

Note

Ross's Goose (*Chen rossii*) Nesting Colony at East Bay, Southampton Island, Nunavut

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Most Ross's Geese (*Chen rossii*) nest in the central arctic of North America, but the range has expanded eastward in the last two decades. In summer 2014, we discovered a cluster of 48 nesting pairs of Ross's Geese at East Bay Migratory Bird Sanctuary, Southampton Island, Nunavut. The Ross's Goose colony was between an upland Lesser Snow Goose (*Chen caerulescens caerulescens*) nesting area and a low-lying Cackling Goose (*Branta hutchinsii*) and Atlantic Brant (*Branta bernicla*) nesting area, in a zone dominated by ponds and lakes and interspersed with areas of moss and graminoids. Our discovery documents a previously unknown level of nesting of Ross's Geese at East Bay and corroborates unpublished evidence of growing numbers of the species on Southampton Island and expansion of its breeding range.

Key Words: Ross's Goose; *Chen rossii*; nesting; Southampton Island; East Bay Migratory Bird Sanctuary; Nunavut

Introduction

Field studies and aerial surveys have documented large populations of nesting Lesser Snow Geese (*Chen caerulescens caerulescens*), Atlantic Brant (*Branta bernicla hrota*), and Cackling Geese (*Branta hutchinsii*) on Southampton Island, Nunavut (Sutton 1932; Barry 1962; Kerbes 1975; Abraham and Ankney 1986; Kerbes *et al.* 2006, 2014). The largest numbers occupy portions of East Bay Migratory Bird Sanctuary, the Harry Gibbons Migratory Bird Sanctuary, and other lowland areas. In contrast, evidence of nesting by Ross's Geese (*Chen rossii*) comes from finding three nests prior to 1980, two in 1957 (Barry and Eisenhart 1958) and one suspected nest in 1979 (Abraham and Ankney 1986), but mainly from the capture of locally hatched young during the banding of molting geese in late summer in the last two decades (Abraham and Ankney 1986; Canadian Wildlife Service, unpublished data).

Study Area

In summer 2014, we conducted a goose study in the East Bay Migratory Bird Sanctuary at the same East Bay area of earlier studies (Abraham and Ankney 1986). The area extended west to 82.03187°W and east to 81.77023°W (Figure 1). East Bay Migratory Bird Sanctuary is a habitat dominated by ponds and lakes. It includes four general zones: tidal, rock dominated (minimal vegetation), pond and lake dominated (moss and graminoid vegetation), and upland (dominated by Entire-leaved Mountain Avens, *Dryas integrifolia*-Vahl, and Dwarf Willow, *Salix herbacea* L.). At the western limits of the study area, the pond and lake dominated zone extends further inland. The plant community here has been influenced by grazing and grubbing by both Lesser

Snow Geese and Cackling Geese in recent decades (Abraham *et al.* 2012).

Methods

Searching for nests was done systematically on foot, using multiple searches of the entire study area during the incubation period to ensure that we found late-nesting and re-nesting geese. We recorded latitude, longitude, and microhabitat measurements at each nest. Nests were identified by observing the incubating female. To confirm that the nests were those of Ross's Geese rather than Lesser Snow Geese, we measured egg size using calipers (to the nearest ± 0.1 mm) following Alisauskas *et al.* (1998). We candled a sample of eggs to determine development stage. We estimated the various forms of ground cover within 1 m of nests, and water within 10 m selecting from 25%, 50%, 75%, or 100%. We also classified dominant vegetation or ground cover within 10 m of each nest, as moss, graminoids, willow, dead moss, bare ground, or rock. We obtained banding records of Ross's Geese and Lesser Snow Geese from the Canadian Wildlife Service (J. O. Leafloor, personal communication).

Results

We found a small colony of 48 nesting pairs of Ross's Geese at the head of East Bay (Figure 1). Nine Ross's Goose nests were discovered on 26 June and an additional 39 were found on 2 July. All nests discovered or re-visited on 2 July were either hatching or in the last 4 days of incubation. The average clutch size at the time of discovery was 3.1 eggs. We measured 110 eggs from 34 Ross's Goose nests. Average egg length was 72.46 ± 2.27 mm and average width was 48.45 ± 1.37 mm (com-

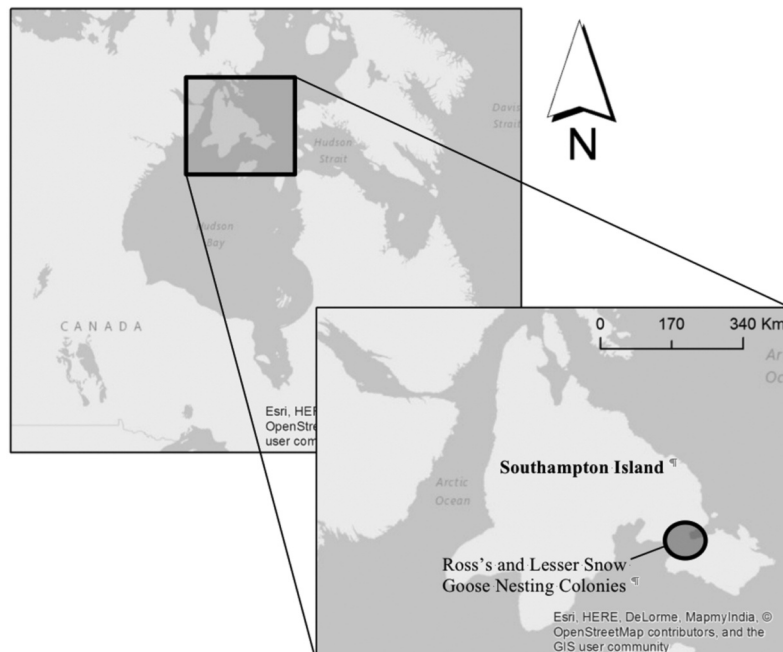


FIGURE 1. Map of Southamptton Island and East Bay, Nunavut, including the previously unknown Ross's Goose (*Chen rossii*) colony.

pared with 71.8 ± 3.2 mm long by 48.4 ± 1.6 mm wide) corroborating our visual identification of the females and pairs as Ross's Geese and not Lesser Snow Geese whose egg size is reported as 78.4 ± 3.2 mm long by 52.7 ± 1.6 mm (Alisauskas *et al.* 1998).

Ross's Geese nested chiefly in the pond and lake dominated zone, sandwiched between an upland nesting area mostly occupied by nesting Lesser Snow Geese, and a low-lying area mostly occupied by nesting Cackling Geese and Atlantic Brant. Conspecific internest distances were lower for Ross's Geese (mean = 30.41 ± 2.62 m, $n = 48$) than Lesser Snow Geese (mean = 83.52 ± 4.96 m, $n = 228$) or Cackling Geese (mean = 99.37 ± 2.62 m, $n = 578$).

The average vegetation composition within a 1-m radius of the nest was 48% live moss, 35% graminoid (mainly Hoppner's Sedge, *Carex subspathacea* Wormskjold), 11% dead moss, 4% rock, 2% willow, and <1% bare ground. Nest material was a combination of down, moss, graminoids, and willow. The dominant form of vegetation within 10 m of the nest was moss for 18 of the nests and graminoids for 29. In addition, on average, 52% of the area within a 10 m radius of the nests was water.

Discussion

North American Ross's Geese nest mostly in the Queen Maud Gulf Sanctuary but growing numbers are nesting in the western Hudson Bay region and numbers

are reported to be increasing in the Foxe Basin region on Baffin Island and on Southamptton Island (Moser 2001; Kerbes *et al.* 2006; Caswell 2009; Alisauskas *et al.* 2012). Although this is the first documentation of a Ross's Goose nesting colony on Southamptton Island, the number and regularity of Ross's Goose captures during annual banding by the Canadian Wildlife Service suggest that it may be just one of many similar small colonies or clusters of Ross's Geese scattered among the much more numerous Lesser Snow Geese nesting on the island. Current estimation techniques for "light geese" on Southamptton Island do not include separate estimates of Ross's Geese as in some other nesting areas (e.g., West Hudson Bay, cf. methods outlined in Kerbes *et al.* 2006, 2014).

We recommend more detailed monitoring on Southamptton Island to allow discovery and enumeration of other nesting clusters of Ross's Geese. This is a necessary precursor to understanding their use of habitat in relation to that of other nesting goose species and their relation to habitat alterations that have occurred.

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