NBCKC Monitoring Practices for Boreal Caribou

AERIAL SURVEYS
AERIAL OCCUPANCY

HOW DOES IT WORK?

- Study areas are systematically flown over with an aircraft, and observers collect "presence/absence" or "presence/not detected" data based on caribou or their tracks. Following collection in field, data are analyzed using occupancy models.
- Winter sampling allows observers to make use of tracks in the snow and provides good contrast against dark fur, which helps in detecting animals.

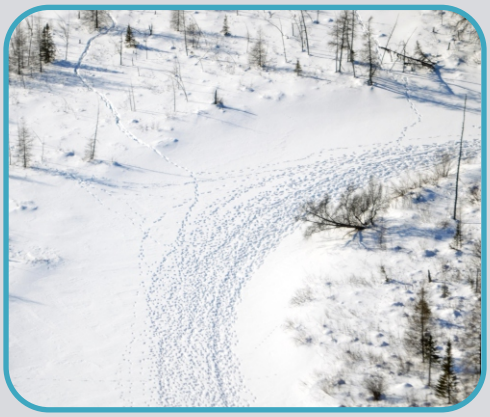

Photo credit: Gerry Racey

WHAT CAN BE MEASURED?

- Occupancy of the landscape as well as habitat use are often determined from aerial occupancy studies.
- Aerial occupancy studies can be combined with animal location data (from telemetry studies) to estimate errors in detection rates and improve precision occupancy estimates.

WHAT (AND WHO) IS REQUIRED?

- Costs include aircraft fees, aircraft fuel, and deployment to remote locations.
- Observers should be trained in animal and sign detection from an aircraft. If telemetry relocation is used, navigators should also be trained in telemetry.
- Local community members can inform fieldwork by observing where caribou are throughout the year, informing the area to be surveyed. Local community members can also participate in the survey.

WHEN CAN IT BE USED?

Use: Aerial occupancy surveys are best suited for broad-scale studies. Survey results are most accurate when conducted under fair weather, bright sunshine near midday, and shortly after fresh snow.

Avoid: Aerial occupancy surveys are not appropriate for estimating caribou movement, abundance, recruitment, health, or survival.

Previous boreal caribou application: Annual winter distribution surveys for boreal caribou in northern Ontario provide data to estimate occupancy probability and infer changes in population distribution.

Photo credit: Laura Finnegan

KEY CONSIDERATIONS

- Method can be combined with telemetry studies or some other form of double sampling, to estimate errors in detection rates and improve precision of population estimates. In the absence of collared animals, distance sampling methods may be used.
- Multiple surveys through time are required at each study site to collect enough data to create occupancy models
- Occupancy surveys require repeated visits to an area the caribou is likely to occupy. Potential stress from being flown over is minimized by following protocols.

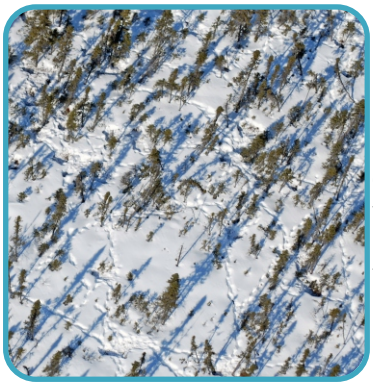

Photo credit: Gerry Racey

Cost:	Logistical Complexity:	Capture/Handling:
$$$	MODERATE	NO*

* unless telemetry is combined in program

For more information, including regional subtleties and method particularities, please refer to decision tree, detailed write-ups and suitability tables 1 and 2. The information contained in this factsheet is intended for rapid communication and summary purposes only.

Photo credit: Laura Finnegan