

## Snow-goose paradise

*Researchers expect 600,000 greater snow geese in the High Arctic*

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Thousands of greater snow geese will be laying eggs on Bylot Island tomorrow in an annual exercise that attracts researchers tracking the phenomenal growth of this bird population.

Their project started in 1988 as a collaboration between the northern studies centre, Centre d'études nordiques at Université Laval, and the Canadian Wildlife Service. Fifteen years later, it's the most intensive scientific investigation ever conducted on Bylot Island and one of the largest and longest ecological studies in Nunavut.

The effort to reduce the numbers is also a conservation success story, says Gilles Gauthier from Université Laval in Quebec City.

Gauthier spends part of his summer, along with students and field assistants from Pond Inlet, in a base camp located in a large glacial valley at the southwest end of Bylot Island.

The wetlands of the Qarlikturvik valley are home to one of the world's largest breeding colonies of greater snow geese.

Considered an important site for many migratory birds, Bylot Island was declared a migratory bird sanctuary in 1965. Established in 2001, Sirmilik National Park encompasses most of Bylot Island, except for a few pockets that are Inuit-owned lands.

Austin Reed, a retired biologist with the Canadian Wildlife Service who now sits on the Sirmilik National Park Joint Management Board, first came to Bylot because the enormous growth of the greater snow geese population was a "subject of considerable concern."

Millions of lesser snow geese, a related bird population, had already devastated many western Hudson Bay areas.

At the beginning of the 1900s, greater snow geese nesting in the High Arctic numbered about 6,000, but, by the 1990s, there were as many as 900,000, and the population was doubling every eight or nine years.

The numbers of geese rose when Canada limited hunting to the autumn, and the U.S. cut it out entirely until 1975.

Between 1983 and 1993, the numbers of geese on Bylot Island increased from 16,600 to 55,000 birds.

"With this increase in the population, the vegetation on Bylot was more vulnerable," Reed says. "We could be getting to a point where there would be serious damage to the Arctic tundra because of the abundance of geese."

The numbers of greater snow geese also increased because they found new feeding areas in the South.

"At about that time they started running out of food in the marshes. In their search to find more food, they moved into agriculture land. That's what has really triggered this huge increase, because they were so well fed," Reed said.

In 1999, at the recommendation of biologists, hunting seasons were expanded, so Canadian hunters would shoot geese in the autumn and in the spring and the U.S. hunters would resume hunting geese in the winter. This combined hunt has taken up to 250,000 a year, reducing the population significantly.

In some years, 1.3 million birds return from the North.

Last year, the numbers of greater snow geese stabilized at 600,000, a number Reed and other biologists say Bylot Island can support.

Greater snow geese leave the Arctic at the end of August and migrate south through central Quebec where they stay from six to eight weeks in tidal marshes along the St. Lawrence River.

From there, a 900-km non-stop flight south brings them to their wintering grounds in the U.S. mid-Atlantic states. The birds depart from their wintering grounds in late March, arriving in their breeding grounds by early June.

During the nesting period in June and early July, the geese that breed on Bylot are concentrated a few kilometres north of Dufour Point near the coast.

In this colony, the density of nests is high, averaging over 400 nests per square kilometer.

After hatching, many families spread out throughout the island, concentrating in the wetlands.

Every year, researchers check the date at which birds start laying their eggs and the date that eggs hatch, the density of nests and the number of eggs per nest, and finally their nesting success. Nests are considered successful if at least one egg hatches.

The follow-up continues during the summer when birds move to the brood-rearing area. The most important research activity during this period is the capture and banding of large numbers of goose families in late summer in order to track their annual migrations.

To monitor the number and distribution of geese on Bylot Island, the Laval team has been conducting aerial surveys during the brood-rearing season at five-year intervals since 1983.

Every August since 1990, the team has caught several thousands of birds in nets over a few days, marking all birds with a small metal leg band and many adult females with plastic neck-collars, to note where the birds travel.

Researchers are also studying Arctic foxes, lemmings, snowy owls and vegetation.

Climate change may be also be a factor in the increasing number of geese, particularly because the average annual temperature has risen two degrees Celsius on Bylot Island over the past 27 years.

To provide updates on the growing amount of information from the Bylot Island project, there's now a Web site on ecological studies and environmental monitoring on Bylot Island, at: [www.cen.ulaval.ca/bylot/](http://www.cen.ulaval.ca/bylot/).

This site is in English and French, and by the end of the summer, will also have an Inuktitut version.