

An ornithological survey of the Carey Islands, Northwest Greenland

JENNIFER L. BURNHAM and KURT K. BURNHAM



(Med et dansk resumé: Fuglene på Carey Øerne i Thule-området, Nordgrønland)

Abstract The Carey Islands of northwest Greenland are infrequently visited by ornithological researchers, and baseline population data for many avian species is limited or absent. This paper highlights the results of a three-day expedition to circumnavigate the largest islands and islets of the Carey Island group to document the population and breeding status of all avian species. Sixteen species were observed, with ten documented breeding. Of particular interest to the avian record of the region is the first documented observation of White-fronted Geese on the Carey Islands and the large number of breeding of Brant Geese.

Introduction

The Carey Islands (Kitsissut), off the coast of northwest Greenland, are a grouping of seven small islands and numerous rocky islets located approximately 100 km west of Thule Air Base and 50 km from the closest landmass (Fig. 1). Glacially smoothed Precambrian metamorphic rocks (primarily gray banded and pink gneiss) dominate the landscape of the islands and are often intersected by dolerite (igneous) sills and dikes (Munck 1941, Bendix-Almgreen et al. 1967). Vegetation is sparse, except for locations beneath Thick-billed Murre *Uria lomvia* colonies, where the vegetation is relatively lush and green. The Carey Islands are located at the southern edge of the North Water Polynya (NOW) which provides important benefits for adult foraging and post-fledging staging of numerous seabird species (Falk et al. 2001). The islands are rarely visited by humans and information on the density and species of birds which breed and occur amongst the islands is sparse.

The first recorded visit to the islands was by the Bylot and Baffin expedition of 1616 who named the island grouping (Wordie 1938). Since then the islands have been occasionally visited by other explorers: Björling in 1892 (Harper 2005),

Markham in 1851 (Markham 1853), Nares in 1875 (Nares 1878), and Wordie in 1937 (op.cit.); by geologists Munck (1941), Bendix-Almgreen et al. (1967) and Blake (1977); and by Rasmussen and Koch (Wordie op.cit.), the Godthaab Expedition (Riis-Carstensen 1931), and Norberg et al. (2004). Few ornithologists have visited the islands, with the most detailed information provided by Salomonsen (1950, 1967), Kampp (1990), Falk & Kampp (1997) and Merkel et al. (2007). Published information is generally limited to data on seabirds observed breeding on Hollænderhatten, Nordvestø, Mellemø and Isbjørneø.

Throughout much of west Greenland many bird colonies and populations have suffered severe declines, often due to over-harvesting or other human-related activities (Kampp et al. 1994, Mosbech & Boertmann 1999, Merkel 2004a, 2004b, Burnham et al. 2005). Even within the more remote Thule District, Thing (1976) described between 3600 and 4800 Common Eider *Somateria mollissima* eggs (likely representing between 900 and 1200 nests) as being collected by local hunters during a visit to the uninhabited northern part of the district. In more recent years we have observed both egg collecting and the shooting of incubating adult seabirds from nesting cliffs.

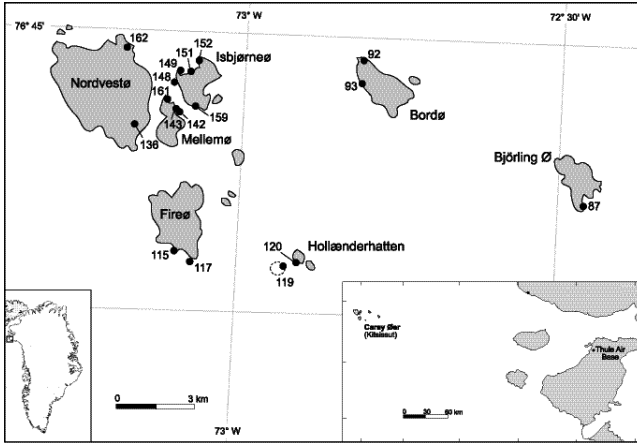


Figure 1. General map of the Carey Islands with GPS locations for avian observations of importance. Note the inset map showing the approximate distance from Thule Air Base. The general Thule region (as referred to in the text) refers to the area of the inset map extending north to approximately 77°40' N and south to 75°55' N.

Kort over Carey Øer, med GPS-positioner angivet for visse fugleobservationer.

87. 10 ad. and 2 juv. Brant Geese

92. 3 Atl. Puffins

93. 10 White-fronted Geese

115. 13 ad. and 7 juv. Brant Geese

117. c. 100 North. Fulmars feeding

119. c. 2000 eiders feeding near reef

120. Large Atl. Puffin colony; 2 Razorbills

136. Thick-billed Murre colony

142. 19 ad. and 1 juv. Brant Geese

143. Thick-billed Murre colony

144. 9 ad. and 9 juv. Snow Geese

148/149/151/152/159. Thick-billed Murre colonies

161. 15 ad. Brant Geese

162. DMI cabin

Additional threats to bird populations in Greenland include the continued exploration for fossil fuels and mineral mining, although much of this is currently occurring further south in Greenland.

The nearest Greenlandic village, Moriussaq, is approximately 70 km from the Carey Islands (Fig. 1). Due to the large expanse of open ocean and the small open boats (4-6 m, single engine) commonly used by locals, the islands are rarely, if ever, visited during summer months. Remains of several Greenlandic sod huts can be found on Nordvestø and Isbjørneø, however, all appear extremely old and have not been occupied since the mid-1800s when the 1851 Markham expedition noted them as vacant (Wordie 1938). The only known structures on the islands are a small building and automated weather station operated by the Danish Meteorological Institute (DMI) on Nordvestø and a Danish flagpole on the top of Isbjørneø maintained and infrequently visited by the Danish Liaison Officer from Thule Air Base.

The Carey Islands present a unique opportunity to study and monitor an ecosystem on the west coast of Greenland that is rarely if ever directly disturbed by humans. Little baseline information currently exists on the type and density of species which breed on the islands, therefore this research is intended to provide a baseline population dataset from which to compare similar future surveys.

Methods

The Carey Islands were visited during a three-day period from 1-3 August 2008. The islands and islets were circumnavigated using an 8 m long open outboard research boat (Safe Boat, Port Orchard, Washington). Boat speed was less than 3 knots when actively surveying and the boat was no more than 50 m from shore during surveys. Six personnel were on board and a minimum of three observers were watching for birds at all times. At locations where birds were observed, both on the water and onshore, GPS locations were recorded adjacent to the site. When bird species were observed we attempted to determine if the species was breeding, attached to a location, passing by, or foraging. At locations where breeding was likely occurring, the boat was shut-off and observations were made for an extended period of time to determine breeding chronology. At smaller islets, stops were made and researchers searched on foot to determine if waterfowl, gulls, or shorebirds were present and/or breeding.

Results

Sixteen avian species were recorded on the Carey Islands (Table 1). Ten of these were confirmed as breeding or very likely breeding on the islands. A brief discussion of each species is listed below while specific points of interest have been in-

cluded in Fig. 1. For specific information on the number of species observed for each individual island see Appendix A.

Northern Fulmar *Fulmarus glacialis*

Single individuals were observed feeding around both Björling Ø and Børdø, while a large group of approximately 100 individuals was feeding in the water off the coast of Fireø (WP 117, Fig. 1). Eight to ten thousand pairs of Northern Fulmars breed on Saunders Island, 66 km east of the Carey Islands (Salomonsen 1967).

White-fronted Goose *Anser albifrons*

Ten adult White-fronted Geese were observed on the northwest side of Børdø. There was no indication that the birds were breeding there. No previous observations of White-fronted Geese have been recorded for the Carey Islands, but in 1989 the species was observed north of Qaanaaq [three birds at Tasersuit (77°42' N, 69°20' W); Best & Higgs 1990]. The breeding range in West Greenland is between 64° and 72°30' N (Salomonsen 1950).

Snow Goose *Anser caerulescens*

Nine flightless adults and nine goslings were observed on the southwest coast of Isbjørneø (WP 144, Fig. 1). In 1987 K. Kampp (pers. com. 2008)

observed six adults and five goslings on Nordvestø. A minimum of 11 adults and eight goslings were also observed between Nordvestø and Mellemø in 2006 (L. Witting, pers. com. 2009). Breeding Snow Geese have also been observed north of Qaanaaq at Tasersuit (Thing 1976, Best & Higgs 1990), at McGary Island (79°12' N, 65°58' W) (Thing op.cit.), and at least seven other locations in the region (K. Burnham, unpubl. data).

Brant Goose *Branta bernicla*

Brant Geese were observed on all seven of the largest islands surveyed, in total 115 adults and 10 chicks. The groups ranged in size from two to 19 adults and one to seven goslings. Flightless groups of adults were observed on several occasions – roughly one quarter of the birds appeared flightless. Although it is possible that some birds were double counted (especially those in flight), we feel that double counting was minimized, based on the spacing of the islands and judged from the number of individuals observed in groups. As an example, the two largest groups counted were both observed feeding on the shoreline before taking flight; one of these groups had two individuals with color bands whereas the other group had none, suggesting that they were separate groups.

This is only the second time that breeding Brant Geese have been documented on the Carey

Table 1. List of species observed on the Carey Islands and their likely breeding status.

Arter observeret på Carey Øer i 2008, og deres status som ynglefugle (no: ikke ynglende; yes: sikkert el. sandsynligt ynglende).

Common name	Scientific name	Danish name	Confirmed or likely breeding
Northern Fulmar	<i>Fulmarus glacialis</i>	Mallemuk	no
White-fronted Goose	<i>Anser albifrons flavirostris</i>	Blisgås	no
Snow Goose	<i>Anser caerulescens</i>	Snegås	yes
Brant Goose	<i>Branta bernicla</i>	Knortegås	yes
Common Eider	<i>Somateria mollissima</i>	Ederfugl	yes
King Eider	<i>Somateria spectabilis</i>	Kongeederfugl	no
Purple Sandpiper	<i>Calidris maritima</i>	Sortgrå Ryle	no
Ruddy Turnstone	<i>Arenaria interpres</i>	Stenvender	no
Glaucous Gull	<i>Larus hyperboreus</i>	Gråmåge	yes
Black-legged Kittiwake	<i>Rissa tridactyla</i>	Ride	no
Thick-billed Murre	<i>Uria lomvia</i>	Polarlomvie	yes
Razorbill	<i>Alca torda</i>	Alk	yes
Black Guillemot	<i>Cephus grylle</i>	Tejst	yes
Atlantic Puffin	<i>Fratercula arctica</i>	Lunde	yes
Common Raven	<i>Corvus corax</i>	Ravn	yes
Snow Bunting	<i>Plectrophenax nivalis</i>	Snespurv	yes



Northwestern part of Isbjørneø seen from NE. A few thousand Thick-billed Murres breed on the cliffs visible to the right in the photo, and lower numbers in the center and to the left. Photo: Flemming Merkel.

Nordvestlige del af Isbjørneø set fra NØ. Fjeldsiden i billedets højre side er yngleplads for nogle få tusinde Polarlomvier, og mindre antal yngler også i billedets midte og venstre side.

Islands in many decades. The other recent observation was in 2006 during a Thick-billed Murre survey (L. Witting pers. com. 2009). F. Salomonsen inferred that Brant Geese bred on the Carey Islands after learning from Knud Rasmussen that "geese" bred on the islands, stating that "...this can only refer to Brents" (Salomonsen 1950). K. Kampp observed Brant Geese on Isbjørneø and Hollænderhatten in 1987, but believed them to be summering or staging prior to migration (pers. com. 2008). Currently the species is known to breed at only one other location in the Thule area, on Dalrymple Rock (76°28' N, 70°13' W), where a few pairs were found nesting in 2003, 2005 and 2008 (K. Burnham, unpubl. data).

Common Eider *Somateria mollissima*

Common Eiders were very abundant inhabitants of the Carey Islands. They were observed on all of the seven main islands and many of the islets surrounding the islands. Breeding and non-breeding females were observed closest to shore, with a total of 300-400 observed amongst all seven islands; group size ranged from single hens to 50-60 individuals. Large groups of males (~2000), occasionally mixed with King Eider males, were observed feeding offshore around shallow reefs (note WP 119 on Fig. 1). The majority of the ducklings seen in the water were estimated at 3-5 days old, but a

few groups of older chicks (approximately half-grown) were observed on Fireø and Mellemø. The small rock islets around Nordvestø had the most active nests observed (30+), with several nests still occupied by incubating females. Thing (1976) mentioned the species as a very common breeder throughout the Thule district, especially on islets, while Salomonsen (1950) made reference to the Carey Islands as the site of one of the largest breeding colonies in the region.

King Eider *Somateria spectabilis*

King Eiders were not as abundant as Common Eiders on the Carey Islands. Observations of flying males were made near Fireø, Hollænderhatten, and Nordvestø. A large group of 400-500 mixed King and Common Eider males were observed feeding off the coast of Fireø. While Salomonsen (1950) listed the King Eider as a common breeder on the Pituffik plains in the Thule area, Thing (1976) only references it once as breeding. Based on our experience, King Eiders are now rare along the mainland in the Thule area, and have only been observed on two occasions over the past 16 years (K. Burnham, unpublished data). However, K. Kampp reports (pers. com. 2009) seeing non-breeding flocks off Hakluyt Island (77°26' N, 72°40' W) in the summers of 1996-1998.

Purple Sandpiper *Calidris maritima*

Observations of individual birds and a group of 6-7 were made on small rocky islets off the coasts of Nordvestvø and Fireø. Most appeared to be feeding and were not exhibiting defensive behavior as if breeding. In 2008 Purple Sandpipers were also observed on Edderfugleøer (76°30' N, 70°04' W) and the Manson Øer (76°40' N, 69°08' W), approximately 65 and 80 km east of the Carey Islands (K. Burnham unpubl. data). Boertmann (1994) mentioned the species as a scarce breeder in the Thule region.

Ruddy Turnstone *Arenaria interpres*

A single bird was observed on a small rocky islet off the northern coast of Nordvestø. There was no indication that the bird was breeding there. The species is known as a scarce breeder in the Thule region (Boertmann 1994), but is a regular passage migrant. In recent years large groups have been observed near Moriussaq (K. Burnham unpubl. data).

Glaucous Gull *Larus hyperboreus*

Glaucous Gulls were observed on all seven of the surveyed islands. Groups ranged in size from single pairs to small colonies of 11-12 pairs. Numerous juveniles were observed ranging in size from fully fledged to within a week of flying. On many occasions young were not visible, but adults displayed aggressive behavior, implying the presence of unseen and unfledged young. Thing (1976) noted that the species was a very common breeder throughout the Thule district.

Black-legged Kittiwake *Rissa tridactyla*

Kittiwakes were observed twice during the Carey Island survey. At Bordø a group of five adults were seen feeding in the water, and another small group (not counted) was seen feeding on the water near Björling Ø. The species breeds at several colonies throughout the Thule district north to Hakluyt Island (Salomonsen 1967).

Thick-billed Murre *Uria lomvia*

The presence of breeding Thick-billed Murres on the Carey Islands has been known for many years (Salomonsen 1950, NERI 2009). Nordvestø has three small colonies on the south side of the island, Mellemø has one on the northeast side, and Isbjørneø has seven spanning the northern coast and one on the south coast (Falk & Kampp 1997) (Fig. 1). Murre colonies are located on vertical or near vertical cliff faces on the coast, and can be

clearly distinguished by the thick buildup of white guano staining the cliffs.

Because of the thorough documentation and systematic counting of these sites by others (Kampp 1990, Merkel et al. 2007) our survey did not attempt to count the number of individuals, but rather documented their presence. Although it was difficult to distinguish the eight separate sub-colonies on Isbjørneø (we only noted five in our survey), it appears that the majority of the colonies on the three islands were inhabited and had a healthy population. The sub-colony observed at waypoint 149 (Fig. 1) [possibly the sub-colony E of Falk & Kampp 1997] appeared to be vacant or very sparsely inhabited. Murre chicks were not seen or heard in the waters off the colonies during our visit, but shells of hatched eggs were observed below the Nordvestø colonies.

Razorbill *Alca torda*

Two individual Razorbills were observed on Hollønderhatten near an Atlantic Puffin *Fratercula arctica* colony (WP 120, Fig. 1). This is most likely a small breeding colony, and is the same location where Salomonsen (1968, see NERI 2009) and Kampp (1987, see Kampp 1990) made their Razorbill observations of six and 12 birds, respectively. Other small breeding colonies have been observed in the Thule area at Parker Snow Bay (76°10' N, 68°37' W) and Hakluyt Island (Kampp 1990), and at Dalrymple Rock (K. Burnham, unpubl. data).

Black Guillemot *Cepphus grylle*

Groups of Black Guillemot were recorded on all islands except Nordvestø. This species appears to be a very common breeder along the rocky cliff faces of the island coastlines. Group sizes ranged from single pairs of birds to larger groups of 75-100 individuals. No chicks were observed [according to Salomonsen (1967) fledging generally occurs in mid-August], but numerous birds were observed carrying food to cracks in cliffs that were marked by heavy guano. Salomonsen (NERI 2009) made observations of Black Guillemots on Isbjørneø, Nordvestø, and Hollønderhatten in 1968, 1973 and 1975, and Kampp (1990) documented populations on all three islands as well. As Black Guillemots have previously been observed on Nordvestø, it is possible that they were present but missed during our survey. The species is known as a common breeder in the Thule region, as far north as Washington Land (Salomonsen 1967, Boertmann 1994).

Table 2. Comparison of previous avian survey data for five selected species. *Sammenligning mellem tal for udvalgte arter, noteret under seks besøg på Carey Øer, 1936-2008*

Species	Location	Salomonsen 1936 ^a	Salomonsen 1968 ^a	Salomonsen 1975 ^b	1987 survey ^{abc}	2006 survey ^d	2008 survey ^e
<i>Larus hyperboeus</i>	Isbjørneø	-	3 i/p	-	5-10 p	-	9
	Hollaenderhatten	-	10 i/p	-	+	-	14
<i>Uria lomvia</i>	Nordvestø	-	3400 i/p	-	1250	2443	+
	Isbjørneø	20000 i/p	10600 i/p	-	5370	7414	+
	Mellemø	-	150 i/p	-	80	141	+
<i>Alca torda</i>	Hollaenderhatten	-	6	-	12	-	2
<i>Cepphus grylle</i>	Bjørting Ø	-	-	-	200	-	74-79
	Isbjørneø	-	13-100 p	-	30	-	40
	Nordvestø	-	-	25 i/p	-	-	-
	Hollaenderhatten	-	100 i/p	-	+	-	~100
<i>Fratercula arctica</i>	Hollaenderhatten	-	5 i/p	-	60	-	113

Values reported as individuals unless otherwise noted.

p = pair, i/p = individual or pair (unclear), + = present, but not counted, - = no information

^a as reported in NERI (2009)

^b as reported in Boertmann et al. (1996)

^c as reported in Kampp (1990)

^d as reported by Merkel et al. (2007)

^e present study

Atlantic Puffin *Fratercula arctica*

A colony of approximately 110 Atlantic Puffins was documented on the south side of Holl nderhatten (WP 120, Fig. 1). This colony was known by Salomonsen (NERI 2009) and Kampp (1990), however, our numbers appear to be much larger than their counts of five and 60, respectively. We spent an extended period of time on the water counting and recounting the individuals as they were carrying food to and from nesting burrows. The total number of individuals in the colony is not known but is likely to be somewhat higher than the number counted, as is generally the case when counting seabirds at nesting colonies. An additional small group of three individuals was observed on the north side of the island and were probably also breeding. On Bord , three adults were observed both on the water and flying, repeatedly circling a small section of rocky cliff to which they appeared to be attached. Puffins are uncommon in the Thule area and occur, generally at low numbers, at only six or seven other locations (Salomonsen 1950, K. Burnham unpubl. data).

Common Raven *Corvus corax*

A group of four Common Ravens were documented once on Isbj rne  and likely the same group was observed flying over Nordvest  near the DMI cabin (WP 162, Fig. 1). As Ravens are the first birds to breed and fledge young in the Thule area (Salomonsen 1950), it is likely that we observed a family group of two adults and two juveniles. Salomonsen (1950, 1967) notes that Common Ravens breed as far north as Inglefield Land and are common throughout the Thule area.

Snow Bunting *Plectrophenax nivalis*

A common breeder on the mainland of the Thule district (Thing 1976, Boertmann 1994), Snow Buntings were only observed twice on the Carey Islands. One observation was of a single male on Bj rling  , the other of a pair with one fledged young on Nordvest .

Discussion

Recent data for bird species found on the Carey Islands are limited, and are primarily focused on the Thick-billed Murre colonies, which were last surveyed in 1987 (Kampp 1990) and 2006 (Merkel et al. 2007). Kampp's survey in 1987 provides the most recent detailed information on other bird species on the islands, when he observed a total of 15 species (pers. com. 2008). Of note, K. Kampp

observed a single Northern Wheatear *Oenanthe oenanthe* on Isbj rne  and heard Dovekies *Alle alle* at Nordvest  and Isbj rne , both species not observed during our survey. Whether any of these species breeds or ever have bred on Carey Islands is not known, but they are both likely occasionally to pass by the islands.

When comparing our observations with those of previous visitors, it should be kept in mind that, during his stay from 8 to 11 August, K. Kampp only visited Isbj rne , Nordvest  and Mellem , and passed closely by Bj rling   and Holl nderhatten (pers. com. 2008), with his primary focus being to count and photograph the Thick-billed Murre colonies. While Salomonsen was a somewhat regular visitor to the Carey Islands (in 1936, 1968, 1973, 1975, and 1978) (Falk & Kampp 1997, NERI 2009), his visits were generally of short duration and mainly aimed at counting Thick-billed Murres, and much of his information is unpublished and only available from his field notes kept at the Zoological Museum in Copenhagen.

Based on the lack of published historical records, it is difficult to determine what changes have occurred in both the density and number of species present on the Carey Islands. The number of Thick-billed Murres (Table 2) apparently declined markedly between the surveys of 1936, 1968, and 1987, but that could be a result of different methods – details of counts prior to 1987 are lacking – and the most recent survey of 2006 (Merkel et al. 2007) suggests that the population is likely stable.

Other apparent changes in population size were observed in both Black Guillemots and Atlantic Puffins. The number of guillemots we observed at Bj rling   was less than half as many as those seen by Kampp (1990) when passing the island in 1987 (Table 2), but guillemots are difficult to survey, and numbers on the water off colonies vary considerably during the day and between days (Andersen et al. 2009). For puffins, however, a real increase in numbers on the Carey Islands appears likely. The small colony we found on Bord  could have been overlooked by previous visitors, but the increase in individuals counted at Holl nderhatten was very marked, from five in 1968 (NERI 2009) to 60 in 1987 (Kampp 1990) and 113 during our survey.

Perhaps of most interest is our observation of a relatively large number of Brant Geese. Salomonsen (1950, 1967) believed them to breed in the Thule area, however, few breeding records exist in more recent decades. Additionally, our



Thick-billed Murres breed on narrow ledges on cliffs. Photo: Flemming Merkel.
Polarlomvier yngler på smalle klippehylder.

observation of White-fronted Geese is new for the Carey Islands, and only the second ever for the species north of Melville Bay.

Of additional interest is the large number of both Common and King Eiders observed. However, although Common Eiders were fairly abundant, we did not find the islands to have large breeding colonies, such as those described by Christensen & Falk (2001) for other islands of similar size in the Thule area, despite Salomonsen's (1950) references to the Carey Islands as having a large colony of breeding Common Eiders. It is difficult to know if the breeding population in the Carey Islands has decreased since Salomonsen's observations or not. However, in general we did see a number of hens with chicks on the water and no doubt the Carey Islands are still an important breeding area. The large flock of at least a few thousand Common and King Eider males (WP 119, Fig. 1) included individuals in adult, first winter, and eclipse plumage. It seems the islands are an important area for summering males as we have never observed flocks nearly this large anywhere else in the Thule area.

During our survey of the Carey Islands we no doubt missed species which both occur and pos-

sibly breed on the islands. Types of birds that were most likely missed included both passerines, e.g., Lapland Longspurs *Calcarius lapponicus* and Hoary Redpolls *Carduelis hornemanni*, and shorebirds, e.g., Red Knots *Calidris canutus*, all of which breed on the mainland. Additionally, while not likely breeders on the Carey Islands, Peregrine Falcons *Falco peregrinus* have been shown to use the islands as a pre-migration site (Burnham 2007) and Gyrfalcons *Falco rusticolus* likely do similarly.

Despite only 50 km distant from the mainland, the Carey Islands are home to several species of birds which are rarely observed and seldom breed on the mainland. The islands also appear to be free from both the human disturbance and hunting/egg collecting pressure which occur on the mainland and amongst islands closer to the mainland. As future environmental changes occur, such as climate change, the Carey Islands present a unique opportunity for researchers to thoroughly survey remote islands in a relatively short time period while also being devoid of direct human disturbance that might otherwise complicate interpretation of results.

Acknowledgements

Special thanks to Jack Stephens, Bridger Konkel, Jeremy Hughes, and Calen Offield for their assistance during this survey and Kaj Kampp and an anonymous reviewer for important comments and suggestions on this manuscript. Financial support for this research was provided by Calen Offield and The Offield Family Foundation, Ruth O'Donnell Mutch, and Augustana College. Permission to conduct research in Greenland was granted by the Danish Polar Center and Greenland Home Rule Government. Thanks to the United States Air Force and Thule Air Base for their friendship and logistical support.

Resumé

Fuglene på Carey Øer i Thule-området, Nordgrønland

Carey Øer er en gruppe af små øer, beliggende 50 km fra fastlandet i Thule-området (tidl. Avanersuaq kommune) i Nordgrønland. Øerne har sjældent været besøgt af ornitologer eller andre forskere. Finn Salomonsen var forbi en del gange (1936, 1968, 1973, 1975, 1978), og hans upublicerede noter findes på Zoologisk Museum i København, ligesom visse oplysninger indgår i den database over grønlandske havfuglekolonier, der vedligeholdes af DMU, afd. f. Arktisk Miljø (se NERI 2009). K. Falk og K. Kampp besøgte øerne i 1987 (Kampp 1990, Falk & Kampp 1997), og et hold fra Grønlands Naturinstitut i 2006 (Merkel et al. 2007).

Som ét af meget få steder i den beboede del af Grønland besøges øerne sjældent af grønlandske fangere eller af mennesker i det hele taget, hvorfor det er muligt her at følge og monitere et økosystem, der stort set undgår direkte menneskelig påvirkning. Det var derfor ønskeligt at tilvejebringe en basisviden om ikke mindst fuglene på stedet, der kunne tjene som et sammenligningsgrundlag ved fremtidige undersøgelser. Derfor gennemførte forfatterne en tur til Carey Øer 1-3. august 2008, hvor de og deres medarbejdere besøgte praktisk taget alle dele af øgruppen og noterede alle fugle, de stødte på.

I alt blev der registreret 16 fuglearter under opholdet, hvoraf 10 yngler eller kan formodes at yngle.

Mallemuk *Fulmarus glacialis*. Flere grupper af fougagerende fugle sås mellem øerne, der ligger 66 km vest for kolonien på Saunders Ø.

Blisgås *Anser albifrons*. Ti adulte fugle sås på Bordø. Der var ingen tegn på at fuglene yngede på stedet, der ligger ca 500 km nord for den nordligste kendte yngleplads i Grønland. Arten er tidligere set en enkelt gang i Thule-området.

Snegås *Anser caerulescens*. Ni afslåede adulte og ni gæslinger sås på Isbjørneø. Arten er også tidligere set på øerne og er i det hele taget vidt udbredt i Thule-området.

Knortegås *Branta bernicla*. I alt sås 115 adulte og 10 gæslinger på øerne. Arten er ellers stort set ukendt som ynglende i Thule-området, og i nyere tid er den kun

fundet ét andet sted, idet nogle få par yngler på Dalrymple Rock (K. Burnham unpubl. data). På Carey Øer har den sandsynligvis ynglet længe, idet Salomonsen (1950) konkluderede at den måtte være der ud fra oplysninger fra Knud Rasmussen. Arten blev også set på øerne i 1987, og i 2006 blev den for første gang i ny tid konstateret ynglende (L. Witting pers.medd.).

Ederfugl *Somateria mollissima*. I alt 300-400 ynglende og ikke-ynglende hunner sås sammen med få dage gamle (og enkelte ældre) ællinger langs kysterne overalt i øgruppen, og en del hunner fandtes stadig rugende på nogle øer. Store flokke på op til nogle få tusinde, primært hanner, lå længere fra land, ofte med islæt af Kongeederfugle. Arten er kendt som en talrig ynglefugl i Thule-området.

Kongeederfugl *Somateria spectabilis*. Enkelte hanner blev noteret flyvende nær nogle af øerne, og en blandet flok på 400-500 ederfugle sås ud for Fireø. Arten yngler fåtalligt i Thule-området, men de Kongeederfugle, der ses ved kysterne, er givetvis næsten alle Canadiske fugle, idet området synes at udgøre den nordligste del af et vidtstrakt fældeområde ned langs Grønland i hvert fald til Disko Bugt.

Sortgrå Ryle *Calidris maritima*. Enkelte fugle samt en flok på 6-7 sås på småøer og skær ud for Nordvestø og Fireø. Der var ingen tegn på at de yngede på stedet.

Stenvender *Arenaria interpres*. En enkelt fugl sås på Nordvestø, uden tegn på ynglen. Arten yngler sparsomt i Thule-området og er en almindelig trækfugl.

Gråmåge *Larus hyperboreus*. Enkelte par og små grupper på op til 11-12 par yngede "overalt" i øgruppen, og talrige unger, såvel flyvende som knap flyvefærdige, kunne ses. Arten er meget almindelig i Thule-området.

Ride *Rissa tridactyla*. Kun to små flokke set, ved henholdsvis Bordø og Bjørting Ø. Arten yngler talrigt i området, men tilsyneladende ikke på Carey Øer.

Polarlomvie *Uria lomvia*. Øerne huser flere små og lidt større kolonier, i alt knap 10000 fugle, der sidst er optalt i 1987 og 2006.

Alk *Alca torda*. To fugle sås ved Lunde-kolonien på Hollænderhatten, samme sted hvor Salomonsen (se NERI 2009) og Kampp (1990) noterede henholdsvis 6 og 12 fugle i 1968 og 1987. Arten yngler enkelte andre steder i Thule-området i meget ringe antal, nemlig Dalrymple Rock (K. Burnham unpubl. data), Parker Snow Bugt og Hakluyt Ø.

Tejst *Cephus grylle*. Sås ved alle øer undtagen Nordvestø (hvor den dog er set af tidligere besøgende), og åbenbart en almindelig ynglefugl på Carey Øer, ligesom den er kendt som en almindelig fugl i Thule-området generelt.

Lunde *Fratercula arctica*. En koloni har længe været kendt på Hollænderhatten, hvor Salomonsen (i NERI 2009) noterede 5 fugle i 1968 og Kampp (1990) ca 60 fugle i 1987. I 2008 taltes ca 110 Lunder her, og desuden sås tre fugle på Bordø. Præcis hvor mange par disse fugle repræsenterer, vådes ikke, men det kan næppe betvivles at bestanden gædes frem. Arten yngler i ringe tal på 6-7 andre lokaliteter i Thule-området.

Ravn *Corvus corax*. Fire Ravne opholdt sig på øerne i 2009, sandsynligvis et par og to flyvefærdige unger. Arten er ret almindelig i Thule-området.

Snespurv *Plectrophenax nivalis*. Denne art sås kun to gange, dels en han på Björling Ø, dels et par med en udflojet unge på Nordvestø. Arten er almindelig i Thule-området.

Ved besøget i 1987 noteredes yderligere to arter, nemlig Stenpikker *Oenanthe oenanthe* og Søkonge *Alle alle* (K. Kampp pers.medd.); førstnævnte yngler ret sparsomt og den anden uhyre talrigt i Thule-området, og der er intet uventet i deres optræden på/ved Carey Øer. Om de yngler eller nogensinde har ynglet på øerne, vides ikke.

References

- Andersen, A.H., Rahe, K., Sveegaard, S. & M.C. Forchhammer 2009: Colony attendance in a Black Guillemot colony in West Greenland. – Dansk Orn. Foren. Tidsskr. 103: 22-27.
- Bendix-Almgreen, S.E., B. Frstrup & R.L. Nichols 1967: Notes on the geology and geomorphology of the Carey Øer, Northwest Greenland. – Meddr Grønland 164(8).
- Best, J.R. & W.J. Higgs 1990: Bird population status changes in the Thule District, North Greenland. – Dansk Orn. Foren. Tidsskr 84: 159-160.
- Blake, W. Jr. 1977: Radiocarbon age determinations from the Carey Islands, northwest Greenland. – Report of Activities, Part A, Geol. Surv. Can. Paper 77-1A.
- Boertmann, D. 1994: An annotated checklist to the birds of Greenland. – Meddr Grønland, Biosci. 38.
- Boertmann, D., A. Mosbech, K. Falk & K. Kampp 1996: Seabird colonies in western Greenland (60° – 79°30' N.lat.). – NERI Technical Report No. 170, National Environmental Research Institute, Denmark.
- Burnham, K.K. 2007: Inter- and intraspecific variation of breeding biology, movements, and genotype in Peregrine Falcon *Falco peregrinus* and Gyrfalcon *F. rusticolus* populations in Greenland. – D.Phil. Dissertation, University of Oxford, U.K.
- Burnham, W., K.K. Burnham & T.J. Cade 2005: Past and present assessments of bird life in Uummanaq District, West Greenland. – Dansk Orn. Foren. Tidsskr. 99: 196-208.
- Christensen, K.D. & K. Falk. 2001: Status of the common eider breeding in the municipality of Avanersuaq (Thule), north-west Greenland. – Polar Research 20: 109-114.
- Falk, K. & K. Kampp 1997: A manual for monitoring Thick-billed Murre populations in Greenland. – Technical Report No. 7, Pinngortitaleriffik, Greenland Institute of Natural Resources, Nuuk.
- Falk, K., L. Dall'Antonia & S. Benvenuti 2001: Mapping pre- and post-fledging foraging locations of thick-billed murre in the North Water polynya. – Ecography 24: 625-632.
- Harper, K. 2005: A day in Arctic history, Oct. 12, 1892. The disappearance of Bjorling and Kallstenius. – Nunatsiaq News, Oct. 7, 2005.
- Kampp, K. 1990: The thick-billed murre population of the Thule District, Greenland. – Arctic 43: 115-120.
- Kampp, K., D.N. Nettleship & P.G.H. Evans 1994: Thick-billed murre of Greenland: Status and prospects. Pp. 133-154 in Nettleship, D.N., J. Burger & M. Gochfeld (eds): Seabirds on Islands: Threats, case-studies and action plans. – BirdLife Conservation Series No. 1.
- Markham, C.R. 1853: Franklin's footsteps. – Chapman and Hall, London.
- Merkel, F.R. 2004a: Evidence of population decline in Common Eiders breeding in western Greenland. – Arctic 57: 27-36.
- Merkel, F.R. 2004b: Impact of hunting and gillnet fishery on wintering eiders in Nuuk, southwest Greenland. – Waterbirds 27: 469-479.
- Merkel, F.R., A.L. Labansen & L. Witting 2007: Monitoring af lomvier og rider i Qaanaaq kommune, 2006. – Technical Report No. 69, Pinngortitaleriffik, Greenland Institute of Natural Resources, Nuuk.
- Mosbech, A. & D. Boertmann 1999: Distribution, abundance and reaction to aerial surveys of post-breeding king eiders (*Somateria spectabilis*) in western Greenland. – Arctic 52: 188-203.
- Munck, S. 1941: Geological observations from the Thule District in the summer of 1936. – Meddr Grønland 124(4).
- Nares, G.S. 1878: Narrative of a voyage to the Polar Sea. – Sampson Low, Marston, Searle & Rivington, London.
- NERI 2009. Database on seabird breeding colonies in Greenland. – National Environmental Research Institute, Aarhus University, Denmark: www.dmu.dk/International/Arctic/Oil/Seabird+colonies/, accessed 2 March 2009.
- Norberg, T., M.E. Goodsite & W. Shoty 2004: An improved motorized corer and sample processing system for frozen peat. – Arctic 57: 242-246.
- Riis-Carstensen, E. 1931: The Godthaab Expedition 1928. – Meddr Grønland 78(1).
- Salomonsen, F. 1950: Grønlands Fugle/The Birds of Greenland. – Ejnar Munksgaard, Copenhagen.
- Salomonsen, F. 1967: Fuglene på Grønland. – Rhodos, Copenhagen. (The sections on seabirds translated into English by R.G.B. Brown in 1981 as The Seabirds of Greenland, Studies of northern seabirds report No. 100, CWS).
- Thing, H. 1976: Field notes on birds in Thule District, Greenland, 1975. – Dansk Orn. Foren. Tidsskr. 70: 141-143.
- Wordie, J.M. 1938: An Expedition to North West Greenland and the Canadian Arctic in 1937. – The Geographical Journal 92: 385-418.

Accepted 24 May 2009

Jennifer L. Burnham

Augustana College, Department of Geography, 639 38th Street, Rock Island, Illinois 61201, USA

Kurt K. Burnham (kburnham@higharctic.org)

High Arctic Institute, 603 10th Avenue, Orion, Illinois 61273, USA

Appendix A on p. 36-37

Appendix A

Data on species observed for each individual island.
Detaljer vedr. arter observeret på/ved de enkelte øer, 2008.

Island	Date	Species	# of Obs.	# Adults	# Young	Comments
Björting Ø	1 Aug 08	<i>Fulmarus glacialis</i>	1	1	na	observed feeding on water
		<i>Branta bernicla</i>	2	12	2	
		<i>Somateria mollissima</i>	3	32	10	all adult ♀, 6 chicks 3-5 days old
		<i>Larus hyperboreus</i>	4	25	1+	
		<i>Rissa tridactyla</i>	1	†	na	
Bordø	1 Aug 08	<i>Cephus grylle</i>	5	74-79	‡	observed feeding on water and breeding on cliffs
		<i>Plectrophenax nivalis</i>	1	1	na	
		<i>Fulmarus glacialis</i>	1	1	na	observed feeding on water
		<i>Anser albifrons</i>	1	10	na	flew from shoreline
		<i>Branta bernicla</i>	2	4	na	
Fireø (+ rocky islets)	2 Aug 08	<i>Somateria mollissima</i>	2	15	5+	
		<i>Larus hyperboreus</i>	6	~15	3	2 chicks ready to fledge, 1 ¾ grown
		<i>Rissa tridactyla</i>	1	5	na	observed feeding on water
		<i>Cephus grylle</i>	5	150-185	‡	observed feeding on water and breeding on cliffs
		<i>Fratercula arctica</i>	1	3	na	birds attached to site, probable breeding
Hollænderhatten	2 Aug 08	<i>Fulmarus glacialis</i>	3	102	na	~100 in group on water
		<i>Branta bernicla</i>	2	20	7	
		<i>Somateria mollissima</i>	7	~555	na	mixed group King/Common ♂
		<i>Somateria spectabilis</i>	2	~200	na	
		<i>Calidris maritima</i>	3	10	na	only observed on small rocky islets
Hollænderhatten	2 Aug 08	<i>Larus hyperboreus</i>	7	21	4	additional chicks likely present but not observed
		<i>Cephus grylle</i>	6	~150	‡	observed feeding on water and breeding on cliffs
		<i>Branta bernicla</i>	2	4	na	
		<i>Somateria mollissima</i>	3	~2060	na	group of ~2000 ♂ offshore, ~60 ♀ near island
		<i>Somateria spectabilis</i>	1	38	na	likely breeding
Hollænderhatten	2 Aug 08	<i>Larus hyperboreus</i>	2	14	na	
		<i>Alca torda</i>	1	2	na	
		<i>Cephus grylle</i>	1	~100	na	observed feeding on water and breeding on cliffs
Hollænderhatten	2 Aug 08	<i>Fratercula arctica</i>	2	113	na	

Island	Date	Species	# of Obs.	# Adults	# Young	Comments		
Isbjørnø (+1 rocky islet)	2 Aug 08	<i>Anser caerulescens</i>	1	9	9	adults appeared flightless		
		<i>Branta bernicla</i>	4	36	na	29 flew		
		<i>Somateria mollissima</i>	2	na	9-11			
		<i>Larus hyperboreus</i>	6	9	15			
		<i>Uria lomvia</i>	5	†	na	5 sub-colonies*, 1 appears vacant		
		<i>Cepphus grylle</i>	2	40	‡			
		<i>Corvus corax</i>	1	4	na	4 birds flying, likely pair with two chicks		
		Mellemø	2 Aug 08	<i>Branta bernicla</i>	2	34	1	15 flightless, 19 flew
				<i>Somateria mollissima</i>	2	11	10	8 young ½ grown
<i>Larus hyperboreus</i>	2			4	3			
<i>Uria lomvia</i>	1			†	na	1 colony		
<i>Cepphus grylle</i>	2			61	‡			
<i>Branta bernicla</i>	1			5	na	on small rocky islet		
Nordvestø (+ rocky islets)	2 and 3 Aug 08	<i>Branta bernicla</i>	1	5	na	30+ active nests on small rocky islets, 1 group ~60 non-breeding ♀, many hens w/chicks		
		<i>Somateria mollissima</i>	2	~110-150	†			
			<i>Somateria spectabilis</i>	2	75-100	na	1 group 20-25, 1 mixed group King/Common on small rocky islet	
			<i>Calidris maritima</i>	2	2	na	on small rocky islet	
			<i>Arenaria interpres</i>	1	1	na	on small rocky islet	
			<i>Larus hyperboreus</i>	7	35	19		
			<i>Uria lomvia</i>	3	†	na	3 sub-colonies	
			<i>Plectrophenax nivalis</i>	1	2	1	on small rocky islet	

† = observed but not counted

‡ = adults returning to nests with food, most likely feeding young but none observed

* = 8 colonies indicated by Greenland Institute of Natural Resources (1997). We likely grouped smaller colonies together.