DEVELOPING A COMMUNITY-BASED WILDLIFE & GOOSE ECOLOGY MONITORING PROGRAM ON THE EEYOU ISTCHEE COAST

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CONTEXT

In coastal Eeyou Istchee (eastern James Bay), human- and climate-induced habitat changes, among other factors, has caused a decline in the number of migrating Canada geese, a cultural keystone species for the Eeyou. This prompted Eeyou organizations to collaborate with researchers to develop the Coastal Habitat Comprehensive Research Project[1] (CHCRP), a community-driven project to understand the underlying causes of recent changes in habitat and wildlife in the region[2-4]. The objective of the 2nd phase of this project, is to develop a program to monitor these ongoing changes and that can eventually be led by the coastal communities. The goals of the wildlife component of this project are to :
1) **better understand current Canada goose migration ecology** in coastal Eeyou Istchee and
2) **monitor changes in other wildlife** in the region.

OBJECTIVES

- Determine the habitats that are most important to Canada geese on the Eeyou Istchee coast
- Understand spatial patterns of species diversity in Eeyou Istchee
- Determine the impact of human disturbance on goose distribution and occurrence
- Develop a framework to monitor any future changes in these questions
- Train Eeyouch to use various wildlife monitoring tools

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METHODS

PASSIVE SAMPLING DEVICES

Trail cameras and acoustic recorders are deployed year-round along the coast and on islands to **monitor** the **timing of presence** and **spatial distribution** of bird and mammal species along the coast.

DATA FROM HARVESTERS

Geese harvested by Eeyouch are sexed, **measured** and weighed to **monitor** spatiotemporal variation in goose **spring body condition** along the coast and inland. DNA samples are collected on each measured bird.

DRONE SURVEYS

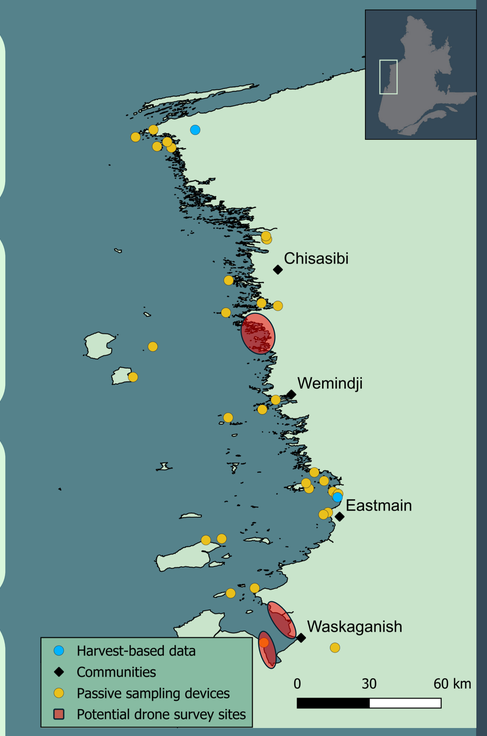
We will conduct **annual drone surveys** in specific estuaries and bays that are of importance to geese to monitor **relative change in the number of geese** migrating on the coast each year.

KNOWLEDGE EXCHANGE ACTIVITIES

Regular meetings with **knowledge holders (elders, hunters)** are held to understand the multiple changes that have occurred on the coast in the last 70 years and how wildlife species are using the coast today. These meetings serve as check-ins between Eeyouch and researchers on hunting success and satisfaction, general and specific wildlife or environmental observations and project updates. These range from smaller local semi-annual meetings to large biennal symposia.

PHONE APP

We are promoting the use of a phone application to collect any opportunistic Eeyou wildlife observations along the coast



Communities involved in the project and sampling locations

COMMUNITY-BASED SCIENCE 'IN A GOOD WAY'

Science done 'in a good way' is, as best as it can be, place- and culture-specific. Our team has sought to uphold this principle by maintaining strong, ongoing relationships with community partners through regular check-ins and in-person visits with individuals and organizations. Research objectives and methods are co-developed, and results are co-interpreted, with community members. Through this process, we aim to ground our research in place and ensure it carries meaning for the communities involved. We also believe our scientific conclusions will be stronger for it, reflecting the deep, place-based knowledge built by Eeyou through generations of close observation and relationships with the land.

EXPECTED OUTCOMES:

BUILD AN INTEGRATED GOOSE DISTRIBUTION MODEL

combining presence/absence data from passive devices, Eeyou knowledge on use of specific estuaries by geese, and satellite-derived + in-situ habitat characteristics. This framework will also identify areas and habitats of importance for those geese still migrating in coastal Eeyou Istchee.

EVALUATE SPATIAL & TEMPORAL CHANGES IN GOOSE NUMBERS, BEHAVIOR AND HEALTH

using data from drone surveys to determine trends in relative numbers of geese migrating on the coast, and spatially-explicit data on body condition to understand migratory route decisions.

BUILD CULTURALLY-MEANINGFUL DIVERSITY INDICES

based on discussions with Eeyouch and data obtained from passive devices. All species do not hold the same cultural importance across cultures, and we will explore how this affects the relevance of classical biodiversity indices for Eeyouch. Comparisons of spatio-temporal patterns of 'classical' vs. 'culturally-weighted' diversity indices could provide insights for local and regional stewardship of the land.

PROGRESS IN 2025:

- Deployed 28 pairs of cameras and recorders, active year-round
- Tested impact of drones on goose behavior in southern Québec, results are promising
- Met with >30 Eeyouch in 4 knowledge exchange activities
- Collected morphometric measurements on 248 harvested geese in 3 locations

NEXT STEPS:

- Deploy 20 more cameras & recorders
- Gather Eeyou knowledge on current use of the bay by Canada geese
- Characterize habitat at passive sampling sites
- Expand harvest-based measurements to more locations

References

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