Unlike WMUs and CEZs, the boundaries of WLZs have not been consulted on and the scientific evidence to justify their boundaries has not been presented. The current WLZ boundaries were presented in the 2016 discussion paper *Building a Wildlife Management Strategy for Ontario* in which they were clearly identified as a “possible configuration.” Given that this “possible configuration” appears to now be accepted and used in moose management, we have significant concerns that these represent units of convenience, rather than an ecologically-relevant scale to conduct moose management.

- **Recommendation:** Prior to further use of WLZs for moose management, finalize and consult on them and their application to moose management through the Environmental Registry of Ontario, ensuring transparent, science-based management.

Multi-species complexity

The OFAH believes that moose management is most effective when the whole system is considered, rather than focusing largely on a single aspect, such as licensed hunter harvest. Harvest (both licensed and rights-based) undeniably plays a role in moose population dynamics, but so does habitat, predation, forestry practices, disease, parasites, climate, and more, with the relative impacts of these different factors likely varying across the province. In order to support a “whole-system” management approach for moose, the MNRF should explore the feasibility of collecting observational data of other species while conducting MAIs.

We recognize that MAI stratification is specific to moose and would likely preclude the calculation of population estimates for other species. However, if observations of non-moose species are recorded in a consistent manner it may be feasible to calculate indices of abundance, which could prove useful as a supplement to the hunter reporting data.

- **Recommendation:** While moose must remain the focus of MAI, we ask that the MNRF explore the potential for gaining reliable inference on the abundance of other species, such as white-tailed deer, caribou, coyotes, and wolves during the MAI in support of a whole-system management approach.

Climate change and MAI dependency on snow conditions

MAIs rely on very specific snow conditions to reliably detect moose when present and produce accurate estimates of moose population size. In the past, these snow conditions have consistently existed and, in instances where snow conditions in a WMU were not suitable, it was possible to shift survey resources (staff and helicopters) to a nearby alternate WMU. Unfortunately, in 2021 there was an almost complete lack of suitable snow conditions across Northern Ontario. As a result, twelve out of the planned seventeen units were not surveyed. The MNRF was able to shift resources to fly WMU 28, which was the planned alternate unit. As a result, WMUs 28, 46, 47, 49, 53, and 56 were flown, while WMUs 11A, 11B, 11C, 12, 14, 17, 18A, 19, 20, 21A, 24, and 27 were not. In addition to increasing the time since these units last had a population estimate (see our concerns about MAI intervals described above), this will also cause disruption in future years as survey plans must be shifted to account for these units not being surveyed as planned. Our fear is that with increased unpredictability in winter weather patterns due to climate change, the scenario that occurred in 2021 may become common.

- **Recommendation:** That the MNRF actively investigate survey methods that would make MAIs less dependent to snow conditions and/or alternate methods that could be used in years of insufficient snow cover. These methods must meet or exceed the current standards of precision around moose population estimates and produce estimates that are directly comparable to estimates obtained using the current methods so population trends over time can still be inferred.

Conclusion

Thank you for taking the time to consider our recommendations for ensuring that moose aerial inventories continue to support sustainable moose management in Ontario.

Yours in Conservation,

A handwritten signature in black ink that reads "Matt DeMille". The signature is written in a cursive, flowing style.

Matt DeMille
Manager, Fish and Wildlife Services

MD/jb

cc: OFAH Board of Directors
OFAH Big Game Advisory Committee
Angelo Lombardo, OFAH Executive Director
Mark Ryckman, OFAH Manager, Policy
OFAH Fish and Wildlife Policy Staff