

# POPULATION STUDY OF GREATER SNOW GEESE AND ITS NESTING HABITAT ON BYLOT ISLAND, NUNAVUT IN 2025: A PROGRESS REPORT



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**19 December 2025**

## INTRODUCTION

Like many other goose populations worldwide, Greater Snow Geese (*Anser caerulescens atlanticus*) have increased considerably during the late 20<sup>th</sup> century. The exploding population has imposed major stress on its breeding habitat, while extensive use of agriculture lands provides an unlimited source of food during winter and migratory stopovers for them. Remedial management actions during fall, winter and spring have been undertaken since 1999 in Canada and 2009 in the United States to curb the growth of this population. A synthesis report produced in 2007 evaluated the initial success of these special conservation measures. However, both the Avian Monitoring Review Steering Committee Final Report and the Greater Snow Goose Action Plan released in 2012 by the Canadian Wildlife Service called for a continued monitoring of the dynamic of this population and of its habitats. In response to those needs, the long-term objectives of this project are to (1) monitor changes in the demographic parameters of the Greater Snow Goose population, and especially the effects of the spring conservation harvest on those parameters, (2) determine the role of food availability and predation in limiting annual production of geese, and (3) monitor the impact of grazing on the Arctic vegetation.

## OBJECTIVES

Specific goals for 2025 were as follows:

- 1) Monitor the productivity (egg laying date, clutch size and nesting success) and nesting distribution of Greater Snow Geese on Bylot Island.
- 2) Mark goslings in the nest to provide a sample of known-age individuals to assess the growth and pre-fledging survival of goslings by their recapture in late summer.
- 3) Band goslings and adults at the end of the summer to continue the long-term study of demographic parameters such as survival and breeding propensity.
- 4) Monitor the abundance of lemmings and study their demography in relationship with snow conditions and the impact of predation on their cyclic fluctuations of abundance.
- 5) Monitor wintering ecology of lemmings and ermines with passive sensors and cameras.
- 6) Monitor the breeding activity of other bird species and in particular avian predators (Snowy Owl, jaegers, Glaucous Gull, Peregrine Falcon and Rough-legged Hawk).
- 7) Monitor the breeding activity of foxes at dens.
- 8) Capture and mark adult foxes and their pups to study their movements, demography and foraging activity.
- 9) Sample plants in exclosures to assess annual production and the impact of goose grazing on plant abundance in wet meadows.
- 10) Maintain our automated environmental and weather monitoring system.

## FIELD ACTIVITIES

**Field camps.** — In 2025, we operated two camps on Bylot Island: the main field station, located 6 km from the coast in the largest glacial valley on the island (Qarlikturvik Valley, 73° 08' N, 80° 00' W), was occupied from 2 June to 21 August. A secondary camp, located in a narrow valley 30 km south of the main field station and 5 km from the coast (“Camp 2 area”, 72° 53' N, 79° 54' W) was occupied from 22 May to 20 July (Fig. 1). Finally, 12 fly camps were also established for periods ranging from 5 to 9 days at various times throughout the island, west of Dufour Point.

**Field parties.** — The total number of people in camp ranged from 4 to 15 depending on the period. Members of our field party included project leaders Pierre Legagneux, Joël Bêty, Dominique Fauteux, Dominique Berteaux and several graduate students whose thesis projects addressed many of the objectives mentioned above: Gabriel Bergeron (PhD, objective 5), Camille Gaudreau-Rousseau (PhD, objective 4), David Bolduc (PhD, objective 5), Pierre Fugère (MSc, objectives 1, 2 and 3), Laurianne Dumont (MSc, objectives 7 and 8), Véronique Dion-Larivière (MSc, objectives 7 and 8). Other students assisted them in the field, including Matthieu Weiss-Blais, Anne-Marie-Blanchette, Andréanne Beardsell, Alexia Labelle and Alice Thibault. Other people in the field included Marie-Christine Cadieux, a research professional in charge of goose banding and plant sampling (objectives 3 and 9); Denis Sarrazin, research professional responsible of the maintenance of the weather stations (objective 10); Benoit Audet and Scott Gilliland, biologists from the Canadian Wildlife Service (CWS, Quebec region); and Aude Lalis (researcher at the Muséum National d'Histoire Naturelle, France) and Sophie Proudfoot (wildlife technician) who assisted in the fox project. We hired 2 persons from Pond Inlet to work with us: Sylvia Pewatoalook (marking goslings in nests: 4 to 15 July and goose banding: 5 to 14 August) and James Akpaleeapik (goose banding: 3 to 14 August). Finally, Benoit Livernoche and Émilie Vallière, two journalists from Radio-Canada visited both our camps from 29 June to 11 July to document the work of scientists monitoring the Bylot Island ecosystem. This documentary will be presented on La Semaine Verte in early 2026 and to the Pond Inlet community in March or June 2026.

Several other people also used our camps during the summer. They were Éliane Duchesne (research assistant), Éléonore Douville (MSc student), Cléopée Dumas-Boisvert, Joassie Otoovak (Pond Inlet field assistant), Jonathan Brassard (research assistant at Université de Sherbrooke) and Dominique Gravel (researcher at Université de Sherbrooke), who studied shorebirds, lapland longspurs and cackling geese under the supervision of Joël Bêty; the field party of Esther Lévesque, Christophe Kinnard and Vincent Maire (Université du Québec à Trois-Rivières [UQTR]), which included Laurent Lessard (research assistant) and Alyson Rochefort who studied plant ecology and hydrology; the field party of Isabelle Laurion and Jérôme Comte (Institut National de la Recherche Scientifique), which included Valentine Cyriaque (post-doctoral fellow), Riley Hughes (PhD student) and Ida Roos Friis (PhD student at University of Copenhagen), who studied the carbon cycle in ponds; the field party of Florent Dominé (Takuvik, Université Laval/CNRS) with Étienne Tremblay (MSc student), Antoine Thibault (research assistant), Daniel Nadeau (researcher at Université Laval) and Matthieu Riva (researcher at Université Claude-Bernard Lyon 1, France) who studied the snow physical properties.

Other people from Pond Inlet also visited the camp for a knowledge sharing day: Phanael Enoogak (MHTO), Sherry Parks, Michael Milton (Ikaarvik Youth Research Organization), Elijah Panipakoocho and Katherina Lucy Pudluk (Sirmilik Joint Park Management Committee) and Moses Koonark (Sirmilik Inuit Knowledge Working Group member). They were accompanied by Ena Maktar, Lynn Smale, Hannah Panipakoocho and Hower Blair from Parks Canada. Hower Blair and Lynn Smale also inspected both our camps in June and at the end of August.

**Environmental and weather data.** — Environmental and weather data continued to be recorded at our four automated stations. Our network includes 3 full stations, two at low and one at high elevation (20 m and 312 m ASL, respectively) where air and ground temperature, air humidity, precipitations, snow depth, solar radiation, wind speed and wind direction are recorded on an hourly basis throughout the year (Fig. 1). A fourth station measures soil surface temperature in areas grazed and ungrazed by geese (i.e. exclosures). All automated stations were visited during the summer to download data and were found to be operating normally. Daily precipitation was also recorded manually during the summer. Finally, early snowmelt was monitored by measuring snow depth at 50 stations along two 250-m transects and by visually estimating snow cover in the Qarlikturvik Valley, both at 2-day intervals.

**Monitoring of goose arrival and nesting.** — We monitored goose arrival in the Qarlikturvik Valley by counting goose pairs across the valley every two to three days from our arrival on the island until the end of snowmelt. Nest searches were carried out within walking distance (~6 km) of both the main field station and the Camp 2 mostly between 11 and 25 June. Nests were found by systematic searches conducted over various areas in the field. At Camp 2, where the main goose colony is located, nest searches were conducted using two methods: 1) over an intensively studied core area (ca 50 ha) located in the centre of the colony every year, and 2) within a variable number of 1 and 4-ha plots randomly located throughout the colony. Nest density was calculated over a fixed 20-ha area within the intensively studied core area. We also attempted to find the nests of as many neck-collared females as possible through intensive searches on foot throughout the nesting colony. All nests were revisited at least twice to determine laying date, clutch size, hatching date and nesting success. During the hatching period, we visited a sample of nests almost daily to record hatch dates and to web-tag goslings. Nests of other goose species, and in particular Cackling Geese (*Branta hutchensii*), were also systematically recorded during our field activities throughout Bylot Island and a sample of goslings were also marked with a web-tag.

**Goose banding.** — From 6 to 14 August, we banded snow geese with the assistance of a helicopter. Goose flocks of a few hundred birds were rounded up and driven by people on foot into a holding pen made of plastic netting. All captured geese were sexed and banded with a metal band, and all recaptures (web-tagged or leg-banded birds) were recorded. A sample of young and adults was measured (body mass and length of culmen, head, tarsus and 9<sup>th</sup> primary). We also collected blood samples on snow geese to study their aging process. We also searched for molting cackling geese on August 14 to assess the potential for captures and set up the operations. Most of the cackling geese we observed were near Camp 2, but some of them were already able to fly.

**Small mammals.** — We sampled lemming abundance and demography using live traps. We trapped on two grids (330 × 330 m) in the Qarlikturvik Valley (one in wet meadow habitat and one in mesic habitat) with 144 traps per grid and on a 3<sup>rd</sup> grid (200 × 340 m; 96 traps) in mesic habitat where a predator exclosure experiment was set up in 2012-2013 (the grid is surrounded by

a chicken wire fence and covered by criss-crossing fishing line on top). The fishing line covering the grid to prevent avian predators to enter inside the enclosure was removed in summer 2022 but the fence remained in place. We used Longworth traps set at each grid intersection every 30-m. We trapped for 3 consecutive days during 3 periods (mid-June, mid-July and mid-August). Traps were checked at 12-hour intervals, and all captured animals were identified, sexed, weighed and marked with electronic PIT tags or ear-tags (or checked for the presence of such tags). Finally, we sampled the abundance of lemming winter nests along 146 500-m transects randomly distributed in different habitats (mesic tundra, streams in mesic tundra and willow shrubs) between the main field station and Dufour Point.

**Breeding activity of foxes at dens and marking.** — All known fox dens are located within a 600 km<sup>2</sup> area ranging from the Qarlikturvik Valley in the north to Dufour Point in the south and from the coast to approximately 10 km inland. Dens were visited one to five times during the summer and inspected for signs of use and/or presence of reproductive adults with pups. Automated cameras were deployed at dens showing signs of activity to determine reproductive status of dens. It also provides excellent data on litter size, diet and food provisioning by parents. We attempted to live-trap adults with cages and padded leghold traps at locations where foxes were seen hunting or travelling. At each den, we noted the species (Arctic Fox, *Vulpes lagopus*, or Red Fox, *Vulpes vulpes*), the presence of previously marked adults, and monitored for the presence of pups to determine minimum litter size. Cages and leghold traps were visited at least every 6 hours. Captured foxes were measured, weighed and tagged on both ears using a unique set of coloured and numbered plastic tags. Samples of winter and summer fur and claws were also collected for genetic and diet analyses.

**Monitoring of other bird species.** — We monitored the nesting activity of Snowy Owls (*Bubo scandiacus*), Long-tailed and Parasitic Jaegers (*Stercorarius longicaudus* and *S. parasiticus*), Glaucous Gulls (*Larus hyperboreus*), Peregrine Falcons (*Falco peregrinus*), Rough-legged Hawks (*Buteo lagopus*) and Lapland Longspurs (*Calcarius lapponicus*). Gull and Long-tailed jaeger nests were only monitored in the Qarlikturvik Valley and the Camp-2 area, but nests of other avian predators were monitored throughout the same 650 km<sup>2</sup> area than for foxes. Nests were found through systematic searches of suitable habitats or opportunistically and revisited to determine their fate (successful or not) until fledging.

**Monitoring of plant growth and goose grazing.** — The annual plant production and the impact of goose grazing was evaluated in wet meadows dominated by graminoid plants at 2 sites (Fig. 1): the Qarlikturvik Valley (brood-rearing areas), and the Camp 2 area (nesting colony). At each site, 12 exclosures (1 × 1 m) were installed in late June in two groups of 6 in the same general area every year. At Camp 2, one of the groups of 6 exclosures was moved about 200 m in 2011 due to the natural drainage of some wetlands. Plant biomass was sampled in ungrazed and grazed areas (i.e. inside and outside exclosures) at the end of the plant-growing season on 14 August. Plants were sorted into sedges (*Eriophorum scheuchzeri* and *Carex aquatilis*) and grasses (*Dupontia fisheri*), dried and weighed. Use of the area by geese was monitored by counting faeces on 1 × 10 m transects located near each exclosure every 2 weeks in the Qarlikturvik Valley and once at the end of the season at the Camp 2 area.

## PRELIMINARY RESULTS

**Weather conditions.** — Temperatures in spring were warm. Air temperature averaged  $-0.6^{\circ}\text{C}$  ( $1.9^{\circ}\text{C}$  above normal) between 20 May and 5 June, the period of goose arrival, and  $1.9^{\circ}\text{C}$  ( $0.5^{\circ}\text{C}$  below normal) during 5-20 June, which is the most critical period for egg formation and egg-laying (Fig. 2A). Snowpack at the end of the winter was lower than normal (snow depth was 25.2 cm on 18 May; Fig. 2B). Temperature throughout most of the summer were cool and the sky mainly clear and sunny. Rainfall was well below average and concentrated mostly in July (cumulative rainfall from 2 June to 17 August: 46 mm, long-term average: 73 mm).

**Goose arrival and nesting activity.** — The first snow geese were detected on the hills surrounding the Qarlikturvik Valley, usually the first area used by geese after arrival, around 3 June. This number increased to peak at 322 pairs on 5 June, a moderate number (Fig. 3). The subsequent decline in goose numbers was due to the movements of geese to the nesting colony and potentially to moulting sites, away from the Qarlikturvik Valley.

Nest density in the center of the colony (8.4 nests/ha) and outside the colony (3.9 nests/ha) were higher than the long-term average (Table 1). Egg-laying date in the colony (median: 9 June) was 3 days earlier than the long-term average. Average clutch size was 3.5 (long-term average: 3.7; Table 1).

Across the island, we also found 119 nests of Cackling Geese compared to 100 in 2023 (Table 1). Average clutch size was 3.7 eggs.

**Nesting success of geese.** — Overall, nesting success of snow geese was high (78%; proportion of nests hatching at least one egg) and above to the long-term average (Table 1). This was surprising considering the high activity of Arctic Foxes and avian predators around goose nests, which destroyed less nests than in years with low-lemming abundance. During the summer, 10 neck-collared birds were sighted in the colony. Peak hatch was on 5 July, which is 4 days earlier than the long-term average (Table 1). We tagged 2616 goslings in nests at hatch in the Camp 2 area. Overall, nesting parameters of snow geese in 2025 were good. Overall nesting success of Cackling Geese was also high (72%). We tagged 105 goslings in nests at hatch: 4 in the Qarlikturvik Valley and 101 in the Camp 2 area.

**Density of broods.** — The density of goose faeces at the end of the summer in wet meadows of the Qarlikturvik Valley was moderate ( $6.0 \pm 0.6$  [SE] faeces/m<sup>2</sup>; long-term average: 6.4; Fig. 4). Accumulation of faeces began in mid-July, when newly hatched broods started to move in the valley and increased steadily thereafter until mid-August. Faeces density at the end of the summer was slightly below average in the wet meadows of the nesting colony at Camp 2 (3.6 faeces/m<sup>2</sup>; long-term average: 4.1).

**Goose banding.** — The banding operation was difficult again this year due to bad weather during the banding period. We conducted 11 drives between the main field station and the Camp 2 area. We banded a total of 3228 geese, including 79 young that had been marked with web-tags at hatch. In addition, we recaptured 187 adults that were banded in previous years. We collected blood samples from 50 goslings and 133 adults. The young:adult ratio among geese captured at banding was lower than last year (1.02:1 vs. 1.08:1 in 2024; long-term average:1.02:1). Mean

brood size toward the end of brood-rearing (2.49 young,  $n = 25$ ; counts conducted on 29 July) was lower than last year (2.72) and equal to the long-term average (2.49). By combining information on brood size and young:adult ratio at banding, we estimated that 82% of the adults captured were accompanied by young, a moderate value. Overall, these results are indicative of a good production of young on Bylot Island by the end of the summer.

**Small mammals.** — During our live-trapping survey, which cumulated 6,768 12-hr trapping sessions throughout the summer, we captured 6 Collared Lemmings and 21 Brown Lemmings, a low number. A formal estimation of density using capture-recapture methods confirmed that after a peak in their abundance in 2024, both Brown and Collared Lemmings had decreased in 2025 (Fig. 5). Finally, the number of lemming winter nests found along our transects seems to indicate that the decrease in lemmings occurred in early spring as we counted 201 nests in 2025 compared to 110 in 2024.

**Breeding activity of foxes at dens and marking.** — A total of 115 known fox denning sites were monitored in 2025. Among these dens, we found signs of activity (fresh digging and/or footprints) at 106 of them, a very high number. However, only 4 litters of Arctic Foxes (minimum litter size ranged from 5 to 9 pups) and 1 of Red Foxes (minimum litter size: 5 pups) were seen this year, which is typical of what can be observed in years of very low lemming abundance. A total of 27 adult Arctic Foxes were captured during the summer, including 9 individuals marked in previous years. All new individuals were marked with ear-tags and 16 of them with a GPS collar. One Arctic Fox marked in previous years was also sighted but not recaptured.

**Monitoring of other bird species.** — We found 21 active nests of Glaucous Gulls (vs. 3 in 2024), no nest of Parasitic Jaegers (vs. 1 in 2024), 1 nest of Long-tailed Jaegers (vs. 1 in 2024), 4 nests of Rough-legged Hawks (vs. 8 in 2024), 3 nests of Peregrine Falcons (vs. 3 in 2024) and no nest of Snowy Owls (vs. 10 in 2024). The low nesting activity of avian predators is typical of what we encountered in a year of low lemming abundance. We found 48 nests of Lapland Longspurs compared to 111 in 2023. Nesting success was good for gulls, hawks and falcons but unknown for jaegers. Fledging success (proportion of nests successful in fledging at least one young) was low for longspurs (33%).

**Plant growth and grazing impact.** — Plant production in wet meadows of the brood-rearing area was slightly above the long-term average and similar to the last few years. Above-ground biomass of graminoid plants in the Qarlikturvik Valley reached  $53.3 \pm 8.7$  [SE]  $\text{g/m}^2$  in ungrazed areas in mid-August compared to  $59.5 \pm 9.7$  in 2023 (long-term average since 1990:  $51.2 \text{ g/m}^2$ ; Fig. 6). Biomass of both *Eriophorum* and *Dupontia* was lower compared to last year. At the nesting colony (Camp 2 area), graminoid biomass was higher compared to our last sampling in 2022 ( $94.7$  vs  $80.5 \text{ g/m}^2$  in 2022; Fig. 7). Above-ground biomass of *Eriophorum* in the exclosures was higher than 2022 but biomass of *Dupontia* was similar compared to 2022.

Grazing pressure was high in the wet meadows of the Qarlikturvik Valley in 2025 as geese had removed 61% of the above-ground biomass (difference between paired grazed and ungrazed plots by mid-August (long-term average: 32%; Fig. 6). Grazing pressure was similar on both *Eriophorum* (63% of biomass removed) and *Dupontia* (59% of biomass removed). Grazing pressure at the Camp 2 area (nesting colony) was similar to the Qarlikturvik Valley (57% of the

graminoid biomass removed by geese) and higher than the long-term average (28%; Fig. 7). Geese removed 74% of the *Eriophorum* biomass and 37% of the *Dupontia* biomass at this site.

## CONCLUSIONS

All indicators of goose reproduction on Bylot Island were very high in 2025. Geese arrived early and in fairly large numbers on the island. The nesting effort (indexed by nest density in the colony) was very high, egg laying was early, but clutch size was relatively low. This early nesting was undoubtedly the consequence of a thin snowpack and warm temperatures early in the season, which resulted in one of the earliest snowmelts on record, comparable to 2019, our previous record. Because of these conditions, food availability was probably high during the pre-laying period, providing abundant nutrients for egg formation, and nesting sites became snow-free very early. Nesting success was also high, which was not expected in a year of low lemming abundance. Typically, nest predation rates, especially by foxes, are high in such years, but apparently this was not the case in 2025. The last lemming peak occurred in 2024 but was relatively low. This reduced availability of lemmings might have resulted in lower winter survival of foxes (especially juveniles), leading to low fox numbers in 2025 and, hence, low predation pressure on goose nests. As a result, the proportion of young in our banding catches was fairly high. This phenomenon of relatively high goose nesting success despite low lemming abundance was also observed in 2009, 2023, and 2025.

Based on the young-to-adult ratio observed during banding, we anticipated a fall flock with 21% young, close to the long-term average (22%). This percentage was accurate, as the proportion of young geese observed during juvenile counts in southern Quebec this fall was 20% ( $n = 19,891$ ). Similar accuracy was found in 2024, since we anticipated a fall flock with 23% young and observed 22%. Therefore, this suggests that the breeding conditions on Bylot Island this year were representative of the broader breeding range of the population. Since we obtained indirect information that lemmings were in relatively high abundance in Pond Inlet, the northern community located 80 km from Bylot Island, it is likely that predation was reduced at a large spatial scale in 2025.

The number of nesting Cackling Geese is increasing exponentially at our study area. The first nest was found in 1996, and numbers remained relatively low until 2014, when we implemented a systematic monitoring effort. In 2025, this number reached another record, with 119 nests found.

Above-ground graminoid production in wet meadows of the Qarlikturvik Valley, a prime brood-rearing area, was above average this year. Faeces counts revealed that brood density was near average in that area, but grazing impact on vegetation was high in both the colony and the rearing grounds, which is likely due to the high density of breeding geese recorded this year.

Overall, we found that breeding parameters fluctuate largely because of predation and environmental factors occurring on the breeding grounds. Breeding parameters were higher in the 1990s, when the overall population was increasing. Since 1999 and following the implementation of the spring conservation harvest on staging and wintering grounds, no temporal trend has been observed in terms of breeding output on Bylot Island. However, population estimates conducted

annually since 1965 in southern Québec in early May have shown a strong decrease over the last three years, with an estimate of 428,000 individuals in 2025 compared to 753,000 in 2022 and 1,005,000 in 2012. This population decline was particularly pronounced over the last three years, representing a decrease of 43%. This could be due either to long-lasting effects of overharvesting and/or to the recent outbreak of avian influenza, which has recently affected Greater Snow Geese. This is the subject of a current MSc project (Pierre Fugère) which will disentangle these different mechanisms.

## PLANS FOR 2026

The long-term objectives of our work are to study the population dynamics of Greater Snow Geese, and the interactions between geese, plants, and their predators on Bylot Island. A major focus of the project is to monitor changes in demographic parameters (such as survival rate, hunting mortality, breeding propensity, reproductive success, and recruitment) and habitat (annual plant production and grazing impact) in response to the spring conservation harvest and other special management actions implemented since 1999 in Canada and since 2009 in the United States. Other aspects of the project include *i*) understanding better the links between events occurring during the spring migration and the subsequent breeding success of geese; *ii*) studying indirect interactions between snow geese and lemmings via shared predators; *iii*) studying the ecology of the main predator of geese, the Arctic Fox; and *iv*) assessing the impact of climate change on goose reproduction and the carrying capacity of the habitat for geese. In 2026, we anticipate to:

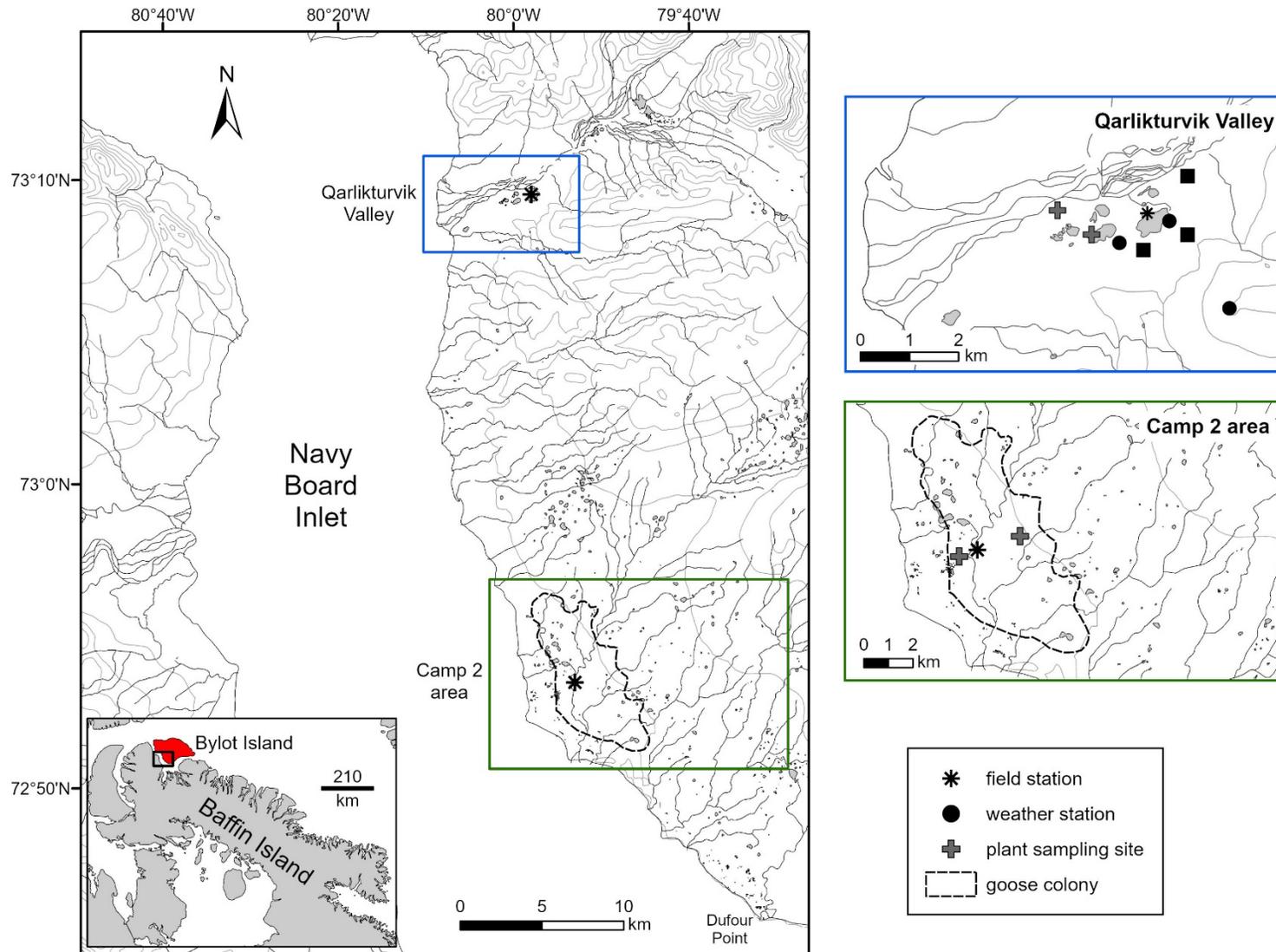
- 1) Monitor productivity (egg laying date, clutch size and nesting success) and nesting distribution of Greater Snow Geese on Bylot Island.
- 2) Mark goslings of both Greater Snow Geese and Cackling Geese in the nest to provide a sample of known-age individuals to assess the growth and pre-fledging survival of goslings by their recapture in late summer.
- 3) Band goslings and adults Greater Snow Geese at the end of the summer to continue the long-term study of demographic parameters such as survival and breeding propensity.
- 4) Band goslings and adults Cackling Geese at the end of the summer to initiate the study of demographic parameters such as survival and breeding propensity.
- 5) Monitor the abundance of lemmings and study their demography and the impact of predation on their cyclic fluctuations of abundance.
- 6) Monitor wintering ecology of lemmings and ermines with passive sensors and cameras.
- 7) Monitor the breeding activity of other bird species, in particular avian predators (Snowy Owls, jaegers, Glaucous Gulls, Peregrine Falcons and Rough-legged Hawks).
- 8) Sample plants in exclosures to assess annual production and the impact of goose grazing on plant abundance in wet meadows.
- 9) Maintain our automated environmental and weather monitoring system.

In 2026, at least 3 graduate students will be involved in the Bylot Island snow goose project. **Pierre Fugère** (MSc) will continue his project on the impacts of the spring hunt on the population dynamics of greater snow geese over the past 35 years. In particular, Pierre will investigate whether harvest rates in both the U.S. and southern Quebec have changed over time, and whether these harvest rates affect survival and reproductive decisions, two key parameters that could explain the recent decline in the snow goose population. **Marie-Claude Mayotte** (MSc) will start her project on wintering nest sites selection by lemmings combining high resolution digital elevation models (DEM) and long-term monitoring of lemming winter nests. **Audrey Larochelle** (MSc) will start her project on the habitat use of ermines in relation to lemming abundance.

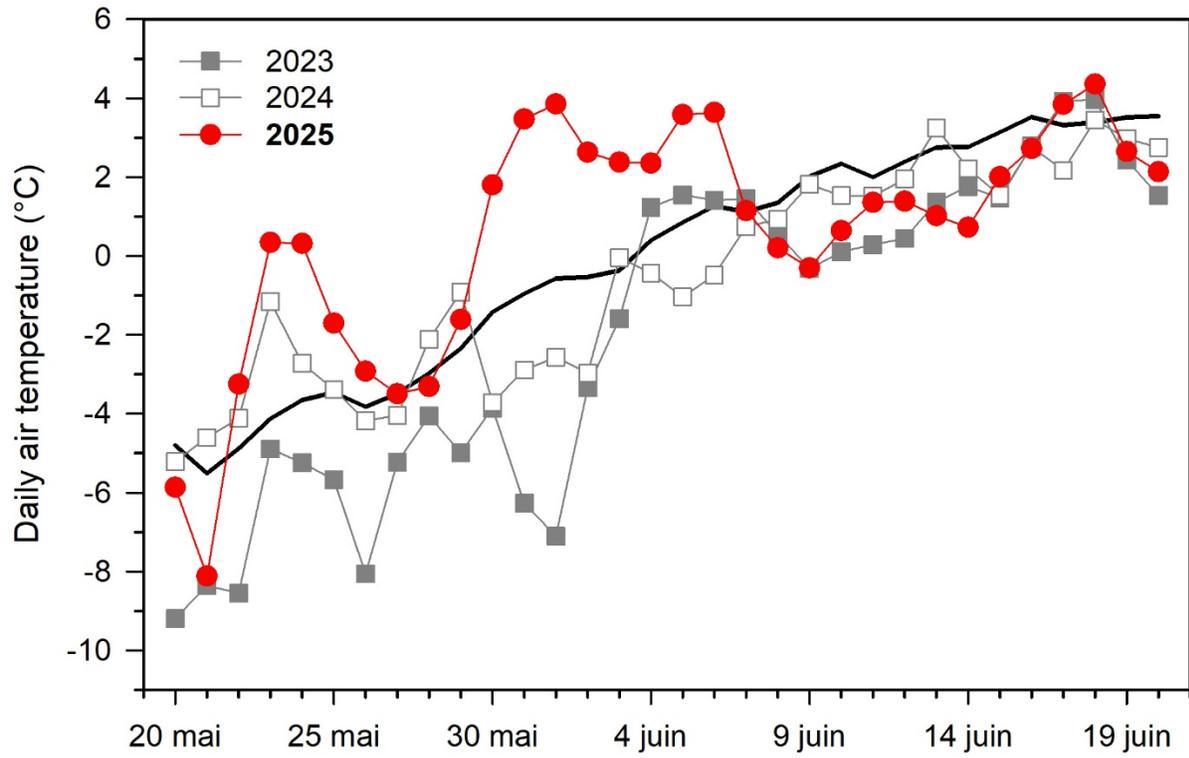
**Table 1.** Productivity data of Greater Snow Geese nesting on Bylot Island over the past decade.

	2016	2017	2018	2019	2020	2021	2022	2023	2024	<b>2025</b>	Average <sup>2</sup>
Number of nests monitored	337	342	277	422	580 <sup>3</sup>	487 <sup>3</sup>	332	558	--	<b>380</b>	--
Nest density in the core of the colony (n/ha)	5.50	8.14	3.46	5.70	8.35 <sup>3</sup>	9.09 <sup>3</sup>	4.09	10.56	8.14	<b>8.39</b>	5.21
Nest density in mesic random plots (n/ha)	3.60	2.33	1.88	3.88	3.24	2.83	1.17	1.15	0.88	<b>3.88</b>	2.01
Median date of egg-laying	13 June	11 June	14 June	7 June	12 June <sup>4</sup>	13 June <sup>4</sup>	15 June	15 June	--	<b>9 June</b>	12 June
Clutch size	3.36	3.53	3.50	4.04	3.67 <sup>4</sup>	2.75 <sup>4</sup>	3.74	3.66	--	<b>3.45</b>	3.70
Nesting success <sup>1</sup>	73%	56%	50%	82%	64% <sup>3</sup>	--	37%	70%	--	<b>78%</b>	67%
Median date of hatching	9 July	8 July	11 July	4 July	11 July <sup>4</sup>	10 July <sup>4</sup>	12 July	13 July	--	<b>5 July</b>	9 July
Ratio young:adult at banding	0.91:1	0.88:1	0.94:1	1.20:1	--	<b>1.02:1</b>	0.53:1	1.15:1	1.08:1	<b>1.02:1</b>	1.02:1
Brood size at banding	2.35	2.14	2.34	2.65	--	<b>2.51</b>	2.28	2.42	2.72	<b>2.49</b>	2.49
Proportion of adults with young at banding	78%	83%	81%	91%	--	<b>81%</b>	47%	95%	80%	<b>82%</b>	82%
Number of Cackling goose nests monitored	28	40	61	76	--	--	61	100	--	<b>119</b>	42 <sup>5</sup>

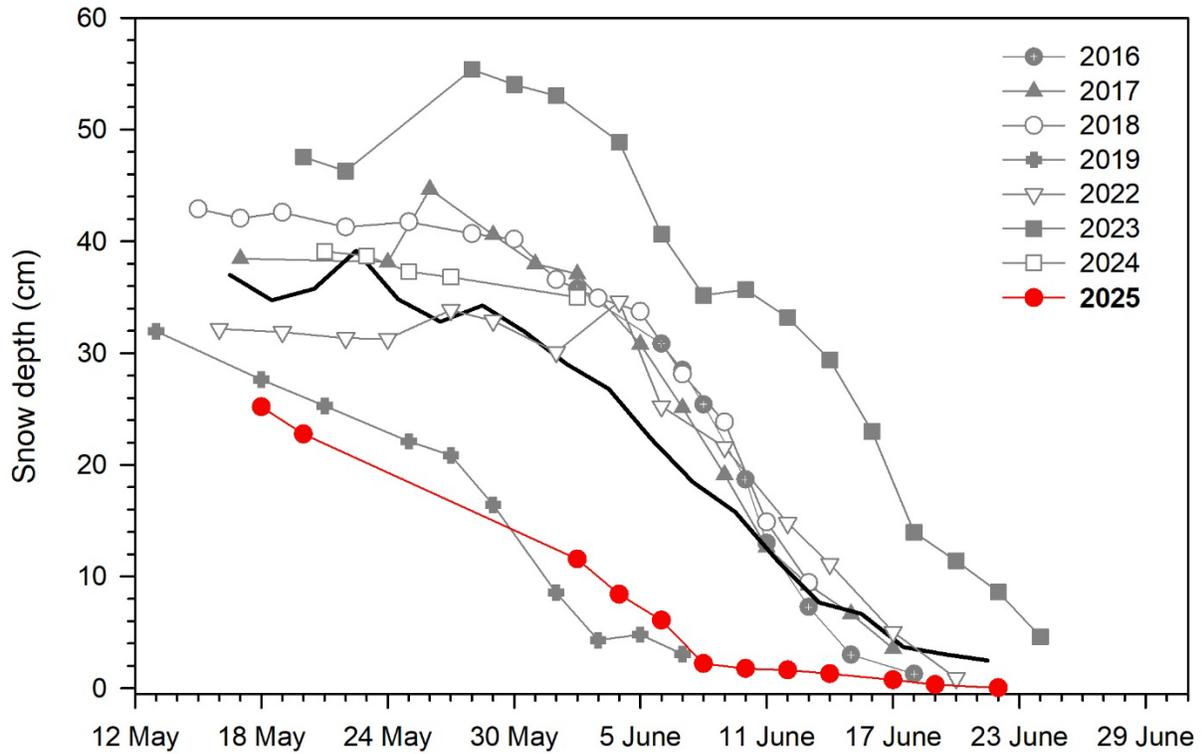
<sup>1</sup> Mayfield estimate.<sup>2</sup> Period 1989-2019 and 2022-2023. Data from 2020, 2021 and 2024 are not included in the long-term average (except banding data) because different protocols were used.<sup>3</sup> These values were estimated from analyses of satellite images.<sup>4</sup> These values are only based on the GPS-tracking of 4 females that nested on Bylot Island.<sup>5</sup> Period 2010-2019, 2022-2023 and 2025.



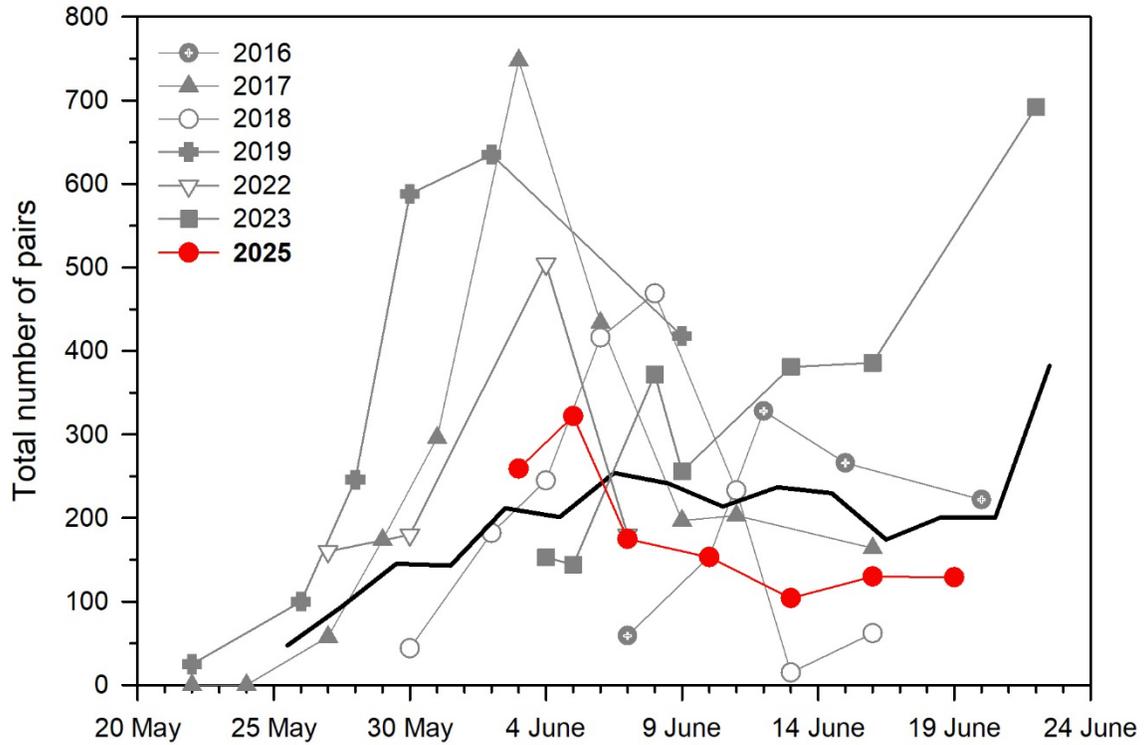
**Figure 1.** Location of the two main study sites (Qarlikturvik Valley and the Camp 2 area) on the South Plain of Bylot Island, Nunavut. Enlarged maps on the right present these study sites in more details, including locations of our field stations, automated weather stations, wetland sampling sites for plants, lemming live-trapping grids and the extent of the main snow goose colony. The Qarlikturvik Valley is predominantly a brood-rearing area for geese.



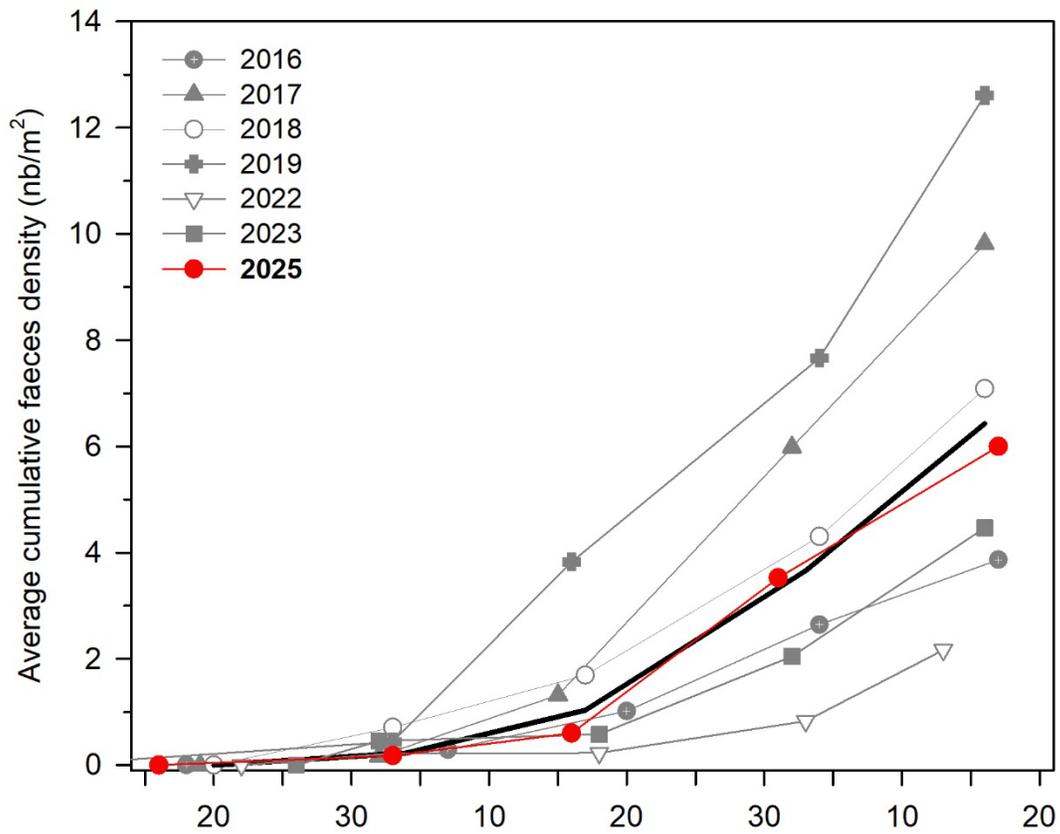
**Figure 2A.** Average daily air temperature during the periods of goose arrival (20 May to 5 June) and egg formation and egg-laying (5 to 20 June) over the past 3 years. The thick solid line represents the average air temperature since 1994.



**Figure 2B.** Average snow depth along two transects showing the rate of snowmelt in the lowlands of Bylot Island in spring over the past decade ( $n = 50$  stations). The thick solid line represents the average snowmelt rate since 1995. No field data available in 2020 and 2021 due to the covid19 pandemic.

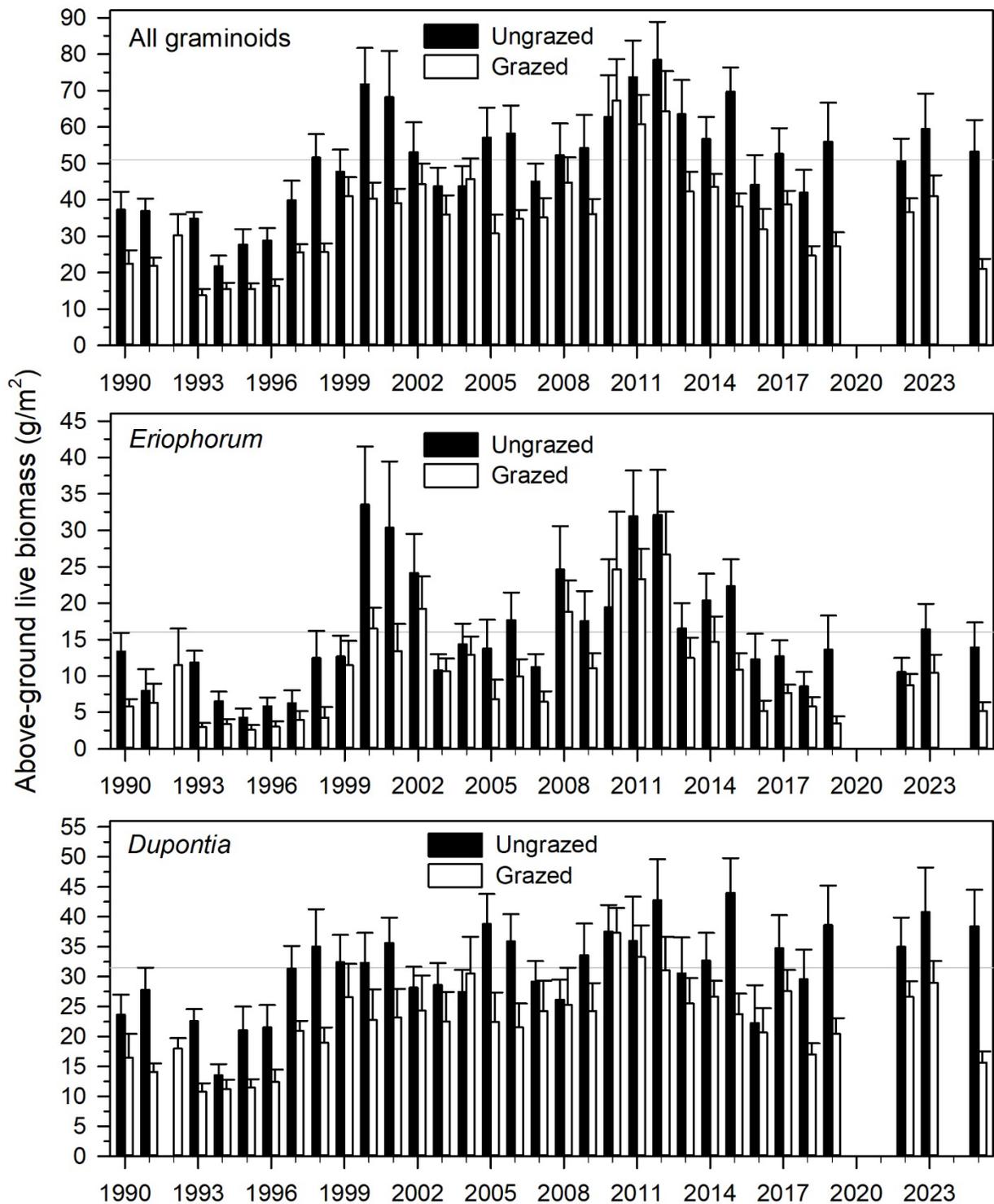


**Figure 3.** Total number of goose pairs counted in the Qarlikturvik Valley from arrival of our crew on Bylot Island in late May until the end of snowmelt over the past decade. The thick solid line represents the average number of goose pairs counted since 1996. No field data available in 2020 and 2021 due to the covid19 pandemic and in 2024.

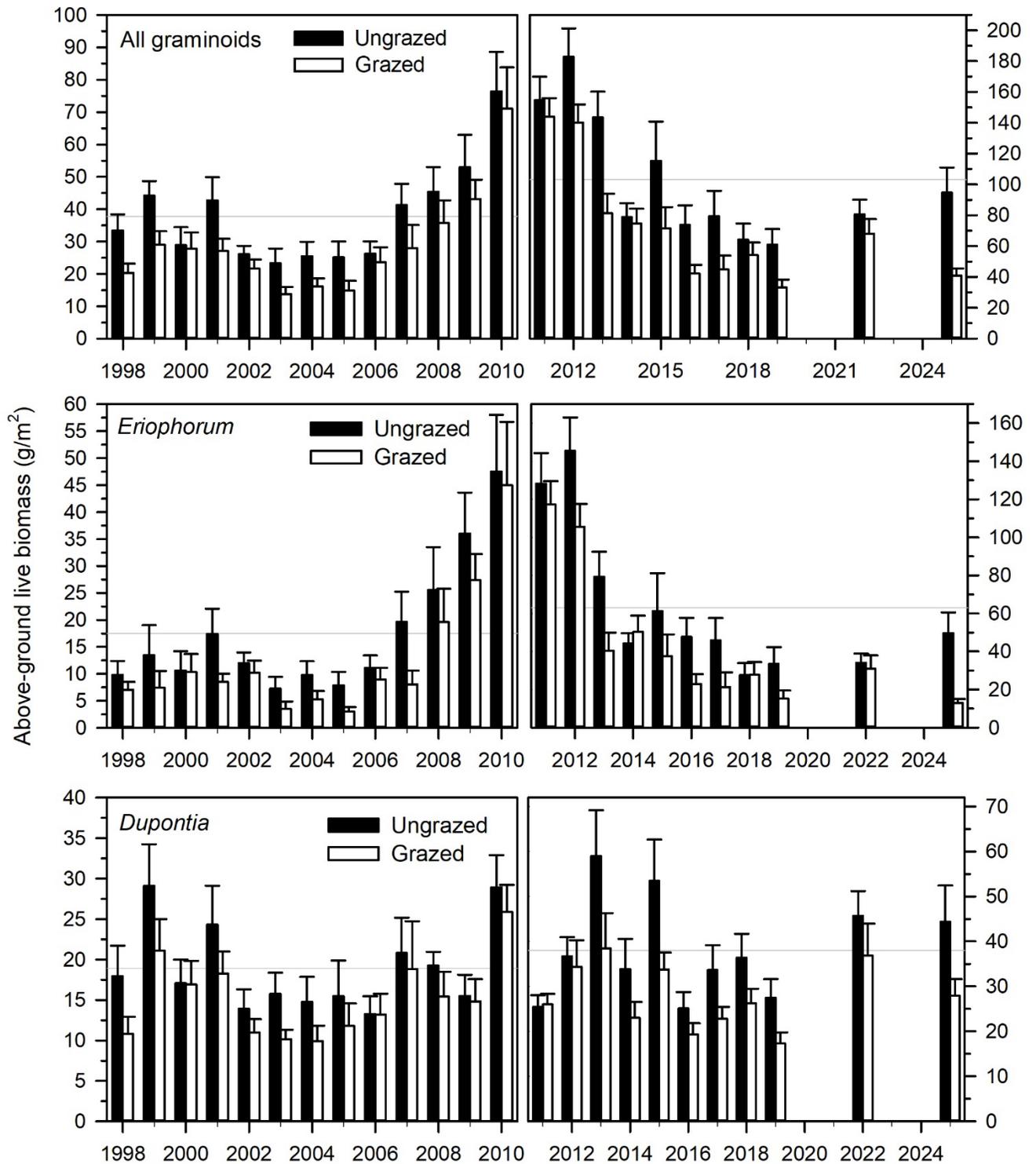


**Figure 4.** Average cumulative faeces density showing the use of the Qarlikturvik Valley by Greater Snow Goose families on Bylot Island throughout the summer over the past decade ( $n = 12$  transects of  $1 \times 10$  m; except 2013  $n = 5$  and 2016  $n = 11$ ). The thick solid line represents the average cumulative faeces density since 1990. No field data available in 2020 and 2021 due to the covid19 pandemic and in 2024.





**Figure 6.** Live above-ground biomass (mean + SE, dry mass) of graminoids in mid-August in grazed and ungrazed wet meadows of the Qarlikturvik Valley, Bylot Island ( $n = 12$ , except in 2013, 2014 and 2016,  $n = 11$ ). Total graminoids include *Eriophorum scheuchzeri*, *Dupontia fisheri* and *Carex aquatilis*. There is no data from ungrazed areas in 1992. The solid gray line is the long-term average for ungrazed areas. No field data available in 2020 and 2021 due to the covid19 pandemic and 2024.



**Figure 7.** Live above-ground biomass (mean + SE, dry mass) of graminoids in mid-August in grazed and ungrazed wet meadows of the Camp 2 (goose colony), Bylot Island ( $n = 12$ , except in 2008 and 2014  $n = 8$ , and 2012, 2013 and 2015  $n = 10$ ). Total graminoids include *Eriophorum scheuchzeri*, *Dupontia fisheri* and *Carex aquatilis*. Half of the exclosures had to be moved to a new site in 2011, which explains why the figure was split and the long-term average for ungrazed area (solid gray line) calculated separately before/after 2011. No field data available in 2020 and 2021 due to the covid19 pandemic, 2023 and 2024.

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- C.226. Villeneuve, C., F. Dulude-de Broin, P. Legagneux, D. Berteaux & A. Durand. 2021. Preserving the integrity of the Canadian northern ecosystems through reinforcement learning-based arctic fox movement models. *International Conference on Machine Learning - Workshop on Tackling Climate Change With Machine Learning* (virtual).
- C.225. Beardsell, A., D. Gravel, D. Berteaux, G. Gauthier, V. Careau, J. Clermont, C.-C. Juhasz, N. Lecomte, P. Royer-Boutin & J. Bêty. 2021. Mechanistic insights into the role of functional response in apparent mutualism observed in tundra ecosystems. *Ecological Society of America Annual Meeting* (virtual).
- C.224. Brown, A., R. McCabe, J.-F. Therrien, K. Wiebe, S. Weidensaul, D. Brinker, G. Gauthier & K.H. Elliott. 2021. Nomadic breeders Snowy Owls (*Bubo scandiacus*) do not use stopovers to sample the summer environment. *60th meeting of the Canadian Society of Zoologists*, Vancouver, BC.
- C.223. Moisan, L., D. Gravel & J. Bêty. 2020. When Arctic migratory species connect tundra with the rest of the globe: the case of Bylot Island. *Arctic Change 2020 Conference*, Quebec City, QC.
- C.222. LeTourneux, F., T. Grandmont, F. Dulude de-Broin, M.C. Martin, J. Lefebvre, A. Kato, J. Bêty, G. Gauthier & P. Legagneux. 2020. Implications of a COVID-19-induced cease-fire for the management of a harvested overabundant species. *Arctic Change 2020 Conference*, Quebec City, QC.
- C.221. Hutchison, C., P. Legagneux, F. Guichard, J. Bety, D. Berteaux, G. Gauthier, D. Fauteux, A. Allard & D. Gravel. 2020. Arctic seasonal models: evidence for hierarchical temporal processes in food-webs. *Arctic Change 2020 Conference*, Quebec City, QC.
- C.220. Godin, E., W.F. Vincent, G. Gauthier & C. Barrette. 2020. Merged Observatory Data for Arctic Air Temperature (MODAAT) in action: Comparison of temperature data from a High Arctic automated weather station with reanalysis estimates from the ERA5-Land model. *Arctic Change 2020 Conference*, Quebec City, QC.
- C.219. Gauthier, G. & J.F. Therrien. 2020. Recent trends in snowy owl breeding and lemming populations on Bylot Island, Nunavut, Canada. *5th meeting of the International Snowy Owl Working Group*, Pasvik, Norway.
- C.218. Curk, T., I. Pokrovsky, N. Lecomte, O. Kulikova, T. Aarvak, G. Gauthier, K.O. Jacobsen, I.J. Øien, R. Solheim, K. Wiebe, M. Wikelski, J.F. Therrien & K. Safi. 2020. Snowy owls with contrasting migration patterns exhibit different proximate responses to food resources. *5th meeting of the International Snowy Owl Working Group*, Pasvik, Norway.
- C.217. Therrien, J.F., K. Wiebe, K.O. Jacobsen, I.J. Øien, R. Solheim, T. Aarvak, S. Weidensaul, D. Brinker, B. Sittler, O. Gilg, A. Aebischer, J. Lang, D. Holt & G. Gauthier. 2020. Fledging dispersal and survival in snowy owls. *5th meeting of the International Snowy Owl Working Group*, Pasvik, Norway.
- C.216. Beardsell, A., D. Gravel, D. Berteaux, G. Gauthier, V. Careau, J. Clermont, C.C. Juhasz, N. Lecomte, P. Royer-Boutin & J. Bêty. 2020. Assessment of functional responses using a mechanistic approach in a generalist predator of the arctic tundra. *Predator-Prey Interactions meeting*, Ventura CA.
- C.215. Gousy-Leblanc, M, G. Yannic, J.F. Therrien, G. Gauthier, S. Weidensaul, D. Brinker & N. Lecomte 2019. Population genetic structure of an arctic breeder, the snowy owl. *ArcticNet Scientific Meeting*, Halifax, NS.
- C.214. Lamarre J.-F., G. Gauthier, O. Love, E.T. Reed, O.W. Johnson, K. Overdujin, R. Lanctot, S.T. Saalfeld, J. Liebezeit, R. McGuire, M. Russell, L. McKinnon, L. Kolosky, P.A. Smith, S. Flemming, N. Lecomte, M.-A. Giroux, S. Bauer, T. Emmenegger & J. Bêty. 2019. Timing of breeding site availability drives migration schedule in a long distance trans-hemispheric migrant. *ArcticNet Scientific Meeting*, Halifax, NS.
- C.213. Gauthier, G. & J.-F. Therrien. 2019. Long-term ecological monitoring of the tundra ecosystem: role and conservation perspectives for birds of prey. *Raptor Research Foundation annual scientific conference*, Fort Collins, CO.

- C.212. Lamarre, J.-F., G. Gauthier, O. Love, E. Reed, O.W. Johnson, K. Overdujin, R. Lanctot, S.T. Saalfeld, J. Liebezeit, R. Bentzen, M. Russell, L. McKinnon, L. Kolosky, P. Smith, S. Flemming, N. Lecomte, M.-A. Giroux, S. Bauer & T.J. Emmenegger. 2019. Timing of breeding site availability drives migration schedule in a long distance trans-hemispheric migrant. *8th Western Hemisphere Shorebird Group meeting*, Panama City, Panama.
- C.211. Kalhor, D., A. Pusenkova, M. Poirier, G. Gauthier, T. Galstian & X. Maldague. 2019. Using near infrared for studying lemming subnival behavior in the arctic. *15<sup>th</sup> International Workshop on Advanced Infrared Technology and Applications*, Firenze, Italy.
- C.210. Fauteux, D., G. Gauthier, J. Bêty, D. Berteaux, M.J. Mazerolle, N. Coallier & M.-C. Cadieux. 2019. Evaluation of invasive and non-invasive methods to monitor lemming abundance in the Canadian Arctic. *Arctic Science Summit Week*, Arkhangelsk, Russia.
- C.209. Chagnon-Lafortune A, N. Casajus, R.I.G. Morrison, P.A. Smith, N. Lecomte, I. Tulp, M.C.Y. Leung, L. McKinnon, D. Berteaux & J. Bêty. 2018. Large-scale effect of temperature on arthropod availability for birds. *ArcticNet Scientific Meeting*, Ottawa, ON.
- C.208. Léandri-Breton, D.-J., J.-F. Lamarre, & J. Bêty. 2018. Daring crossing or cautious detour? Contrasting transatlantic migration strategies in a small migratory bird breeding in the Canadian Arctic and wintering in Africa. *ArcticNet Scientific Meeting*, Ottawa, ON.
- C.207. Fauteux, D., E. Schmidt, J.-F. Therrien, G. Gauthier & Y. Seyer. 2018. Enhancing terrestrial predators' diet assessments with rodent mandibles. *ArcticNet Scientific Meeting*, Ottawa, ON.
- C.206. Gérin-Lajoie J, G. Gauthier, J. Bêty & G. MacMillan. 2018. A visual tool in Participatory Action Research for consulting Inuit communities about their environmental concerns and research interests. *ArcticNet Scientific Meeting*, Ottawa, ON.
- C.205. Berner, L. P. Jantz, R. Massey, P. Burns, G. Gauthier, B. Forbes, M. Macias-Fauria, B. Gagliote, L. Andreu-Hayles, R. D'Arrigo & S. Goetz. 2018. Rapid warming leads to greening of the tundra biome. *American Geophysical Union annual meeting*, Washington DC, USA.
- C.204. Gauthier G. & J. Lefebvre. 2018. Projecting the population dynamic of greater snow geese into an uncertain future: the interplay between management actions and climate change. *Fourteenth North American Arctic Goose Conference and Workshop*, Lincoln, Nebraska, USA.
- C.203. LeTourneux, F., G. Gauthier, R. Pradel & J. Lefebvre. 2018. Impact of recent changes in hunting regulation on seasonal survival of male and female greater snow geese. *Fourteenth North American Arctic Goose Conference and Workshop*, Lincoln, Nebraska, USA.
- C.202. Berteaux, D. 2017. Effects of climate shifts on arctic biodiversity. *37th Annual Conference of the International Association for Impact Assessment*, Montreal, QC.
- C.201. Berteaux, D. 2017. Satellite tracking of arctic foxes on the Canadian Arctic sea ice: fine-scale genetic structure of the arctic fox population of Bylot Island (Nunavut, Canada). *Arctic Change 2017 conference*, Quebec, QC.
- C.200. Legagneux, P., M.-A. Giroux, P. Archambault, F. Barraquand, D. Berteaux, J. Bêty, G. Gauthier, D. Ehrich, T. Hoyer, R. Ims, N. Lecomte, M.-J. Naud, T. Roslin, N.M. Schmidt, P. Smith, S. Sokolov, N.G. Yoccoz & D. Gravel. 2017. ArcticWEB, a pan-Arctic network to monitor and model Arctic trophic interactions. *Arctic Change 2017 conference*, Quebec, QC.
- C.199. Juhasz, C.C., N. Lecomte, G. Gauthier. 2017. Direct and indirect effects of climate on a simplified trophic network in the Arctic tundra. *Arctic Change 2017 conference*, Quebec, QC.
- C.198. Fauteux, D., G. Gauthier, N. Coallier, J. Bêty & D. Berteaux, 2017. Evaluation of several methods to monitor lemming abundance: simple can also be good. *Arctic Change 2017 conference*, Quebec, QC.
- C.197. Chevalier, C., G. Gauthier & D. Berteaux. 2017. Weather variability has no direct impact on adult survival in a High Arctic carnivore *Arctic Change 2017 conference*, Quebec, QC.
- C.196. Lamarre, J.-F., J. Bêty, E. Reed, R. Lanctot, O. Love, G. Gauthier, O.W. Johnson, J. Liebezeit, R. Bentzen, M. Russell, L. McKinnon, L. Kolosky, P. Smith, S. Flemming, N. Lecomte, M.-A. Giroux, S. Bauer & T. Emmenegger. 2017. Year-round variation in migratory connectivity in American Golden-Plover (*Pluvialis dominica*). *Arctic Change 2017 conference*, Quebec, QC.

- C.195. Poirier, M., G. Gauthier, F. Dominé & M. Barrère. 2017. Physical properties of snow guide the movements of lemmings under the snowpack. *Arctic Change Conference*, Quebec, QC.
- C.194. Seyer, Yannick, G. Gauthier, J. Bêty & N. Lecomte. 2017. Connectivity between the Canadian Arctic and the west coast of Africa: the journey of the Long-tailed jaeger. *Arctic Change Conference*, Quebec, QC.
- C.193. Slevan-Tremblay, G., G. Gauthier & E. Lévesque. 2017. Impact of lemming grazing on Arctic willows under experimentally reduced predation. *Arctic Change Conference*, Quebec, QC.
- C.192. Juhasz, C.C., A. Lycke, V. Carreau, G. Gauthier, J.-F. Giroux & N. Lecomte. 2017. Picking the right cache: hoarding-site selection for egg predators in the Arctic. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.191. Therrien J.F., A. Beardsell, G. Gauthier, N. Lecomte & J Bêty. 2017. Reproductive and movement ecology of rough-legged hawks breeding in the high arctic. *Raptor Research Foundation Annual Conference*. Salt Lake City, Utah, USA.
- C.190. Couchoux, C., J. Clermont, S. Lai, F. Lapierre-Poulin, C. Chevallier & D. Berteaux. 2017. Implementing measures of individual behavioural variation in the Arctic ecosystem: can we assess personality in arctic foxes? *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.189. Darbon, C., S. Lai & D. Berteaux. 2017. Influence of the distribution of medium-sized prey species on the presence of red foxes in the south plain of Bylot Island, Nunavut, Canada. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.188. Thierry, A.-M., J. Bêty & D. Berteaux. 2017. Competition between Arctic and red foxes at the expanding front of the red fox in the Canadian Arctic. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.187. Lapierre-Poulin, F., D. Fortier & D. Berteaux. 2017. Developing a vulnerability index to climate change for arctic fox dens. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.186. Chevallier, C., G. Gauthier & D. Berteaux. 2017. Weather variability has no direct impact on adult survival in Arctic foxes. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.185. Devost, E, N. Casajus, S. Lai & D. Berteaux. 2017. FoxMask image analysis software, assisting ecologists in facing big data challenges. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.184. Berteaux, D. 2017. Satellite tracking of Arctic foxes on the Canadian Arctic sea ice. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.183. Lapierre-Poulin, F., D. Fortier & D. Berteaux. 2017. Are arctic fox reproductive dens vulnerable to climate change in the Canadian High Arctic? *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.182. Lai, S., A. Quiles, J. Lambourdière, D. Berteaux & A. Lalis. 2017. Fine-scale genetic structure of the arctic fox population of Bylot Island (Nunavut, Canada). *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.181. Chevallier, C., D. Berteaux & G. Gauthier. 2017. Are demographic parameters of adult Arctic foxes resource-dependent? *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.180. Fauteux, D., G. Gauthier, R. Boonstra, R. Palme & D. Berteaux. 2017. Top-down regulation of lemmings by Arctic foxes and other predators: observations and experiments on Bylot Island. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.179. Gauthier G., D. Fauteux, J. Bêty, D. Berteaux, M. Mazerolle & M.-C. Cadieux. 2017. Evaluation of invasive and non-invasive methods to monitor lemming abundance in the Canadian Arctic. *5th International Conference in Arctic Fox Biology*. Rimouski, QC.
- C.178. Therrien J.-F., G. Gauthier, A. Robillard, T. McDonald, N. Smith, S. Weidensaul, D. Brinker, J. Bêty & N. Lecomte. 2017. The irruptive nature of snowy owls: going full cycle. *World Owl Conference*. Évora, Portugal.
- C.177. Lefebvre, J., G. Gauthier, J.-F. Giroux, A. Reed, A. Béchet & E. Reed. 2017. Managing an overabundant population: the Greater Snow Goose in North America. *Dutch scientific goose meeting*. Leeuwarden, Netherlands.

- C.176. Gauthier, G. A. Robillard, J.-F. Therrien & J. Bêty. 2017. What can we learn from isotopic analyses of snowy owl feathers? *4th meeting of the International Snowy Owl Working Group*, Milton, Massachusetts, USA.
- C.175. Robillard A., G. Gauthier, J.-F. Therrien & J. Bêty. 2017. Wintering strategies, habitat use and site fidelity of snowy owls in eastern North America. *4th meeting of the International Snowy Owl Working Group*. Milton, Massachusetts, USA.
- C.174. Juhasz, C.-C., N. Lecomte & G. Gauthier. 2016. How predator-prey interactions can mediate effects of climate on prey nesting success: the case of an Arctic nesting bird. *ArcticNet Scientific Meeting*, Winnipeg, MB.
- C.173. Resendiz, C. & G. Gauthier. 2016. Heterogeneous long-term effects of a changing environment on the reproductive success of greater snow geese. *ArcticNet Scientific Meeting*, Winnipeg, MB.
- C.172. Fauteux, D., G. Gauthier, D. Berteaux, R. Palme, C. Bosson & R. Boonstra. 2016. Lethal and non-lethal effects of predation on arctic lemmings. *Fifteenth International Conference on Rodent Biology*, Olomouc, Czech Republic.
- C.171. Giroux, M.-A., N. Lecomte, D. Gravel, D. Berteaux, G. Gauthier, P. Legagneux & J. Bêty. 2015. Bridging the gap between monitoring and modeling approaches to better understand arctic food webs under global pressures. *ArcticNet Scientific Meeting*, Vancouver, BC.
- C.170. Seyer, Y., G. Gauthier & J. Bêty. 2015. From the Canadian Arctic to the western coast of Africa: The trans-equatorial migration of the Long-tailed jaeger. *ArcticNet Scientific Meeting*, Vancouver, BC.
- C.169. Slevan-Tremblay, G., G. Gauthier & E. Lévesque 2015. Validation of a non-destructive method to estimate grazing impact of lemmings in the Arctic tundra. *ArcticNet Scientific Meeting*, Vancouver, BC.
- C.168. Resendiz, C. & G. Gauthier. 2015. To change or not to change? Variations in components of the Greater Snow Goose reproductive success over a 26-year period. *ArcticNet Scientific Meeting*, Vancouver, BC.
- C.167. Giroux, M.-A., N. Lecomte, D. Gravel, J. Bêty, G. Gauthier & D. Berteaux. 2015. Can animal migration explain the dominance of top-down forces in many Arctic food webs? Insights from empirical and theoretical approaches. *100th Ecological Society of America Annual Meeting*, Baltimore, MD.
- C.166. Fauteux, D., G. Gauthier & D. Berteaux. 2015. Socio-economic relationships between Inuit and lemmings and the scientific methods employed to monitor lemmings. *International workshop on small mammal population outbreaks and their consequences*, Frasné, France.
- C.165. Gauthier, G. 2015. Goose, plant and predator interactions in arctic systems: how will climate change things? *Thirteenth North American Arctic Goose Conference and Workshop*, Winnipeg, MB.
- C.164. Lamarre, J.-F., G. Gauthier, P. Legagneux, E.T. Reed & J. Bêty. 2015. Snow goose colony: a risky nesting area for shorebirds. *Thirteenth North American Arctic Goose Conference and Workshop*, Winnipeg, MB.
- C.163. Marmillot, V., G. Gauthier, M.-C. Cadieux & P. Legagneux. 2015. Plasticity in speed and timing of flight feather molt in the greater snow goose, a high-arctic-nesting species. *Thirteenth North American Arctic Goose Conference and Workshop*, Winnipeg, MB.
- C.162. Resendiz, C. & G. Gauthier. 2015. Temporal trends and spatial variation in components of reproductive success of Greater Snow Geese on Bylot Island. *Thirteenth North American Arctic Goose Conference and Workshop*, Winnipeg, MB.
- C.161. Gauthier, G. & D. Berteaux. 2014. Monitoring of terrestrial wildlife on Bylot Island in a global warming context: what did we learn after 20 years? *Arctic Change 2014 conference*, Ottawa, ON.
- C.160. Robillard, A., J.-F. Therrien, G. Gauthier & J. Bêty. 2014. Fall migration and winter habitat use of an Arctic top predator: the Snowy Owl. *Arctic Change 2014 Conference*, Ottawa, ON.
- C.159. Fauteux, D., G. Gauthier & D. Berteaux. 2014. Seasonal demography of a cyclic lemming population in the Canadian Arctic. *Arctic Change 2014 Conference*, Ottawa, ON.

- C.158. Royer-Boutin, P., D. Berteaux, G. Gauthier & J. Bêty. 2014. Effects of lemming cycles on reproductive success of arctic-nesting birds using different antipredator strategies. *Arctic Change 2014 conference*, Ottawa, ON.
- C.157. Beardsell, A., G. Gauthier, D. Fortier, J.-F. Therrien & J. Bêty. 2014. Factors affecting nest occupancy and reproductive success of rough-legged hawks: a trade-off between predation risk, microclimatic conditions and nest stability? *Arctic Change 2014 conference*, Ottawa, ON.
- C.156. Seyer, Y., G. Gauthier, J. Bêty & J.-F. Therrien. 2014. Migratory strategies and reproduction of the Long-tailed Jaeger in the Canadian Arctic. *Arctic Change 2014 conference*, Ottawa, ON.
- C.155. Lapierre-Poulin, F., D. Fortier & D. Berteaux. 2014. Are arctic fox reproductive dens vulnerable to permafrost degradation? *Arctic Change 2014 conference*, Ottawa, ON.
- C.154. Morin, C. & D. Berteaux. 2014. Seasonal migratory prey and cyclic variation in small mammal abundance affect Arctic fox litter size. *Arctic Change 2014 conference*, Ottawa, ON.
- C.153. Chevallier, C., D. Berteaux & G. Gauthier. 2014. Estimating the age structure of an arctic carnivore population by comparing tooth wear and cementum line. *Arctic Change 2014 conference*, Ottawa, ON.
- C.152. Berteaux, D. & G. Gauthier. 2014. Long-term monitoring of the Bylot Island tundra ecosystem: what did we learn? *Arctic Biodiversity Congress*, Trondheim, Norway.
- C.151. Gauthier, G. 2014. Population dynamic and management of the greater snow goose population in North America. Symposium *The Changing World of the Goose*. Wageningen, Netherlands.
- C.150. Gauthier, G., J.-F. Therrien & J. Bêty. 2014. Movements and breeding dispersal of Snowy Owls in eastern North America: a specialized predator exploiting a pulsed resource. *Third meeting of the International Snowy Owl Working Group*, Salekhard, Russia.
- C.149. Robillard, A., J.-F. Therrien, G. Gauthier & J. Bêty. 2014. Winter ecology of Snowy Owls: post-reproductive movements and determinants of winter irruptions in North America. *Third meeting of the International Snowy Owl Working Group*, Salekhard, Russia.
- C.148. Gauthier, G. 2013. Lemming population ecology on Bylot Island: Interaction between snow and predation. *Lemming and Snow Workshop*, University of Tromsø, Tromsø, Norway.
- C.147. Beardsell A., G. Gauthier G., D. Fortier D. & J. Bêty. 2013. Breeding ecology of rough-legged hawks (*Buteo lagopus*) in the High Arctic: are nesting structures vulnerable to climate change? *Ninth ArcticNet Scientific Meeting*, Halifax, NS.
- C.146. Robillard, A., J.-F. Therrien, G. Gauthier & J. Bêty. 2013. Multi-scale influence of small mammal summer densities on snowy owl winter irruptions in North America. *Ninth ArcticNet Scientific Meeting*, Halifax, NS.
- C.145. Fauteux, D., G. Gauthier & D. Berteaux. 2013. Ten years of monitoring lemming demography in the Canadian High Arctic. *Ninth ArcticNet Scientific Meeting*, Halifax, NS.
- C.144. Lamarre, J.-F., J. Bêty & G. Gauthier. 2013. Predator-mediated interactions between shorebirds and colony-nesting snow geese on Bylot Island, Nunavut. *5th Western Hemisphere Shorebird Group conference*, Santa Marta, Colombia.
- C.143. Perkins, M., L. Ferguson, R.B. Lanctot, I.J. Stenhouse, D.C. Evers, N. Basu, J. Bêty, S. Brown, R. Gates, S. Kendall, J.-F. Lamarre, J. Liebezeit & B. Sandercock. 2013. Quantifying mercury exposure for multiple shorebird species across the North American Arctic using blood and feather samples. *34th Annual Meeting of the Society of Environmental Toxicology and Chemistry*, Nashville, TN.
- C.142. Lai, S., J. Bêty & D. Berteaux. 2013. Where do arctic foxes go in winter? A 6-year study using satellite telemetry on Bylot Island, Canada. *Fourth International Conference in Arctic Fox Biology*. Westfjords, Iceland.
- C.141. Rioux, M.-J., S. Lai, J. Bêty & D. Berteaux. 2013. Spatial winter dynamics in arctic fox pairs at Bylot Island. *Fourth International Conference in Arctic Fox Biology*, Westfjords, Iceland.
- C.140. Berteaux, D. 2013. Range margins of Arctic and Red fox in a rapidly changing Arctic, *8th Annual Meeting of the Canadian Society of Ecology and Evolution*, Kelowna, BC.
- C.139. Berteaux, D. 2013. État et tendances de la biodiversité arctique. *Chantier arctique français*, Paris, France.

- C.138. Legagneux, P., G. Gauthier, P.L.F. Fast, N. J. Harms, H. G. Gilchrist, C. Soos & J. Bêty. 2013. Empirical and experimental evidence of carry-over effects on waterfowl reproduction. *Canadian Society of Zoologists Annual Meeting*, Guelph, ON.
- C.137. Souchay, G., G. Gauthier & R. Pradel. 2013. A new approach to account for temporary emigration using a multi-event framework. *EURING analytical conference*, Athens, GA.
- C.136. Van Oudenhove, L., G. Gauthier, & J.D. Lebreton. 2013. Modelling climatic effects on the population dynamic of a long-distance, arctic-nesting migrant. *EURING analytical conference*, Athens, GA.
- C.135. Legagneux, P., C. Juillet, P.L.F. Fast, G. Gauthier & J. Bêty. 2013. Experimental evidence of carry-over effects on greater snow goose reproduction and its management implications. *6th North American Duck Symposium and Workshop*, Memphis, TN.
- C.134. Bêty, J. 2013. Understanding individual variation in reproductive strategies: the challenge of integrating physiology, optimization model and environmental stressors. *6th North American Duck Symposium and Workshop*, Memphis, TN.
- C.133. Lefebvre, J., M. Huang, J.-F. Giroux, M. Bélisle, J. Bêty & C. Dwyer. 2013. Satellite telemetry improves our understanding of habitat use patterns and population estimates of greater snow geese. *6th North American Duck Symposium and Workshop*, Memphis, TN.
- C.132. Bilodeau, F., S. Lai, G. Gauthier & D. Berteaux. 2012. Are tundra lemming populations controlled from the bottom-up or the top-down? *Eighth ArcticNet Scientific Meeting*, Vancouver, BC.
- C.131. Fauteux, D., G. Gauthier, D. Berteaux & R. Boonstra. 2012. Direct and indirect effects of predation on lemmings in the High Arctic. *Eighth ArcticNet Scientific Meeting*, Vancouver, BC.
- C.130. Doucet, C., G. Gauthier & J. Bêty. 2012. Synchrony between breeding phenology of an arctic-nesting insectivore and its food resources: investigating the effect of mismatch on juvenile growth rate. *Eighth ArcticNet Scientific Meeting*, Vancouver, BC.
- C.129. Gauthier, G. 2012. Long-term changes in the Bylot Island tundra food web: a 20-year case study in the Canadian High Arctic. *Conference Tundra Change – The ecological dimension*. Aarhus, Denmark.
- C.128. Fauchald, P., D. Ehrlich, J. Schmidt, K. Klokov, F. S. I. Chapin, D. Berteaux & V. Hausner. 2012. The importance, management and status of harvested animals in the Arctic tundra ecosystems. *4th International Conference EcoSummit*, Columbus, OH.
- C.127. Gauthier, G., D. Berteaux, P. Legagneux, D.G. Reid, C.J. Krebs & J. Bêty. 2012. The role of predators in controlling the tundra food web: New evidence from the ArcticWOLVES project. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.126. Fast, P.L.F., M. Doiron, G. Gauthier, J.A. Schmutz, D.C. Douglas, J. Madsen, J.Y. Takekawa, J. Yee & J. Bêty. 2012. Linking animal migration, spring weather and timing of breeding in an arctic herbivore. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.125. McKinnon, L., C.A. Corkery, E. Bolduc, C. Juillet, J. Bêty & E. Nol. 2012. Assessing the vulnerability of Arctic-nesting shorebirds to climate induced changes in food resource peaks. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.124. Juillet, C., R. Choquet, G. Gauthier, R. Pradel & J. Lefebvre. 2012. Carry-over effects of spring hunt and climate on recruitment to the natal colony in a migratory species. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.123. Lai, S., D. Berteaux and J. Bêty 2012. Movement tactics and habitat selection of overwintering arctic foxes in the Canadian high Arctic. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.122. Lamarre, J.-F., J. Bêty & G. Gauthier. 2012. Shorebird predation risk in the high-Arctic, do geese have a role to play? *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.
- C.121. Berteaux, D., G. Gauthier, J. Bêty, A. Franke & G. Gilchrist. 2012. Effects of climate change on the Canadian arctic wildlife. *International Polar Year Conference: From Knowledge to Action*. Montréal, QC.

- C.120. Therrien, J.-F., G. Gauthier & J. Bêty. 2011. Avian predators play a key role in population regulation and energy flux of the Arctic tundra food web. *Annual Meeting of the Raptor Research Foundation*, Duluth, MN.
- C.119. Bêty, J. 2011. Sensitive Arctic birds under the spotlights: global change and recent discoveries. *Society of Canadian Ornithologists Annual Meeting*, Moncton, NB.
- C.118. Legagneux, P., P. Fast, G. Gauthier & J. Bêty. 2011. Manipulating individual state during migration provides evidence for carry-over effects modulated by environmental conditions. *Society of Canadian Ornithologists Annual Meeting*, Moncton, NB.
- C.117. Bêty, J. 2011. Ecology and evolution of arctic migrants: fundamental questions and recent results. *Royal Swedish Academy of Sciences and Wenner-Gren Foundations*, Sweden.
- C.116. Gauthier, G. 2011. Lemmings: a keystone species of the tundra food web vulnerable to climate change. *6<sup>th</sup> Annual Meeting of the Canadian Society of Ecology and Evolution*, Banff, AB.
- C.115. Tarroux, A., D. Berteaux & J. Bêty. 2011. The marine side of a terrestrial mammal: trophic niche and diet specialization of arctic foxes. *Estación Biológica de Doñana – CSIC*, Sevilla, Spain.
- C.114. Gauthier, G. & M.-C. Cadieux. 2011. Goose-plant interactions on Bylot Island in the context of global warming. *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.113. Legagneux, P., P. Fast, G. Gauthier & J. Bêty. 2011. Migratory connectivity in Greater Snow Geese: carry-over effects of a manipulation of spring body condition. *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.112. Fast, P., C. Redjadj, G. Gauthier & J. Bêty. 2011. Using isotopes to assess the importance of stopover sites to fuel migration and reproduction in Snow Geese. *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.111. Doiron, M., G. Gauthier & E. Lévesque. 2011. Climate change and the ecological mismatch between Greater Snow Goose breeding and plant phenology. *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.110. Desnoyers, M. & G. Gauthier. 2011. Travelling in greater snow goose flocks: do you know with whom you're travelling? *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.109. Horrigan, E., R.L. Jefferies & G. Gauthier. 2011. Vegetation responses to simulated snow goose herbivory in two arctic ecosystems. *Twelfth North American Arctic Goose Conference*, Portland, OR.
- C.108. Gauthier, G. & D. Berteaux. 2010. Is the tundra food web controlled by top predators? New evidence from the ArcticWOLVES project. *Seventh ArcticNet Scientific Meeting*, Ottawa, ON.
- C.107. Bilodeau, F., G. Gauthier & D. Berteaux. 2010. Life under the snow: the effect of the snow cover on lemming population dynamics. *Seventh ArcticNet Scientific Meeting*, Ottawa, ON.
- C.106. Chalifour, E., J. Bêty, M. Bélisle, J. Lefebvre & J.-F. Giroux. 2010. Molt migration of Greater Snow Geese. *Seventh ArcticNet Scientific Meeting*, Ottawa, ON.
- C.105. Tarroux, A., D. Berteaux & J. Bêty. 2010. Surviving the arctic winter: insights into the foraging tactics of an arctic terrestrial predator. *Seventh ArcticNet Scientific Meeting*, Ottawa, ON.
- C.104. Fast, P. 2010. Studies of migratory connectivity and nest choice in Arctic waterfowl. *Max Planck Institute for Ornithology*, Seewiesen, Germany.
- C.103. Gauthier, G., J.-F. Therrien, J. Bêty, F. Doyle & D. Reid. 2010. Surprising migratory movements and site fidelity unraveled by satellite-tracking of snowy owls. *25<sup>th</sup> International Ornithological Conference*, Sao Paulo, Brazil.
- C.102. Legagneux, P., G. Gauthier, D. Berteaux, J. Bêty, M.-C. Cadieux, G. Szor, F. Bilodeau, E. Bolduc, L. McKinnon, A. Tarroux, J.-F. Therrien, M.-A. Valiquette, L. Morissette & C.J. Krebs. 2010. Modeling temporal trophic dynamics of a terrestrial arctic ecosystem. *IPY Oslo Conference*, Oslo, Norway.
- C.101. Doiron, M., G. Gauthier & E. Lévesque. 2010. Plant-herbivore interactions and climate change: the case of the Greater Snow Goose. *IPY Oslo Conference*, Oslo, Norway.
- C.100. Legagneux, P., P. Fast, G. Gauthier & J. Bêty 2010. Effect of spring condition manipulation on reproductive success in the greater snow geese *Chen caerulescens*. *5<sup>th</sup> annual meeting of the Canadian Society of Ecology and Evolution*, Quebec, QC.

- C.99. Therrien, J.-F., G. Gauthier & J. Bêty. 2010. The lemming buffet: is there anything left after owls and jaegers have eaten? *5<sup>th</sup> annual meeting of the Canadian Society of Ecology and Evolution*, Quebec, QC.
- C.98. Desnoyers, M. & G. Gauthier. 2010. Le voyage organisé, un aspect inconnu du comportement grégaire de la grande oie des neiges *Chen caerulescens*. *5<sup>th</sup> annual meeting of the Canadian Society of Ecology and Evolution*, Quebec, QC.
- C.97. Gauthier, G., D. Berteaux, J. Bêty, P. Legagneux, L. McKinnon, J.-F. Therrien, A. Tarroux, M.-C. Cadieux, C.J. Krebs, D. Reid, & D. Morris. 2010. The role of predators in structuring the Arctic terrestrial food web: preliminary results from the ArcticWOLVES project. *IPY Canada Early Results Workshop*, Ottawa, ON.
- C.96. Doiron, M., G. Gauthier, & E. Lévesque. 2010. Impacts of climate change on a High Arctic herbivore: The case of the Greater Snow Goose. *IPY Canada Early Results Workshop*, Ottawa, ON.
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- C.94. Reid, D., C.J. Krebs, G. Gauthier, A. Kenney, S. Gilbert, E. Hofer, D. Duchesne, M. Leung & F. Bilodeau. 2010. Snow depth and small mammal winter habitat choice: a tundra fencing experiment. *IPY Canada Early Results Workshop*, Ottawa, ON.
- C.93. Lai, S., D. Berteaux & J. Bêty. 2009. From land to sea ice with the arctic fox, following the movements of a terrestrial mammal in the Canadian High Arctic. *Sixth ArcticNet Scientific Meeting*, Victoria, BC.
- C.92. Tarroux, A., D. Berteaux & J. Bêty. 2009. Nomades de l'Arctique: Capacité de déplacement à grande échelle chez le renard polaire. *Sixth ArcticNet Scientific Meeting*, Victoria, BC.
- C.91. Tarroux, A., D. Berteaux & J. Bêty. 2009. The marine side of a terrestrial mammal: trophic niche and diet specialization in arctic foxes. *Sixth ArcticNet Scientific Meeting*, Victoria, BC.
- C.90. Therrien, J.-F., G. Gauthier & J. Bêty. 2009. The lemming buffet: is there anything left after owls and jaegers have eaten? *Sixth ArcticNet Scientific Meeting*, Victoria, BC.
- C.89. Fast, P., C. Redjadj, G. Gauthier & J. Bêty. 2009. Fuelling up before the flight: Assessing the importance of stopover sites in an Arctic migrant using stable isotopes. *Sixth ArcticNet Scientific Meeting*, Victoria, BC.
- C.88. Gauthier, G., C. Juillet, J. Bêty & M. Morrisette. 2009. Annual productivity in Greater Snow Geese: which fecundity parameter is the best predictor and why? *Meeting of the International Society of Ecological Modelling*, Quebec City, QC.
- C.87. Legagneux, P., G. Gauthier & C.J. Krebs. 2009. Spatial and temporal trophic dynamics of terrestrial arctic ecosystems. *ECOPATH conference*, Vancouver, BC.
- C.86. Gauthier, G. 2009. Impact of climate change on arctic terrestrial food webs: examples from the Bylot Island long term study. *Canadian Society of Ecology and Evolution Annual Meeting*, Halifax, NS.
- C.85. Gauthier, G. & D. Berteaux. 2008. Arctic Wildlife Observatories Linking Vulnerable EcoSystems (ArcticWOLVES): A study of the impact of climate change on tundra food webs. *Arctic Change Conference*, Quebec City, QC.
- C.84. Gauthier, G. & M.C. Cadieux. 2008. Impact of climate change on arctic terrestrial food webs: examples from the Bylot Island long term study. *Arctic Change Conference*, Quebec City, QC.
- C.83. Doiron, M., G. Gauthier & E. Lévesque. 2008. Plant-herbivore interactions and climate change: The Case of the Greater Snow Goose. *Arctic Change Conference*, Quebec City, QC.
- C.82. Therrien, J.-F., G. Gauthier & J. Bêty. 2008. Reproductive success and long-distance movements of Snowy Owls: is this top arctic predator vulnerable to climate change? *Arctic Change Conference*, Quebec City, QC.
- C.81. Valiquette, M.A. & G. Gauthier. 2008. Numerical and functional responses of a generalist avian predator, the glaucous gull, to variations in lemming abundance in the Arctic. *Arctic Change Conference*, Quebec City, QC.
- C.80. Juillet, C., M. Doiron, G. Gauthier & M.C. Cadieux. 2008. Importance of local and regional climatic effects on the reproduction of a migratory species, the Greater Snow Goose. *Arctic Change Conference*, Quebec City, QC.

- C.79. Côté, G., R. Pienitz, G. Gauthier, D. Muir & B. Wolfe. 2008. Impacts of present-day and past animal populations on the nutrient and contamination status of freshwater lakes on Bylot Island, Nunavut (Canada). *Arctic Change Conference*, Quebec City, QC.
- C.78. Pouliot, R., L. Rochefort, M. Marchand-Roy & G. Gauthier. 2008. Polygon fens and trophic interactions: 15 years of research on Bylot Island. 4<sup>th</sup> International Meeting on the Biology of Sphagnum, Juneau, Alaska.
- C.77. Gauthier, G. & D. Berteaux. 2008. ArcticWOLVES: a study of the tundra food web. *International IPY conference on the Dynamics of Lemmings and Arctic foxes in the Circumpolar Tundra*, Salekhard, Russie.
- C.76. Berteaux, D. & Gauthier, G. 2008. Dynamics of lemmings and arctic foxes on Bylot Island, Nunavut, Canada. *International IPY conference on the Dynamics of Lemmings and Arctic foxes in the Circumpolar Tundra*, Salekhard, Russie.
- C.75. Duchesne, D., G. Gauthier & D. Berteaux. 2007. Characterization of the winter environment of lemmings in relation to the snow cover in the Arctic. *Fourth ArcticNet Scientific Meeting*, Collingwood, ON.
- C.74. Doiron, M., G. Gauthier & E. Lévesque. 2007. Impacts of climate change on plant-herbivore interactions in the High Arctic. *Fourth ArcticNet Scientific Meeting*, Collingwood, ON.
- C.73. Juillet, C., G. Gauthier, R. Pradel & Rémi Choquet. 2007. Use of mixture of information models to evaluate the effect of special conservation measures on survival in a hunted species, the Greater Snow Goose. *EURING-2007 meeting*, Otago, New Zealand.
- C.72. Gauthier, G., K. Hobson & J. Bêty. 2006. Diet change inferred from stable-isotopes in spring-staging Greater Snow Geese. *XXIVth International Ornithological Congress*, Hamburg, Germany.
- C.71. Gauthier, G. 2006. Application of capture-recapture methods to demographic analyses of bird populations: case studies with an emphasis on multistate models. *Colloque Capture 2006*, Université Laval, Québec, QC.
- C.70. Dickey, M.-H. & G. Gauthier. 2005. Effect of climate variables on the phenology and reproductive success of Greater Snow Geese (*Chen caerulescens atlantica*). *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.69. Lecomte, N., G. Gauthier, L. Bernatchez & J.-F. Giroux. 2005. Population structure of a Greater Snow Goose colony. *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.68. Gauthier, G., A.M. Calvert & E.T. Reed. 2005. Impacts of special conservation measures on demographic parameters in Greater Snow Geese (*Chen caerulescens atlantica*). *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.67. Mainguy, J., G. Gauthier, J.-F. Giroux & J. Bêty. 2005. Long distance brood movements in Greater Snow Geese: effects on goslings growth and survival. *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.66. Ouellet, N., J. Larochelle & G. Gauthier. 2005. Effect of locomotion on growth in Greater Snow Goose goslings (*Chen caerulescens atlantica*). *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.65. Lecomte, N., G. Gauthier & J.-F. Giroux. 2005. Habitat effects on nest predation risks: the case of the Greater Snow Goose. *Eleventh North American Arctic Goose Conference*, Reno, NV.
- C.64. Audet, B., G. Gauthier & E. Lévesque. 2005. Feeding ecology of Greater Snow Goose (*Chen caerulescens atlantica*) goslings in upland tundra on Bylot Island, Nunavut. *Eleventh North American Arctic Goose Conference*, Reno, Nevada.
- C.63. Bêty, J., J.-F. Giroux, & G. Gauthier. 2004 Individual variation in timing of migration: causes and reproductive consequences in greater snow geese. *122<sup>nd</sup> American Ornithologist Union Meeting*, Québec, Canada.
- C.62. Calvert, A.M. & G. Gauthier. 2004. Exceptional conservation measures: how have they affected survival and hunting mortality in greater snow geese. *122<sup>nd</sup> American Ornithologist Union Meeting*, Québec, Canada.

- C.61. Audet, B., G. Gauthier & E. Lévesque. 2004. Feeding ecology of Greater Snow Goose (*Chen caerulescens atlantica*) goslings in upland tundra on Bylot Island, Nunavut. *122<sup>nd</sup> American Ornithologist Union Meeting*, Québec, Canada.
- C.60. Lecomte, N., G. Gauthier & J.F. Giroux. 2004. Habitat effects on nest predation risks: the case of the Greater Snow Goose. *122<sup>nd</sup> American Ornithologist Union Meeting*, Québec, Canada.
- C.59. Gauthier, G., J.-F. Giroux, A. Reed, A. Béchet & L. Bélanger. 2004. Interactions between land use, habitat use and population increase in greater snow geese: what are the consequences for natural wetlands? *Intecol 7<sup>th</sup> International Wetlands conference*, Utrecht, Netherlands.
- C.58. Giroux, J.-F., G. Gauthier, A. Béchet, M. Féret, J. Mainguy, J. Bêty & V. Lemoine. 2003. Controlling overabundant bird populations: the case of the greater snow goose. *Third International Wildlife Management Congress*, 1-5 December 2003, Christchurch, New Zealand.
- C.57. Gauthier, G. & J.D. Lebreton. 2003. Population models in Greater Snow Geese: a comparison of different approaches. *EURING-2003 meeting*, Radolfzell, Germany.
- C.56. Reed, E., G. Gauthier & J.-F. Giroux. 2003. Effects of spring conditions on breeding propensity of greater snow goose females. *EURING-2003 meeting*, Radolfzell, Germany.
- C.55. Calvert, A.M. & G. Gauthier. 2003. Applying band recovery models to an evaluation of the demographic impacts of exceptional conservation measures. *EURING-2003 meeting*, Radolfzell, Germany.
- C.54. Gauthier, G., J. Bêty, J.-F. Giroux & L. Rochefort. 2003. Trophic interactions in a High Arctic Snow Goose colony. *Annual Meeting of the Society for Integrative and Comparative Biology*, Toronto, ON.
- C.53. Fournier, F., G. Gauthier & J. Larochelle. 2003. The effect of food quality on developmental plasticity and digestive efficiency in Greater Snow Goose goslings. *Annual Meeting of the Society of integrative and comparative biology*, Toronto, ON.
- C.52. Gauthier, G. 2002. Are Greater Snow Geese overabundant? A review of population Dynamics and management actions on this population in North America. *7<sup>th</sup> Annual Meeting of the Goose Specialist Group of Wetlands International*, El Rocio, Spain.
- C.51. Gauthier, G., F. Fournier & J. Larochelle. 2002. The effect of environmental conditions on early growth in geese. *XXIIIrd International Ornithological Congress*, Beijing, China
- C.50. Gauthier, G., J.-F. Giroux & L. Rochefort. 2002. The impact of goose grazing on Arctic and temperate wetlands. *XXIIIrd International Ornithological Congress*, Beijing, China.
- C.49. Bêty, J., G. Gauthier, E. Korpimäki & J.-F. Giroux. 2001. Shared predators and indirect trophic interactions: lemming cycles and arctic-nesting geese. *119<sup>th</sup> American Ornithologist Union Meeting*, Seattle, WA.
- C.48. Bourguelat, G., G. Gauthier & R. Pradel. 2001. New analytical tools to study stopover length in birds: what can we learn from the greater snow goose example? *119<sup>th</sup> American Ornithologist Union Meeting*, Seattle, WA.
- C.47. Gauthier, G. 2001. The effects of management actions on populations: greater snow goose. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.46. Gauthier, G. & J.D. Lebreton. 2001. Population models in greater snow geese: a comparison of different approaches. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.45. Gauthier, G., K. Hobson & J. Bêty. 2001. The role of nutrient reserves in egg formation in greater snow geese: a reply to Ankney (1995). *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.44. Mainguy, J., J. Bêty & G. Gauthier. 2001. Is body condition of laying greater snow geese affected by the Québec spring conservation hunt? *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.43. Bêty, J., G. Gauthier, E. Korpimäki & J.-F. Giroux. 2001. Cyclic lemmings and greater snow geese: direct observations of an indirect trophic interaction. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.42. Reed, E. & G. Gauthier. 2001. The costs of raising a family in greater snow geese *Chen caerulescens atlantica*. *Tenth North American Arctic Goose Conference*, Québec, QC.

- C.41. Righi, M. & G. Gauthier. 2001. Abundance and distribution of intestinal helminths in greater snow geese on the breeding colony, and during their fall and spring migration. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.40. Renaud, M., G. Gauthier & J. Larochelle. 2001. Energetic cost of thermoregulation for greater snow goose goslings growing in a natural environment. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.39. Féret M., G. Gauthier, J.-F. Giroux & K. Hobson. 2001. Impact of spring conservation hunt on nutrient storage of greater snow geese staging in Québec. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.38. Bourguelat, G., G. Gauthier & R. Pradel. 2001. Estimation of the fall stopover length of the greater snow goose in the St. Lawrence estuary using capture-recapture methods. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.37. Béchet, A. J.-F. Giroux & G. Gauthier. 2001. Impact of a spring hunt on the regional movements of staging greater snow geese. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.36. Demers, F. J.-F. Giroux, G. Gauthier & J. Bêty. 2001. Effect of collar-attached transmitters on pair bond, breeding success and behavior of greater snow geese. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.35. Otis, P., J. Larochelle & G. Gauthier. 2001. Energy cost of locomotion in greater snow goose goslings. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.34. Duclos, I., E. Lévesque & L. Rochefort. 2001. Mesic habitats of the Greater Snow Goose (*Chen caerulescens atlantica*) on Bylot Island (Nunavut): characterization and feeding potential. *Tenth North American Arctic Goose Conference*, Québec, QC.
- C.33. Gauthier, G., R. Pradel, S. Menu & J.D. Lebreton. 2000. Modelling seasonal survival rate of greater snow geese in presence of trap-dependence. *EURING-2000 meeting*, Point Reyes, CA.
- C.32. Gauthier, G., R. Pradel, S. Menu & J.D. Lebreton. 2000. Seasonal variations in survival rate of a migratory and hunted species, the greater snow goose. *118th American Ornithologist Union Meeting*, St. John's, NF.
- C.31. Gauthier, G., L. Rochefort, & A. Reed. 2000. Short- and long-term impact of snow goose herbivory on wetland ecosystems of Bylot Island. *Wetland-2000 international meeting*, Quebec City, QC.
- C.30. Lévesque, E., C. Pineau, L. Rochefort & G. Gauthier. 1999. Combined influence of grazing and warming in a high arctic wet meadow. Abstract in *Plant response to climate change*, R.D. Hollister (ed), Proceedings from the *9th International Tundra Experiment Meeting*, East Lansing, MI.
- C.29. Bêty, J, G. Gauthier & J.-F. Giroux. 1998. Factors affecting nesting success in greater snow geese: the interplay between nest density, lemming abundance and association with snowy owls. *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.28. Massé, H., L. Rochefort & G. Gauthier. 1998. Estimating the carrying capacity of wetland habitats used by breeding greater snow geese on Bylot island (N.W.T, Canada). *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.27. Demers, F., J.-F. Giroux & G. Gauthier. 1998. How faithful to their mate are radio-marked greater snow geese? *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.26. Giroux, J.-F., F. Blouin, J. Ferron, G. Gauthier & J. Doucet. 1998. The fall migration of greater snow geese tracked by satellite. *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.25. Menu S., G. Gauthier & A. Reed. 1998. Survival of young greater snow geese during the fall migration. *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.24. Poussart, C., G. Gauthier & J. Larochelle. 1998. Incubation behavior of greater snow geese in relation to weather conditions. *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.23. Gauthier, G. 1998. The role of food and timing of nesting in greater snow goose reproduction. *Ninth North American Arctic Goose Conference*, Victoria, BC.
- C.22. Gauthier, G. 1997. Population regulation in Greater Snow Geese. *Symposium on how to manage thriving goose populations*, Zwolle, Netherlands.

- C.21. Reed, A. & G. Gauthier. 1997. Changes in demographic and physical parameters of greater snow geese during an extended population growth phase. *Symposium on Over-abundant goose population: an emerging challenge in wildlife conservation, Wildlife Society 4th annual conference, Snowmass, Colorado.*
- C.20. Gauthier, G. 1997. The use of capture-recapture models to estimate survival and movements in Greater Snow Geese *Session on biostatistics and survey methods in wildlife management, Annual meeting of the statistical society of Canada, Fredericton, New-Brunswick.*
- C.19. Menu, S., G. Gauthier, A. Reed & J. Hestbeck. 1997. Effects of neck band on the survival of adult female greater snow geese. *Large-scale studies of marked birds, EURING 97, Norwich, United Kingdom.*
- C.18. Gauthier, G. 1996. Energetics of reproduction in greater snow geese: the female condition model revisited. *International workshop on energetics of reproduction in birds, mammals and reptiles: exploring new technologies, Chizé, France.*
- C.17. Giroux, J.-F., F. Blouin, J. Ferron, G. Gauthier, & J. Doucet. 1996. The use of satellite telemetry to track the fall migration of greater snow geese. *5th European conference on wildlife telemetry, Strasbourg, France.*
- C.16. Piedboeuf, N. & G. Gauthier, G. 1996. Nutritional quality of feeding sites in Greater Snow Goose goslings: is it advantageous to use grazed sites? *Comparative Nutrition Society Symposium, Washington, DC.*
- C.15. Lepage, D., G. Gauthier, & A. Desrochers. 1996. Le rôle des parents dans la variation de croissance et de survie chez la Grande Oie des neiges (*Chen caerulescens atlantica*). *Congrès international francophone sur le comportement animal, Québec, QC.*
- C.14. Gauthier, G., R. J. Hughes, A. Reed, J. Beaulieu & L. Rochefort. 1995. Effect of grazing by greater snow geese on the production of graminoids at an arctic site (Bylot Island, NWT, Canada). *25th Arctic Workshop, Québec, QC.*
- C.13. Gauthier, G., D. Lepage & A. Reed. 1995. Site infidelity in nesting Greater Snow Geese (*Chen caerulescens atlantica*). *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.12. Beaulieu, J., G. Gauthier & L. Rochefort. 1995. Growth responses of plants to goose grazing in a High Arctic environment. *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.11. Lepage, D., A. Desrochers & G. Gauthier. 1995. Clutch manipulation in Greater Snow Geese: the causal relationship between hatch date, brood size and pre-fledging growth. *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.10. Lesage, L. & G. Gauthier. 1995. Effect of hatch date and brood-rearing site on growth pattern and organ development in Greater Snow Geese. *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.09. Tremblay, J.-P., G. Gauthier, D. Lepage, A. Desrochers. 1995. Relationship between nest site characteristics and nesting success in greater snow geese. *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.08. Blouin, F., J.-F. Giroux, J. Ferron, G. Gauthier & J. Doucet. 1995. Tracking the fall migration of greater snow geese using satellite telemetry. *Eighth North American Arctic Goose Conference, Albuquerque, NM.*
- C.07. Gauthier, G. & D. Lepage. 1994. The interaction between food supply and gosling growth in greater snow geese. *XXIst International Ornithological Congress, Vienna, Austria.*
- C.06. Gauthier, G. 1992. Diet, food quality and food intake of pre-laying and laying greater snow geese. *Seventh North American Arctic Goose Conference, Vallejo, CA.*
- C.05. Choinière, L. & G. Gauthier. 1992. Reproductive energetics of female greater snow geese on Bylot Island (NWT), Canada. *Seventh North American Arctic Goose Conference, Vallejo, CA.*
- C.04. Hughes, J., A. Reed & G. Gauthier. 1992. Habitat use by brood-rearing greater snow geese. *Seventh North American Arctic Goose Conference, Vallejo, CA.*
- C.03. Lindholm, A. & G. Gauthier. 1992. Hatch date, food quality and growth of juvenile greater snow geese. *Seventh North American Arctic Goose Conference, Vallejo, CA.*

- C.02. Manseau, M. & G. Gauthier. 1992. Brood-rearing habitats in greater snow geese: a comparative study based on the animal perception of its environment. *Seventh North American Arctic Goose Conference*, Vallejo, CA.
- C.01. Reed, A. 1992. Incubation behavior and body mass of female greater snow geese. *Seventh North American Arctic Goose Conference*, Vallejo, CA.

### Graduate student theses

- T.91. Moisan, L. 2025. Réseau de migration et exposition aux perturbations environnementales d'une communauté de vertébrés arctiques. PhD thesis, Département de biologie, Université du Québec à Rimouski.
- T.90. Dulude-de Broin, F. 2025. Influence de la prédation et de l'environnement physique sur la structure des communautés animales en Arctique. PhD thesis, Département de biologie, Université Laval.
- T.89. Grentzmann, I. 2025. Les déterminants physiologiques des variations individuelles de survie et de sénescence chez la grande oie des neiges. PhD thesis, Département de biologie, Université Laval.
- T.88. Weiss-Blais, M. 2025. Rôle de la densité d'oies et de la détection du prédateur dans les variations du succès reproducteur de la grande oie des neiges. MSc thesis, Département de biologie, Université Laval.
- T.87. Gagnon, L. 2024. Effets des vents sur les routes migratoires transatlantiques d'un limicole nichant dans le Haut-Arctique canadien. MSc thesis, Département de biologie, Université du Québec à Rimouski.
- T.86. LeTourneux, F. 2024. Impacts de la chasse sur les paramètres démographiques d'une espèce migratrice: le cas de la grande oie des neiges. PhD thesis, Département de biologie, Université Laval.
- T.85. Poirier, M. 2023. Impact des propriétés physiques de la neige sur les populations de lemmings en Arctique. PhD thesis, Département de biologie, Université Laval.
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