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Lesser Snow Goose colonies in the Pelly Lake area, Northwest Territories, 1988

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Introduction

Breeding Lesser Snow Geese *Anser caerulescens caerulescens* were first recorded in the Pelly Lake area in July 1984 (McCormick and Arner 1987), when 362 adults and 55 young were counted between the junction of the Bullen and Back rivers and the east end of Garry Lake (Fig. 1). In addition, large flocks of young and adults were observed at Pelly Lake but could not be accurately counted.

A survey in mid-July 1986 (McCormick and Bromley 1989) disclosed approximately 2200–2600 Lesser Snow Geese at five sites (Table 1), providing the first breeding records of Lesser Snow Geese at those sites. The presence of these nesting concentrations was attributed to a late spring throughout much of the central Arctic (Fig. 2). It was hypothesized that the geese had resorted to nesting in this area after discovering that their traditional nesting sites in the Queen Maud Gulf Bird Sanctuary were still covered with snow.

A survey in late June 1987 (McCormick 1988) revealed over 9000 birds in 12 colonies (Colony No. 13 was not surveyed). As in 1986, the concentration of breeding geese in this area was attributed to a relatively late spring throughout the central Arctic.

I surveyed this area again in 1988, when spring conditions were considered normal (U.S. Fish and Wildlife Service/Canadian Wildlife Service 1988). The purpose of this paper is to present my results and to discuss them in light of observations from previous years.

Study area

The study area, which is situated in central Northwest Territories, includes the Back River system from approximately the mouth of the Jervoise River to Upper Garry Lake (Fig. 1). It is characterized by generally low, gently undulating terrain punctuated by exposed bedrock. Countless small, rock-bound lakes connected by short, poorly drained creeks occupy the depressions (Zoltai *et al.* 1980). The Back Lowland (Bostock 1970) is covered by a substantial layer of till, which may vary from less than 1 m to many metres in thickness (Thomas 1977). There is some evidence that either a glacial lake existed in, or the sea extended into, the Back River valley (Geological Survey of Canada 1967). Well-formed beaches are present near 65°45'N, 101°00'W, and patches of silt and poorly defined beaches have been observed near Macdougall Lake (Craig 1964). Extensive sand beaches and dunes occur along much of the Back River, and numerous small islands dot Pelly and Garry lakes. The sands support dwarf shrub–monocot barrens and tundra communities. The moder-

ately and poorly drained silts are dominated by cottongrass and wet sedge communities (Edlund 1982).

Methods

I surveyed the area on 28 June 1988 in a Bell 206-B helicopter flown at approximately 30 m above ground level (agl) and about 160 km·h⁻¹. The survey route followed the southern margin of Back River and Pelly Lake eastward and returned along the northern shore of the river. The survey did not extend beyond Colony No. 13. All sites, except Colony Nos. 5 and 13, were photographed from approximately 200 m agl. The number of geese (breeders and nonbreeders) at 11 of 13 colonies was determined from the oblique aerial photographs. If two complete sets of photographs were available, individual estimates were averaged to determine a final estimate for the colony. The number of geese at Colony No. 5 was determined visually while the site was being inspected on foot. The number of geese at Colony No. 13 was estimated visually from the air.

Results and discussion

The location and size of colonies observed in 1986, 1987, and 1988 are presented in Table 1. All colonies were located on islands, except Colony No. 8, which was situated on a peninsula. Available topographic maps depict the area in late summer, when water levels are relatively low. Five sites (Colony Nos. 2, 3, 4, 5, and 7) that appear on the maps as

Table 1
Location of Lesser Snow Goose colonies in the Pelly Lake area and number of white birds observed: 1986, 1987, and 1988

| Colony No. ^a | UTM location | Number of adults ^b | | |
|-------------------------|--------------|-------------------------------|----------------|-----------------------|
| | | 1986 | 1987 | 1988 |
| 1 | EC 785 545 | 44 | 75 | 0 |
| 2 | FC 320 965 | 0 | 200 | 75 |
| 3 | FD 320 030 | 0 | 180 | 10 |
| 4 | FD 345 040 | 0 | 275 | 65 |
| 5 | FD 355 080 | 0 | 1120 | 900–1100 ^c |
| 6 | LJ 635 087 | 300–400 | 1450 | 85 |
| 7 | LJ 735 180 | 800–1000 | 2425 | 930 |
| 8 | LJ 775 170 | 0 | 150 | 60 |
| 9 | LJ 790 175 | 0 | 1035 | 2 |
| 10 | LJ 815 190 | 600 | 1100 | 0 |
| 11 | LJ 845 185 | 0 | 630 | 0 |
| 12 | LJ 822 167 | 0 | 420 | 4 |
| 13 | MJ 200 035 | 500–600 | ? ^d | 300–400 ^c |
| 14 | MJ 020 085 | 0 | ? | 5605 |
| Total | | 2244–2644 | 9060 | 8036–8336 |

^aSee Figure 1 for location of colonies.

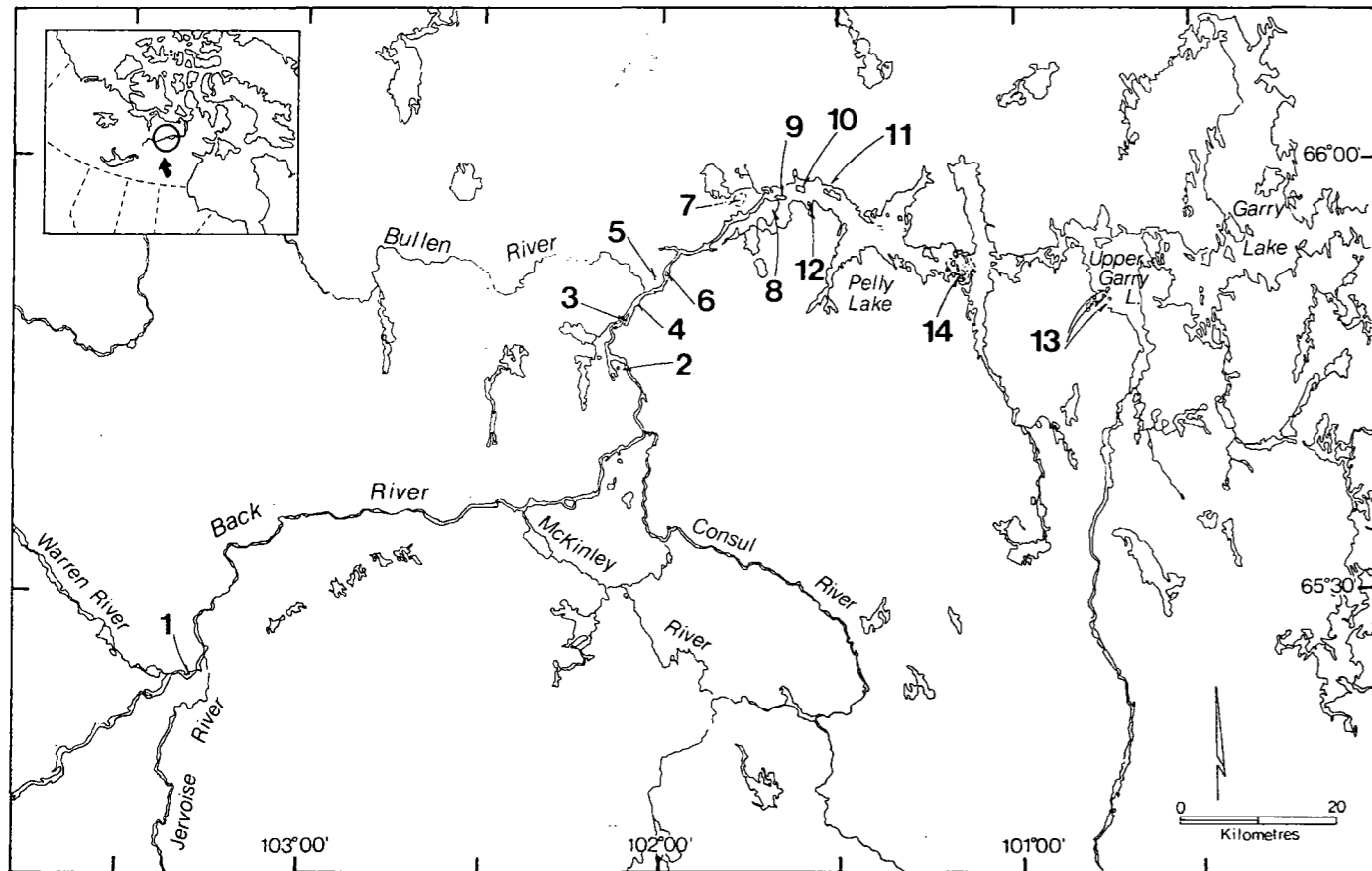
^bIncludes both breeders and nonbreeders.

^cVisual estimate only.

^d? = site not surveyed.

¹CWS, Yellowknife, NWT X1A 2N5.

Figure 1
Location of the study area within the Northwest Territories



parts of extensive sandflats are islands during the spring high-water period.

The number of geese at the colonies was approximately 2200–2600 in 1986, 9100 in 1987, and 8000–8300 in 1988. The estimated numbers of geese for 1987 and 1988 must be considered conservative for two reasons. First, additional potential colony sites in eastern Pelly Lake and Upper Garry Lake were not surveyed. Second, although no cryptic blue-phase birds were detected on the photographs, at least 20% of the geese at Colony No. 2 were blue-phase individuals in 1987, and 13% of the 162 birds observed at Colony No. 5 were blue-phase birds in 1988. These ratios are similar to the preliminary results from a 1988 survey of Lesser Snow Geese in the Queen Maud Gulf Bird Sanctuary, which indicated that those colonies contained at least 15% blue-phase birds (R. Kerbes, pers. commun.). Estimates of colony size would be substantially increased if a similar portion of blue-phase birds was present at all sites.

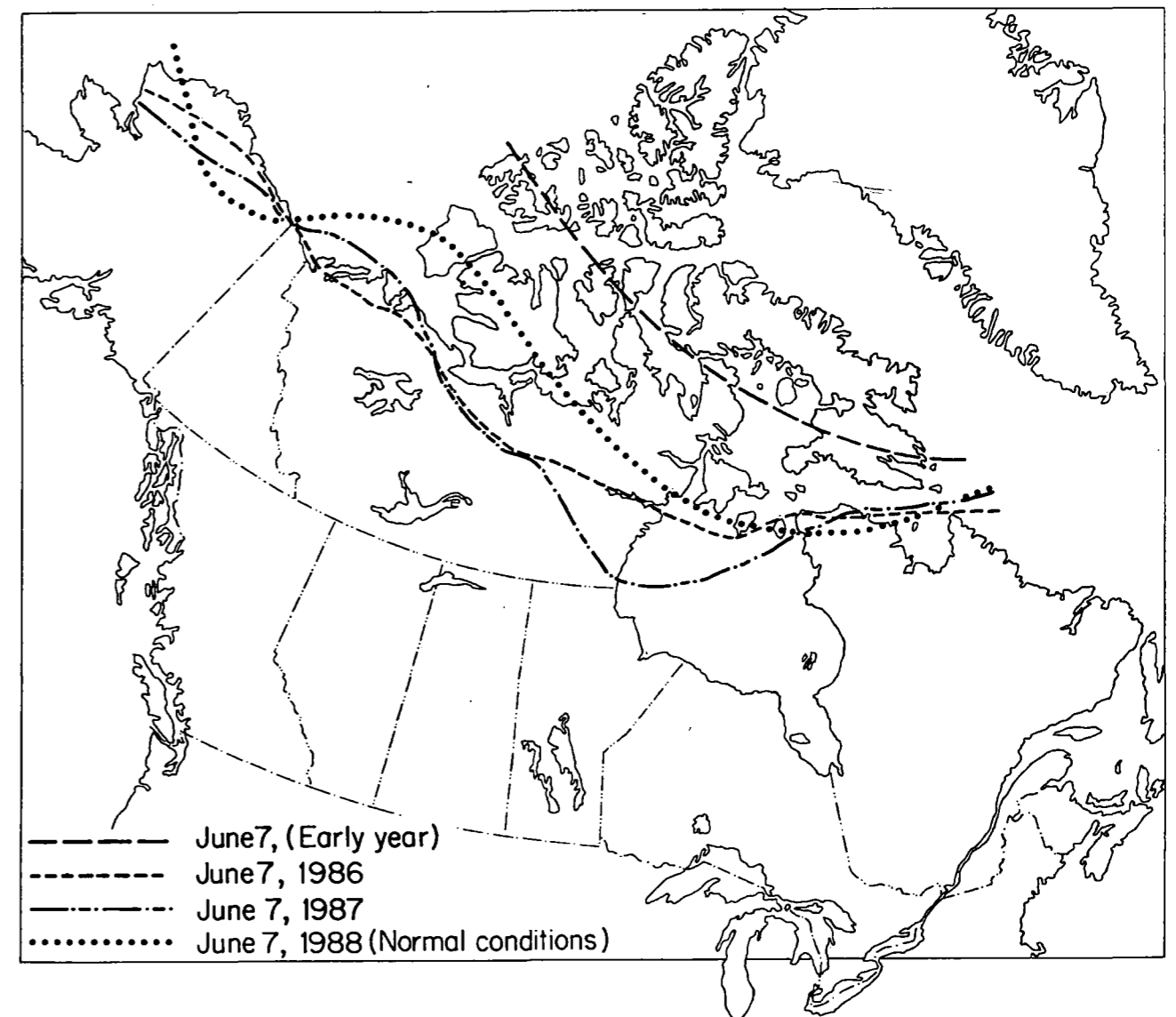
Twelve pairs of Ross' Geese *Anser rossii* were observed at Colony No. 5. Because Ross' Geese cannot be distinguished from Lesser Snow Geese on aerial photographs, it is quite probable that the estimated number of Lesser Snow Geese at each colony includes an undetermined number of Ross' Geese.

The number of active colonies was five in 1986, 12 in 1987, and 11 in 1988. However, the similar number of sites in 1987

and 1988 is somewhat misleading. Because Colony No. 13 was present in 1986 and 1988, it was probably also present in 1987. (Colony Nos. 13 and 14 were not surveyed in 1987 because of a shortage of aircraft fuel.) Also, in light of the significant decline in the number of geese at most of the colonies, it is unlikely that Colony No. 14 would have been present in 1988 if it had not been established in 1987. Therefore, up to 14 colonies may have been present in 1987. Moreover, three sites that were occupied in 1987 were abandoned in 1988, and two others had insignificant numbers. There was a significant decline in the number of geese at all sites except Colony No. 5. The similar numbers of total birds present during 1987 and 1988 may be attributed to the existence of Colony No. 14, which contained over 5000 geese.

The above results are consistent with the hypothesis that significant numbers of geese colonized this area in 1986, when habitat conditions at their traditional nest sites were poor (McCormick 1988; McCormick and Bromley 1989). Total numbers increased significantly in 1987, when habitat conditions at traditional sites were again poor. This increase may be attributed to the return of birds that nested there in 1986, the homing of juvenile geese to their natal grounds, and the attraction of other geese to established colonies (MacInnes and Kerbes 1987). However, it appears that many of the geese returned to their traditional nesting sites when the habitat conditions improved in 1988. Nevertheless, the per-

Figure 2
Estimated location of the snowline in Arctic Canada on 7 June in an early year and in 1986, 1987, and 1988 (from U.S. Fish and Wildlife Service/Canadian Wildlife Service 1986, 1987, 1988)



sistence of geese at the Pelly Lake sites suggests that some birds will continue to nest in this area. The growth of permanent colonies is anticipated.

Acknowledgements

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