

# CARIBOU CALCULATIONS: MODELLING UNCERTAINTY FOR DECISIVE ACTION



BOREAL CARIBOU ARE FOUND ACROSS THE CANADIAN BOREAL REGION IN HABITATS WITH VARYING AMOUNTS OF HUMAN DISTURBANCE. THE LEVEL OF UNCERTAINTY ASSOCIATED WITH CARIBOU POPULATION ESTIMATES VARIES ACROSS THESE DISTURBANCE LEVELS.

Caribou populations in highly disturbed areas are consistently unstable or in decline without intervention measures such as maternal penning or predator control.

Typically, population data from high disturbance areas is highly certain. But, in areas with low disturbance, we need **demographic data** to reduce uncertainty about local caribou population statuses.

Monitoring Effort

Financial Inputs

Monitoring efforts and resources are often concentrated in disturbed areas.

**High Disturbance = High Data Certainty**

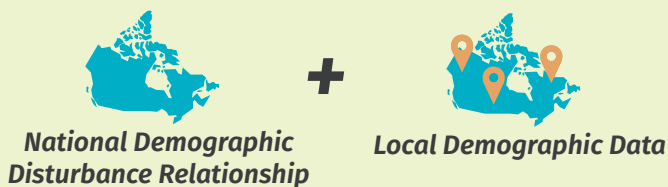
Identifying uncertainty in the data is particularly important in low-disturbance habitats where there are plans or potential for future disturbance.

Ultimately, the goals are to reduce the risk that a lack of information will delay conservation action and to help local decision-makers to decide how to allocate limited resources for monitoring and conservation.

**Low Disturbance = Low Data Certainty**

## THE MODEL

Researchers are developing statistical models that use **habitat disturbance levels and available demographic data** to estimate uncertainty in population viability projections. The models account for uncertainties in local data and in demographic-disturbance relationships.



The models will help resource managers combine local demographic and disturbance data with the national demographic and disturbance relationship to assess caribou population trends.

## APPLICATIONS

- Focus monitoring efforts on regions where more data is needed.
- Provide a tool to help conservation partners analyze monitoring scenarios.
- Update and improve caribou population trend estimates over time as information becomes available.



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TO LEARN MORE ABOUT THE CARIBOU  
DEMOGRAPHICS MODEL ON THE CCLM VISIT,  
[WWW.CCLMPORTAL.CA](http://WWW.CCLMPORTAL.CA)

### References:

Hughes et al. (2025) Intergration of national demographic-disturbance relationships and local data can improve caribou population viability projections and inform monitoring decisions