

## The Lesser Black-backed Gull, *Larus fuscus*, in Greenland

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**ABSTRACT.** The lesser black-backed gull (*Larus fuscus*) became a frequent visitor in Greenland in the mid-1980s. Breeding was confirmed in 1990, and today the species is a common breeder in at least two areas in Southwest Greenland between 60° and 66° N. The current breeding population is estimated at more than 700 pairs. Even though the colonization of Greenland by this species may be primarily the result of an increasing source population in Northwest Europe, climate change most likely will facilitate its expansion farther north in Greenland and probably also farther west to eastern Canadian coasts.

**Key words:** lesser black-backed gull, *Larus fuscus*, Greenland, range expansion, North Atlantic

**RÉSUMÉ.** Le goéland brun (*Larus fuscus*) est un visiteur fréquent du Groenland depuis le milieu des années 1980. La reproduction de cette espèce y a d'ailleurs été confirmée en 1990 et de nos jours, elle se reproduit régulièrement dans au moins deux régions du sud-ouest du Groenland, entre 60° et 66° N. En ce moment, la population de reproduction est évaluée à plus de 700 paires. Bien que la colonisation du Groenland par cette espèce puisse être attribuable à une population source de plus en plus grande dans le nord-ouest de l'Europe, le changement climatique facilitera vraisemblablement son foisonnement plus au nord du Groenland et probablement plus à l'ouest vers la côte est canadienne.

**Mots clés :** goéland brun, *Larus fuscus*, Groenland, expansion de l'aire de répartition, Atlantique Nord

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### INTRODUCTION

The bird fauna of Greenland is young, as all the breeding birds are supposed to be post-glacial immigrants that found their way to this large island during approximately the last 10000 years (Bennike, 1999). Immigration is ongoing, and many bird niches still seem to be unoccupied in Greenland, judging from the low diversity there compared to the adjacent Baffin Island or other Arctic areas (Boertmann, 1994, 1999).

In recent decades, two bird species have immigrated to Greenland and established large and viable populations. Canada geese (*Branta canadensis*) have moved in from the North American continent, and the current breeding population numbers probably several thousand pairs. This invasion has been the focus of several studies because of concern about possible effects of interspecific competition on the indigenous and discrete population of Greenland white-fronted geese (*Anser albifrons flavirostris*) (Fox et al., 1996; Boertmann and Egevang, 2002; Kristiansen and Jarrett, 2002). However, the establishment in Greenland of the lesser black-backed gull (*Larus fuscus*), which occurred almost simultaneously, has gone unnoticed.

The lesser black-backed gull has shown a remarkable population increase and range expansion in northwest Europe since the early 1900s (Cramp and Simmons, 1983).

The increase has accelerated in Iceland, Britain, and Ireland in recent decades (Calladine, 2004; A. Petersen, pers. comm. 2005), coinciding with an increase of vagrant lesser black-backed gulls along the Atlantic borders of the Nearctic–Greenland, Canada, and the United States (Boertmann, 1994; Post and Lewis, 1995). Breeding was confirmed in Greenland in 1990, and today lesser black-backed gulls breed abundantly in the Southwest Greenland region. Recently breeding has also occurred in the high Arctic as far north as 74° N. This paper documents the development of the lesser black-backed gull breeding population in Greenland.

### SOURCES

Records of lesser black-backed gulls in Greenland have been published in general avifaunistic works published through the years (Hørring and Salomonsen, 1941; Salomonsen, 1950, 1967; Boertmann, 1994), and many records were also published in reports from the Rarity Committee of the Danish Ornithological Society (Olsen, 1987, 1989, 1991). Lesser black-backed gulls were observed during extensive ship- and aircraft-based surveys for breeding and moulting seabirds in West and East Greenland over the past 15 years (Boertmann and Mosbech, 1992, 1999; Boertmann, 1994, 2004; Boertmann et al.,

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1996; Gilg, 2005). Long-term monitoring projects in Northeast Greenland have also recorded lesser black-backed gulls (Hansen and Meltofte, 2006). In addition to these published records, the documentation reported here includes my own observations and many observations reported directly to me. Negative information is also relevant in this context, and I have been on the lookout for the species during all my research in Greenland since 1974.

Breeding records were accepted if nests with eggs or chicks were reported or if adults were observed feeding chicks. Records of territorial birds without location of nests or chicks are treated here as suspected breeding.

## OBSERVATIONS

Until 1984, only six records of lesser black-backed gulls were known from Greenland, all of them from the west coast (Table 1). The species was indeed a rare bird then: in the summer of 1974, I surveyed extensive coastal areas of Southwest Greenland between 60° and 64.5° N without recording a single sighting (Boertmann, 1979). However, the observations of six adults off the southern tip of Greenland in 1966 (Brown, 1968) were notable exceptions.

From 1985 onwards, numbers of records increased rapidly (Table 1). The first breeding record was documented in 1990, on the same island in South Greenland where breeding had been suspected as early as 1986 and again in 1989 (Table 1). In 1992, the entire coastal region between Paamiut and Disko Bay (62° to 69° N) was surveyed for breeding seabirds, and lesser black-backed gulls were found at two sites (Table 1). No breeding gulls were observed during that survey in the extensive archipelagos to the west of Nuuk (64° N), where six years later I observed large flocks of the species (up to about 50 individuals) with several breeding pairs. Today, however, the region has several breeding colonies holding up to 28 pairs, both in the archipelagos and in the fjordland (C. Egevang, pers. comm. 2006). In 2003, during another extensive survey for breeding seabirds covering the South Greenland region (60–61° N), breeding lesser black-backed gulls were recorded on at least 20 islands and in colonies numbering up to 350 pairs, for a total of more than 600 pairs (Table 1).

Two extensive recent breeding seabird surveys covering the central and northern part of the west coast of Greenland (69–74° N in July 1994 and 67.5–70° N in July 2005) failed to find any lesser black-backed gulls (Boertmann et al., 1996; Boertmann, 2006).

There are far fewer records from the sparsely populated East Greenland (Table 1). Since 2001, however, vagrant lesser black-backed gulls have been observed almost annually at two research sites in High Arctic Northeast Greenland, and in 2007 they were observed as far north as at 81.5° N (Table 1). The most recent development is that lesser black-backed gulls have been present on a small

island at 74.5° N since the summer of 2003 and (at least in 2003) attempted breeding (Table 1). Breeding and territorial pairs have also been recorded recently at another two small islands in Northeast Greenland (Table 1). No observations from Southeast Greenland have been published, but local hunters recognize the species and observe it regularly along all of the coasts (A. Rosing-Asvid, pers. comm. 2006). Moreover, two of the total three band recoveries of birds banded abroad were recovered in southeast Greenland (Table 1), confirming the occurrence of the species in this part of Greenland. Figure 1 summarizes all the breeding records.

## Population Size

The total number of lesser black-backed gull pairs recorded in South Greenland in 2003 is about 600, but the region was not surveyed systematically (i.e., the first known breeding site, where many additional pairs may have occurred in the area, was not visited). Except for a single colony, the numbers in the other core area in the archipelago, around Nuuk, are unknown; but that colony may hold at least 100 pairs. A conservative estimate of the total 2003 population in Southwest Greenland is at least 700 pairs. However, since the coast between the two core areas has not been surveyed recently, and there is no reason to believe that the lesser black-backed gull should be absent there, the breeding population may be considerably larger.

## Origin and Subspecies

Band recoveries indicate the origin of the immigrating lesser black-backed gulls. One bird banded as a chick in the Faroe Islands and two birds ringed as immatures in England have been recovered in Greenland one to six years later (Lyngs, 2003). But as Iceland is much closer to Greenland, many immigrants undoubtedly originate there. These birds belong to the pale-mantled northwest European subspecies *graelsii*. Most sight records also refer to this subspecies. However, two reports, one from West Greenland (Fox and Stroud, 1981) and one from East Greenland (Ferns, 1978) specifically mention birds with darker mantle and upper wings, which suggests that those birds probably belonged to the subspecies *intermedius*.

## Phenology

The earliest date in the year on which lesser black-backed gulls were observed was 12 April, when an adult was observed near Nuuk in West Greenland in 2000 (M. Kviesgaard, pers. comm. 2001), and the latest observation date was 2 November, when two juveniles were seen in 2005, also near Nuuk (C. Egevang, pers. comm. 2006). In 2003, recently fledged juveniles still fed by the parent birds in the breeding colonies were observed in South Greenland on 28 July, and in 2006, a juvenile with still-

TABLE 1. Records of lesser black-backed gull in Greenland. Observations of non-breeding birds in recent years are not included.

Year	Latitude	Status	Note	Source
West Greenland				
1850	60°	ZMUC <sup>1</sup> specimen	immature	Boertmann, 1994
1920	64°	ZMUC specimen	adult	Hørring and Salomonsen, 1941
1961	64°	ZMUC specimen	immature <sup>2</sup>	Salomonsen, 1967
1966	59°	sight records	6 offshore sight records of adults	Brown, 1968
1971	70°	specimen (private collection)	adult	Boertmann, 1994
1979	67°	sight record	adult	Fox and Stroud, 1981
1985	61–64.5°	many sight records	adults, many in pairs and flocks	Pers. obser.; Olsen, 1987
1986	61–64.5°	many sight records	adults, many in pairs and flocks	Pers. obser.
1986	60.5°	suspected breeding <sup>3</sup>	territorial pair	K. Falk, pers. comm. 1991
1988	61°	sight record	adult	Olsen, 1989
1988	69°	sight record	adult	Olsen, 1991
1989	60.5°	suspected breeding <sup>3</sup>	territorial pair	K. Falk, pers. comm. 1991
1990	60.5°	confirmed breeding <sup>3</sup>	one pair	Frich and Nordbjerg, 1992
1991	60.5°	confirmed breeding <sup>3</sup>	one pair	Frich and Nordbjerg, 1992
1992	66°	confirmed breeding	nest with eggs	Boertmann and Mosbech, 1999
1992	67°	probable breeding	territorial pair	Boertmann and Mosbech, 1999
1994	60.5°	probable breeding <sup>3</sup>	2–3 pairs	K. Falk, pers. comm. 1995
1994	64°	sight record	juvenile, recently fledged	Pers. obser.
1998	63–65°	probable breeding	many pairs seen	Pers. obser.
2003	60.5°	probable breeding <sup>3</sup>	> 10 pairs	K. Falk, pers. comm. 2004
2003	64.5°	common breeder	≥ 5 colonies, in total ≥ 60 pairs	C. Egevang, pers. comm. 2006
2003	60–61°	common breeder	≥ 22 colonies, in total ≥ 600 pairs	Boertmann, 2004
2006	63.5–64.5°	common breeder	≥ 11 colonies	C. Egevang, pers. comm. 2006
2007	65°	probable breeding	territorial pair	Pers. obser.
East Greenland				
1969	70.5°	sight record	adult	Boertmann, 1994
1974	72°	sight record	adult	Ferns, 1978
1985	77°	sight record	adult	Boertmann, 1994
1992	66°	band recovery	banded 1988 in UK	Lyngs, 2003
1993	77°	sight record	adult	Boertmann, 1994
1998	66°	band recovery	banded 1997 in UK	Lyngs, 2003
2001–06	74.5°	almost annual observations	adults	Hansen and Meltofte, 2006
2001–05	72.5°	almost annual observations	adults	O. Gilg, pers. comm. 2005
2003	74.5°	confirmed breeding <sup>4</sup>	2 pairs and nest with eggs	M. Elander, pers. comm. 2003
2004	74.5°	probable breeding <sup>4</sup>	territorial pair + single bird	Gilg, 2005
2004	73.5°	confirmed breeding	nest with eggs	Gilg, 2005
2005	74.5°	probable breeding <sup>4</sup>	territorial pair	Hansen and Meltofte, 2006
2005	70.5°	probable breeding	territorial pair	R. Burton, pers. comm. 2005
2007	81.5°	sight record	2 adults, 6 July	C. Nordstrøm, pers. comm. 2007

<sup>1</sup> ZMUC = Zoological Museum of Copenhagen.

<sup>2</sup> Banded on Faroe Islands as chick in 1958.

<sup>3</sup> Island at Eqaqut near Qaqortoq.

<sup>4</sup> Sand Island in Young Sound.

growing primaries and also fed by a parent bird was seen away from the breeding site in Nuuk on 10 September. These dates indicate that egg laying occurs from late May until at least late June (brooding period 25 days and fledging period 35 days; Cramp and Simmons, 1983).

#### Breeding Habitat

All lesser black-backed gulls breeding in West Greenland were found on small, low islands more or less covered with grass and dwarf scrub vegetation. Here they often nested among other *Larus* species, usually Iceland gulls (*L. glaucooides*) or great black-backed gulls (*L. marinus*). However, the breeding site in Young Sound in Northeast Greenland is a low, almost barren bank of gravel and sand, where the nest was found among large numbers of

breeding arctic terns (*Sterna paradisaea*) and Sabine's gulls (*Larus sabini*). The two other breeding or supposed breeding sites in Northeast Greenland also hold arctic tern colonies.

#### DISCUSSION

Although lesser black-backed gulls apparently occurred in waters off South Greenland as early as the 1960s (Brown, 1968), they were considered rare vagrants in Greenland until at least the mid-1970s. Since then, however, their frequency of occurrence has shown a rapid increase. The first breeding record was documented in the mildest part of Greenland, where the inland is ascribed to the Subarctic zone (average July temperature > 10° C).



FIG. 1. The breeding distribution of lesser black-backed gulls in Greenland (status in 2007). The two core breeding areas are shown with hatching, and number of known breeding sites is indicated for each. Black dots are confirmed isolated breeding sites, and black triangles are supposed breeding sites. Question marks indicate coastlines not surveyed recently, but where lesser black-backed gulls probably breed.

Thirteen years later, the species had expanded its range in the Low Arctic part of West Greenland as far north as 66° N. Farther north in West Greenland, the species still seems to occur only as a scarce summer visitor. In East Greenland, the lesser black-backed gull is now a regular visitor to many areas in both the High and the Low Arctic parts, and breeding occasionally takes place.

The southern part of Greenland's west coast appears well suited for breeding lesser black-backed gulls: the climate is generally mild and oceanic, and sea ice is absent from most of the region throughout the year. It is more puzzling why the gulls have found their way to the much more inhospitable High Arctic of Northeast Greenland, where heavy drift ice usually blocks the coasts in summer. But the breeding record there coincided with extremely light ice conditions (Rasch and Caning, 2004). In 2006, when the ice conditions were severe, only non-breeding lesser black-backed gulls were recorded at the breeding island in Young Sound (A. Tøttrup, pers. comm. 2006).

The increase in lesser black-backed gulls in northwestern Europe during the first half of the 20th century is usually ascribed to increased protective legislation and reduced exploitation, whereas the increase in the latter half of the century may be due to increased food resources (fishery discards, garbage, etc.) and a reduced tendency to migrate (Calladine, 2004). In the early 20th century, the population increase of these gulls also coincided with a general amelioration of the climate. However, the colonization of Greenland took place during a period of regional cooling, when sea temperatures were decreasing around Greenland, which also coincided with the disappearance of the Atlantic cod (*Gadus morhua*) from the banks off West Greenland (Pedersen and Rice, 2002). This timing indicates that the lesser black-backed gull niche in Southwest Greenland may have been available for a long time, but the colonization did not take place until there was a sufficiently large population surplus from Iceland and northwest Europe to sustain a founder population. Given that the 20th-century range expansion also extended southward to France and the Iberian Peninsula (Cramp and Simmons, 1983), it is likely that the primary cause for the species expansion was not the climate, but an increasing source population in combination with the migratory tendencies of the species.

Two other gull species, the herring gull (*Larus argentatus*) and the black-headed gull (*Larus ridibundus*), have followed the same route, using Iceland as a stepping stone when expanding their breeding range across the North Atlantic. These species colonized Iceland in the early 20th century (Cramp and Simmons, 1983) and subsequently found their way to Southwest Greenland, where today they breed irregularly and in very low numbers (Salomonsen, 1979; Boertmann, 1994, 2004). Black-headed gulls also colonized Labrador and Newfoundland (Montevecchi et al., 1987; Chaulk et al., 2004). Lesser black-backed gulls, except for a single odd breeding record from the interior United States, have so far been reported only as vagrants in North America (Post and Lewis, 1995); however, I find it likely that they will follow the black-headed gulls and establish at least temporary small breeding populations along the shores of Labrador or Newfoundland within the next few decades. And if the reduction in sea ice distribution in the Arctic summer continues as predicted by the climate-change models (Walsh, 2005), the potential for a further northward expansion of the breeding range of coastal boreal species (including lesser black-backed gulls) in Greenland and other Arctic areas will increase.

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