

August 6, 2004

## Tracking climate change through Baffin's foxes

*Project focuses on animals on south-east end of Bylot Island*

JANE GEORGE

Researchers have discovered the value of foxes as early indicators of the impact of climate change in Nunavut.

Foxes can point to changes in the ecosystem because they live on both the tundra and sea ice, depending on the time of year, and rely on other animals, such as birds and seals, for their survival.

A team of Quebec researchers, students and field assistants from Pond Inlet are studying fox populations on the southeast end of Bylot Island, an area that lies within the boundaries of Sirmilik National Park, to better understand what is happening to the ecosystem there.

The total fox population on this part of Bylot Island is small, about 110 animals - numbering far fewer than the 60,000 or so greater snow geese that breed and nest on its wetlands every year.

"On Bylot Island, what's most spectacular are the greater snow geese, but three years ago I started studying foxes because they have a very strong connection with the geese: they eat their eggs and chicks, and this has an impact on their reproduction," says Dominique Berteaux, a biologist from the Université du Québec in Rimouski, Quebec.

Both Arctic and red foxes live in Qarlikturvik valley, and this directed Berteaux towards two topics of study: the fox predation on the snow geese and the relationship between the Arctic and red foxes.

According to Berteaux, the relation between arctic foxes and red foxes is particularly interesting because it's a good indicator of changes that an Arctic wildlife community might undergo due to climate change.

"The arctic fox is better adapted for colder climates, but if the temperatures rise, the red fox takes over. In Scandinavia, we see that where there are red foxes, the arctic foxes disappear," Berteaux says.

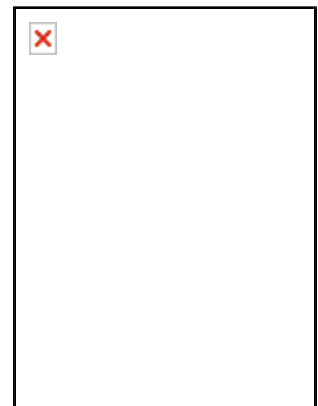
Red foxes arrived on Baffin Island around 50 years ago and have spread north. About one out of 10 foxes on Bylot Island is now a red fox.

"Of all the red fox populations, these are the ones which are the most northerly. It's their extreme northern limit," Berteaux says.

Berteaux's research project will show where the red fox has spread, produce a map of where red and arctic foxes live on the southeast end of Bylot Island, set up a monitoring system for the animals, and show how much impact fox predation has on greater snow geese of Bylot.



[CLICK PHOTO TO ENLARGE](#)  
Arctic foxes like this one may become less numerous if Bylot Island's climate warms. (PHOTOS BY DOMINIQUE BERTEAUX)



"Last year, we looked at where the foxes were living - you might say, how many houses there are. This year, we wanted to see who was living there," Berteaux says.

[CLICK PHOTO TO ENLARGE](#)  
A student holds an arctic fox that's been tagged so researchers can track its movements from year to year.

---

With the assistance of wildlife biologist Serge Larivière, graduate students and local field assistants, Aaron Pitseolak and Ernest Merkosak, foxes were caught with soft leg traps, then marked with tags and released.

The tags are of various colours and numbers so that the foxes can be followed next year and counted long-distance, using binoculars.

Only Arctic foxes were tagged, although next year, red foxes will be captured and tagged.

This year, the team also located 15 dens that housed from five to eight pups per den.

"It was a very big year for reproduction," Berteaux says.

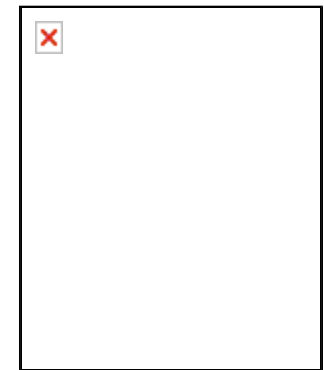
The number of young generally fluctuates according to the number of lemmings.

"When there aren't many lemmings, even when there are a lot of geese, it isn't easy for them," Berteaux says.

Many snowy owls and nests with young were also spotted.

Any change in the numbers of predators, such as snowy owls or foxes, is a good indicator of change in the environment.

"We're interested in how things change. This could happen quickly, or not at all. We just don't know yet," Berteaux says.



[CLICK PHOTO TO ENLARGE](#)  
Biologist Dominique Berteaux works with a shovel to make a trap for a fox.

---

The Sirmilik National Park management is also following this research project with interest because part of its mission is to conserve and understand the park's "ecological integrity."

A traditional knowledge study is also planned to gather information from residents of Pond Inlet who are keen observers of foxes or, in the past, trapped foxes for sale or trade.

The Nunavut Wildlife Management Board supports the research activities as well because they will help in the management and harvest of geese and foxes on Baffin Island.

Quebec also funds researchers' field work on southeast Bylot Island.

"That's because the snow geese are in Quebec during the spring, so our study also has consequences also for the South," Berteaux says.

In addition to the annual observations on greater snow geese and foxes, two other Quebec-based researchers are studying the vegetation of the region.

"We want to understand the entire ecosystem, with the involvement of many individuals. I wouldn't have

wanted to do this alone," Berteaux says. "It would have been too hard, with respect to the logistics and the science. "

To learn more about the ongoing ecological studies and environmental monitoring on Bylot Island, consult the trilingual (English-Inuktitut-French) Web site at: [www.cen.ulaval.ca/bylot/](http://www.cen.ulaval.ca/bylot/)

[TOP](#)