

QuickNotes

Science Summaries from fRI Research

Where Are the Moose?

Arya Horon

Background

Natural and human-caused landscape change has implications for the amount and diversity of habitat available to moose. Understanding how moose habitat selection has recently changed and predicting where moose may be in the future are integral to designing forest harvest strategies that maintain ecologically healthy and resilient moose populations. For many Indigenous communities, moose are considered a cultural keystone species for their prominent role in ceremony, traditions, and relationship building.¹ Licensed moose hunting offers socioeconomic benefits for non-Indigenous peoples too.

While previous research has assessed habitat selection by moose in Alberta,^{2, 3, 4} it remains unclear whether models built using data from Alberta's north-east and west-central regions can be used to predict moose habitat selection in other parts of the province.

Objectives

We are using GPS collar data collected by previous research teams^{5, 6} to assess seasonal moose habitat selection and connectivity at multiple scales.

Phase 1: Habitat and Home Range Selection

- Make resource selection function models at home range and individual site scales for five seasons (spring, summer, fall, early winter, late winter) in the central mixedwood of north-east Alberta and the foothills of west-central Alberta.
- Determine whether seasonal models accurately predict moose habitat selection elsewhere in the mixedwood and foothills subregions.

Phase 2: Connectivity and Movement Modelling

- Create step selection function and dynamic Brownian bridge movement models for the same seasons and subregions to assess fine-scale habitat selection and identify core movement corridors



fRI Research

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<https://friresearch.ca/project/moose-research-initiative>

Across both phases, we plan to build relationships with local Indigenous communities to support the inclusion of Indigenous knowledge and understanding of moose habitat selection in our models.

Progress To Date

As of March 2025, we have fit seasonal site selection resource selection function models for the central mixedwood subregion and created predictive maps based on the models. Our goal is to complete phase one by the end of 2025 and begin phase two in January 2026.



Citations

- 1 Yarchuk K, Northrup J, Menzies A, Perron N, Kemp C, Noganosh S, Popp J. 2024. Co-creating Ethical Space in wildlife conservation: a case study of moose (*Moose; Alces alces*) research and monitoring in the Robinson Huron Treaty region (Ontario, Canada). *FACETS*. 9:1–14. doi:10.1139/facets-2023-0112.
- 2 Osko TJ, Hiltz MN, Hudson RJ, Wasel SM. 2004. Moose Habitat Preferences in Response to Changing Availability. *The Journal of Wildlife Management*. 68(3):576–584. doi:10.2193/0022-541X(2004)068[0576:MHPIRT]2.0.CO;2.
- 3 DeMars C, Serrouya R, Mumma M, Gillingham M, McNay R, Boutin S. 2019. Moose, caribou, and fire: have we got it right yet? *Canadian Journal of Zoology*. 97(10):866–879. doi:10.1139/cjz-2018-0319.
- 4 Finnegan L, Hebblewhite M, Pigeon KE. 2023. Whose line is it anyway? Moose (*Alces alces*) response to linear features. *Ecosphere*. 14(8):e4636. doi:10.1002/ecs2.4636.
- 5 Peters W, Hebblewhite M, DeCesare N, Cagnacci F, Musiani M. 2013. Resource separation analysis with moose indicates threats to caribou in human altered landscapes. *Ecography*. 36(4):487–498. doi:10.1111/j.1600-0587.2012.07733.x.
- 6 Bohm H, Neilson E, de la Mare C, Boutin S. 2014. Wildlife habitat effectiveness and connectivity: Moose ecology project summary report 2010-2012: Final report.

