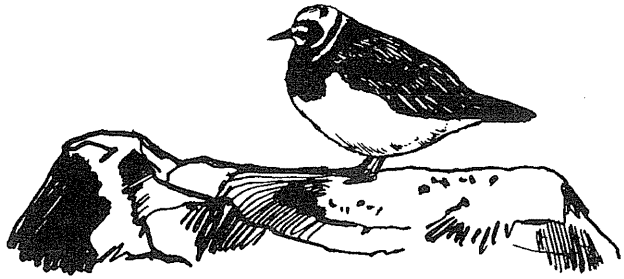


Population densities of birds in central Northeast Greenland

DAVID BOERTMANN, HANS MELTOFTE and MADS FORCHHAMMER

(Med et dansk resumé: Ynglefugletætheder i det centrale Nordøstgrønland)



Censuses of breeding birds were conducted in 14 localities in central Northeast Greenland during the summer of 1989. The selected areas were lush lowland habitats and most were placed in the relatively arid inland. 18 bird species bred within the census areas. Population densities of waders and small passerines were high compared to other areas in high-arctic Greenland, while population densities of Long-tailed Skua were similar to other areas.

Introduction

In the summers of 1988 and 1989 the Greenland Home Rule, in co-operation with the Zoological Museum in Copenhagen, conducted a biological and archaeological mapping project in the central part of the North and Northeast Greenland National Park between 75°00' and 79°30' N. The aim was to establish a better knowledge of sensitive sites and to obtain information on scientific prospects in the park.

As part of this project, 14 selected census areas were visited in the summer of 1989 (Fig. 1, Tab. 1). The aim was to record population densities of all birds and mammals. Most of the census areas were located in inland areas that become free of snow early in the year. These inland areas were hitherto completely unknown from an ornithological point of view. They were selected for their apparently abundant vegetation and consequently rich fauna.

Methods

High-arctic bird populations have to be censused in the second half of June and the first days of July. In this period all potential breeders are on

their territories. Those which only defend a territory without actually breeding are considered as part of the local population. In the beginning of July non-breeders, failed breeders, male ducks, males of Rock Ptarmigan *Lagopus mutus* and waders with chicks usually leave their territories. At the same time Snow Buntings *Plectrophenax nivalis* cease to sing.

Two teams worked in the study area from 15 June until 17 July, and visited 16 different census localities. However, the visit to the last two were in mid-July, too late for censusing birds, and they are therefore omitted in the following presentation. Transport between the different areas was by means of helicopter.

The census localities are the lushest sites in the entire study area. Their selection was based on knowledge obtained during an aerial reconnaissance in July 1988 (Bay & Boertmann 1989) and from studies of false-coloured infra-red aerial photographs on which vegetated areas are red. A less favourable area (No. 7) was censused because one team was accidentally put down on a wrong site.

For most census localities working maps were prepared on the basis of aerial photographs (1:20000). In one instance a detailed map from the

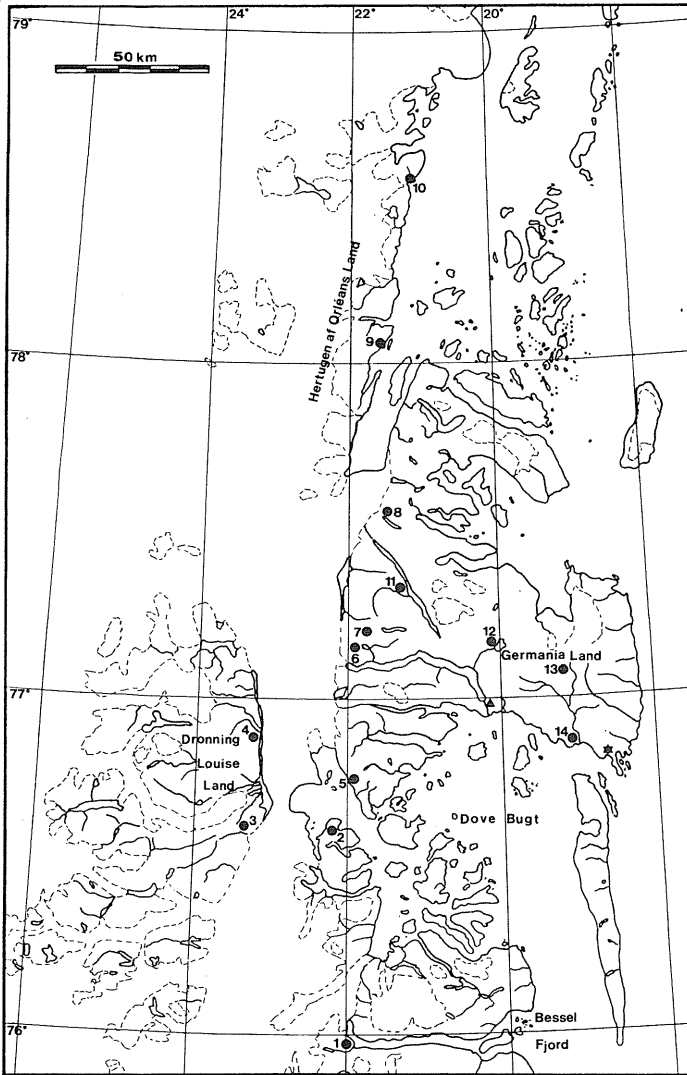


Fig. 1. Map of the study area. Dots and numbers indicate the 14 census localities. ▲ shows position of the Geological Survey base camp. ★ shows position of the weather station Danmarkshavn.

Undersøgelingsområdet. Pletter med numre viser de 14 undersøgelseslokaliteter. ▲ er Grønlands Geologiske Undersøgelses basislejr. ★ er vejrstationen Danmarkshavn.

Danmark Ekspedition was used (Manniche 1910).

All census localities were transected in parallel lines spaced at roughly 100 m intervals, so that all vegetated areas were usually passed by at a distance of less than 50 m. In one team, two observers surveyed their census localities side by side, in the second, one observer worked alone as the other member was occupied with botanical investigations.

All observations of birds showing some kind of territorial or breeding behaviour were recorded on the maps. For ducks and Red-throated Diver *Gavia stellata* observations of pairs and lone males were also recorded. When the whole census area was transected, a final map, summarizing all re-

ords, was made and the number of territories counted.

The aim was to visit as many localities as possible, and therefore each census area was transected only once, with the result that some territories were probably overlooked. For a complete census it would be necessary to study a locality throughout the breeding season. The size of the census areas and the time spent there varied considerably (Tab. 1).

In each area, snow cover and vegetation cover were recorded in the way described by Meltofte (1979).

The scale (c. 1:20 000) of the aerial photographs was only approximately known and estimated area

Tab. 1. General information on the census areas. Snow cover is the part of the area estimated to be covered with snow in the study period. Veg. cover is the part of the census area where the vegetation covers more than 50 pct. Dates indicate study period in each area. Man-hours is number of man-hours used in censusing. DB = D. Boertmann, HM = H. Meltøfte and MF = M. Forchhammer.

Generelle oplysninger om optællingsområderne. Snedække er den skønnede procentdel af hele området, der var dækket af sne på optællings tidspunktet. Ved Lok. 8 angives dækket fra ankomst til afrejse. Veg. dække er pct af optællingsområdet, som har mere end 50% af overfladen dækket af vegetation. Datoer angiver arbejdsperioderne på lokaliteten, og mandtimer angiver antal timer brugt til optælling. DB = D. Boertmann, HM = H. Meltøfte og MF = M. Forchhammer.

Census area Optællings- område	Coordinates Koordinater	Area Areal km ²	Altitude Højde masl/m.o.h.	Veg. cover Veg. dække pct	Snow cover Snedække pct	Period Periode	Man-hours Mandtimer	Observer Observatør
1	75°59'N, 21°55'W	7.0	0-100	33	<1	15-19 June	22.5	DB/HM
2	76°37'N, 22°15'W	3.4	0-100	53	20	19 June	10	DB/HM
3	76°35'N, 23°20'W	8.2	0-300	42	10-15	15-19 June	29	MF
4	76°53'N, 23°10'W	9.3	20-150	19	<1	19-23 June	22	DB/HM
5	76°46'N, 21°50'W	9.6	0-150	40	15-20	19-23 June	26	MF
6	77°09'N, 21°51'W	4.3	100-300	66	10-15	26-29 June	21	MF
7	77°13'N, 21°51'W	5.4	300-400	30	40	23-26 June	17	MF
8	77°34'N, 21°35'W	10.5	20-150	35	30→5	26 June-3 July	45	DB/HM
9	78°05'N, 21°35'W	2.0	0-100	47	1	23 June	7	DB/HM
10	78°33'N, 21°10'W	2.9	0-100	19	1-2	23-26 June	16	DB/HM
11	77°19'N, 21°13'W	3.2	0-150	41	1-2	29 June-3 July	26	MF
12	77°09'N, 20°09'W	7.7	150-300	30	<1	3-7 July	27	MF
13	77°03'N, 19°15'W	3.8	200-300	16	5	7-9 July	17	MF
14	76°52'N, 19°00'W	7.7	0-100	23	5-10	3-7 July	39	DB/HM

sizes are uncertain to about 10%.

The weather was fine with clear and sunny days throughout the census period. Temperatures at noon ranged between 1° and 16°C. Strong winds occurred on a few occasions, but there were no non-working days due to bad weather.

Description of the census localities

Tab. 1 gives some general data on the 14 census areas.

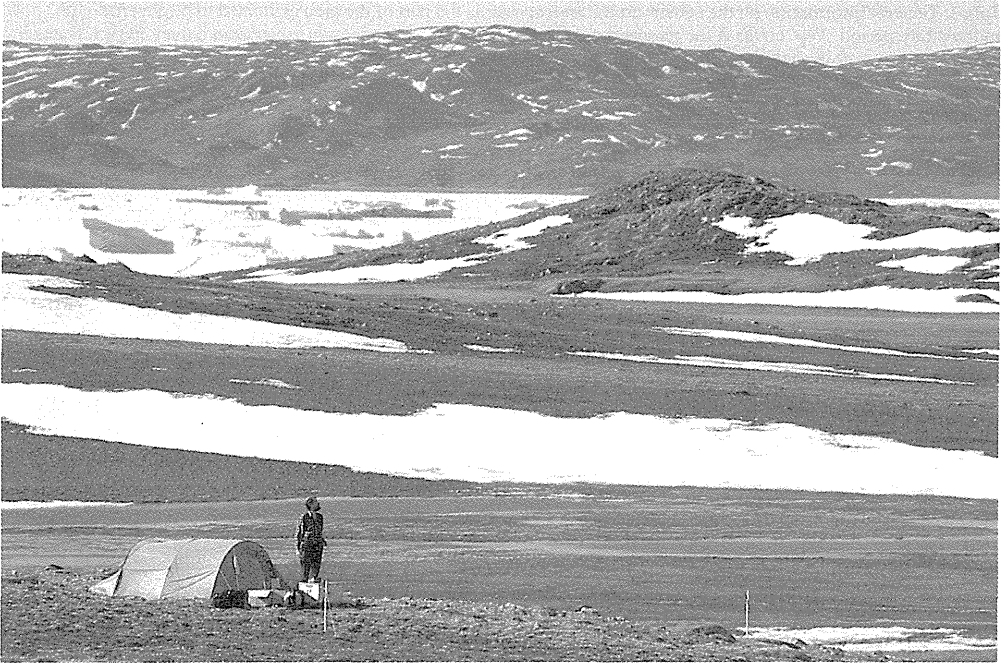
No. 1 is located at the head of Bessel Fjord. It comprises large, generally level areas and the lower parts of the mountain slopes which shelter the area to the west. To the east where the area meets the fjord is a 150 m high hill. Satellite pictures show that the area was snow-free as early as 25 May (Bay & Fredskild 1990) and, consequently, snow-bed vegetation is rare. On the level areas and gentle slopes there is a mosaic of grassland (*Carex* spp., *Arctagrostis*) and dry gravel banks with scattered *Dryas* and *Carex rupestris*. The grasslands were very humid during the census but probably dry out during the summer. Marshes occur around some small ponds and along streams. Heath-land dominated by *Cassiope* is confined to the lower parts of the hillsides.

No. 2 on Lindhard Ø in inner Dove Bugt is a small valley sloping towards the west. There was

much snow during the census. The vegetated areas are dominated by grasslands (*Carex* spp., *Eriophorum* and *Kobresia myosoroides*) and organic crust on level and gently sloping ground. Marshes occur at two lakes and along streams, and on the valley sides dwarf scrub is found.

Nos 3 and 4 lie in the eastern lowland of the large nunatak Dronning Louise Land. They are arid compared to most of the other census areas, and both were practically snow-free during the census. No. 3 lies in a valley sloping towards the east, the census area being situated on the northern side. Here, the vegetated areas on level and gently sloping ground are dominated by grasslands (*Carex* spp.), and marsh is only found as narrow borders at some ponds. No. 4 is situated on a mountain side facing east and gently sloping down towards a 60 m glacier wall. The vegetated areas are dominated by moist grasslands (*Carex* spp.) which dry out during summer. These grasslands are confined to 10-100 m broad margins along streams and to humid level patches; they are separated by low gravel banks. There are few ponds, and at higher altitude fell-field vegetation and organic crust are widespread.

Nos 5, 6, 7 and 8 are situated in a large lowland along the western side of Germania Land. This lowland slopes gradually towards the west, down to the eastern edge of the inland ice (or the fjord



Study area No. 8: looking northwest from the camp. Photo: H. M.

Lokalitet nr 8 set mod nordvest fra lejren. I dette område ynglede særligt mange Fjelddryper, Sandløbere, Stenvendere og Små Kjøver.

coast – No. 5). The northern part (No. 8) became snow-free rather late, the southern sites early. The topography can be described as gently rolling with scattered, rounded cliffs and gravel banks surrounded by level ground. There are many lakes in the southernmost and northernmost localities (Nos 5 and 8). The vegetated areas on level and slightly sloping ground are dominated by grasslands (*Carex* spp., *Arctagrostis*, *Eriophorum*). Large marshes are found around lakes, and fell-field vegetation, snow-bed vegetation and smaller areas with *Cassiope*-heath occur on sloping hillsides.

Nos 9 and 10 are in Hertugen af Orléans Land. The land here is generally barren, but in the two census areas a relatively lush and dense vegetation occurs. Both areas are sheltered and free of snow relatively early, and each consists of a small cirque valley with a riverbed. The vegetated areas on level and gently sloping ground are dominated by grassland (*Carex* spp.) with small marshes along streams. Fell-field vegetation occurs on more steeply sloping ground. A part of No. 10 is close to the coast, and here the vegetation is dominated by organic crust and scattered *Dryas*. Both localities

are small and this probably contributes to their high bird population densities (Tabs 2 and 3).

Nos 11, 12 and 13 are situated in central Germania Land. No. 11 is the bottom of a wide and deep valley with steep sides and several lakes. The vegetated areas are dominated by dwarf scrubs with *Dryas* and *Cassiope*. Small marshes are found around the lakes. Large wind-swept plains also occur. No. 12 is placed on a plain situated between two large lakes. The vegetation is dominated by marshes and grasslands, and there are several small lakes. No. 13 lies on a plateau in the large inland basin of Stormelven. The vegetated areas are dominated by marsh (mostly mosses), grassland and fell-field vegetation, and during the census the locality had much less snow cover than the surroundings.

No. 14 is on the south coast of Germania Land. The area is more or less flat and slopes gently towards the south. Here are many small rounded cliffs and gravel banks. On level ground large marshes, grasslands and fell-field vegetation are widespread, and there are several lakes. The area was also censused in 1908 (Manniche 1910).

Results and discussion

Tabs 2 and 3 summarize the census results. Since each census area was only transected once, the results are not accurate. After the census period, a census of waders was carried out at Danmarkshavn to test our census method on populations which had previously been thoroughly censused (Meltofte 1979, Forchhammer in prep.). Although this census was carried out somewhat late in the season, the number of Ringed Plover *Charadrius hiaticula* and Dunlin *Calidris alpina* territories was rather similar to the earlier censuses (Tab. 4). The Turnstones *Arenaria interpres*, however, had disappeared before we visited the area and the numbers in Tab. 4 represent an early census made by J. Graugaard (pers. comm.). The Sanderling *Calidris alba* was, as expected, difficult to census during such a short time. This test census indicates that our wader results, except for Sanderling, are rather reliable.

Waders

All census localities except Nos 7 and 13 were selected for their lush and extensive vegetation cover, and this is reflected in the relatively high densities of waders (Tab. 3) compared to other high-arctic areas (Meltofte 1985). Even the less favourable localities, Nos 7 and 13, have rather high densities. It is remarkable that the census area at Danmarkshavn, which is close to the outer coast, has a higher density of breeding waders than the inland areas. However, the local conditions are very favourable at Danmarkshavn (Meltofte 1979).

The results support Meltofte's (1985) hypothesis that the key factor behind the high wader population densities found in central Northeast Greenland is an optimal combination of high vegetation cover and snow-free land early in the breeding season.

The Turnstone was more numerous than expected, and Meltofte's (1985) population estimate for the region between 75° and 78° N is probably too low. In contrast, the Knot *Calidris canutus* was more scarce than expected and territorial birds were only found in six of the census areas. Two of these are at rather high altitudes, and the Knot was also found above No. 3 at altitudes of 5-600 m. Meltofte's (1985) estimate for the population between 75° and 78° N is probably too high, even though it was based only on land areas below 200 m altitude.

Judging from our results, Meltofte's (1985) estimate for Sanderling also seems too high. This is probably not the case, however, because the San-

derling is very difficult to census (Meltofte 1979) and therefore probably was underestimated by our census method.

The Dunlin bred in both census areas in Hertugen af Orléans Land (Nos 9 and 10). No breeding records have been made previously north of Germania Land, but this can probably be attributed to a lack of knowledge about these areas, and the species may very well breed further north still. Also the Red Phalarope *Phalaropus fulicarius* was recorded breeding a little further north than previously known (southern Germania Land): a nest was encountered just outside census area No. 8.

The other species

The Pink-footed Goose *Anser brachyrhynchus* has recently expanded its breeding range north to southern Germania Land (Meltofte 1975, Forchhammer 1990). We found it breeding on Lindhard Ø (No. 2) and probably breeding close to area No. 8.

Three colonies of Barnacle Goose *Branta leucopsis* were located in Hertugen af Orléans Land (see Boertmann et al. 1990). The northernmost is 1 km south of area No. 10, and 90 km north of the previous northernmost record in Nordmarken (Cabot et al. 1988). The species may breed in Lambert Land further north. However, no Barnacle Geese were recorded in southern Lambert Land in the summer of 1990 (C. Bay pers. comm.).

Some large Barnacle Goose colonies (25-40 pairs), not mentioned by Meltofte (1975, 1977), Cabot et al. (1988) or Forchhammer (1990), were found within the study region: at the head of Bessel Fjord (No. 1) and in Tværdal (close to No. 11). Smaller colonies or single pairs were found in Dronning Louise Land (close to No. 3) and Daniel Bruun Land (close to No. 5). Details are given by Boertmann et al. (1990).

The Rock Ptarmigan was extremely abundant during the summer of 1989 in the entire study region. Territorial birds were found in all but one of the census localities, and later in the season broods were seen throughout the region (H. Elling & C. Andreasen, A. K. Higgins, C. Friend, J. Böcher & C. Bay, N. Henriksen in litt.).

The Gyrfalcon *Falco rusticolus* was found nesting in Tværdal close to area No. 11, and a pair was seen in Hertugen af Orléans Land close to area No. 10. The nest in Tværdal was situated very close to a small colony of Barnacle Geese and the observation in Hertugen af Orléans Land was also very close to a Barnacle Goose colony.

Territorial pairs of Long-tailed Skuas *Stercora-*

Tab. 2. Number of bird territories (except waders) in the census areas (Nos 1-14). For selected species the population density (territories per km²) is shown in the lower line. + = species present and territorial, but numbers unknown.

Antal fugleterritorier på Lok. 1-14. Desuden er bestandstætheden for udvalgte arter vist i linien under. + angiver at arten var til stede og territorial, men antal kunne ikke anslås. 0-1 angiver et muligt territorium.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Red-throated Diver <i>Rødstrubet Lom</i>	0	1-2	0	0	1	0	0	1	0	0	1	0	0	1-2
Pink-footed Goose <i>Kortnæbbet Gås</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Barnacle Goose <i>Bramgås</i>	35-40	0	0	0	0	0-1	0	0	0	0	0	0	0	0-1
Long-tailed Duck <i>Havlit</i>	0	1	0	0	2	0	0	5	0	1	0	0	0	15-16
King Eider <i>Kongeederfugl</i>	0	0	0	0	3	0	0	1	1-2	1	0	0	0	3-9
Rock Ptarmigan <i>Fjeldrype</i>	2 0.3	5 1.5	3 0.4	8-9 0.9-1.0	6-8 0.6-0.8	1 0.2	2 0.4	9 0.9	1 0.5	0 0	1 0.3	4 0.5	1 0.3	5 0.6
Long-tailed Skua <i>Lille Kjove</i>	2 0.3	2 0.6	1 0.1	6 0.6	8-11 0.8-1.1	6 1.4	6 1.1	9-11 0.9-1.0	2 1.0	1 0.3	1 0.3	6-7 0.8-0.9	1-2 0.3-0.5	6 0.8
Glaucous Gull <i>Gråmåge</i>	1-2	0	0	0	0	0	0	0	0	0	0	0	0	0
Arctic Tern <i>Havterne</i>	0	0	0	0	0	0	0	1	0	1	0	0	0	0
Raven <i>Ravn</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Arctic Redpoll <i>Hvidsirken</i>	>2 >0.3	1 0.3	0 0	+ +	6-8 0.6-0.8	6-7 1.4-1.6	0-1 0-0.2	+ +	+ +	2-3 0.7-1.0	20-25 6.3-7.8	10-15 1.3-2.0	0 0	0 0
Snow Bunting <i>Snespurv</i>	100 14.2	30 8.8	80 9.7	65 7.0	110-120 11.4-12.5	65-70 15.0-16.1	35-40 6.5-7.4	105 10.0	13 6.6	15 5.1	55-60 17.1-18.8	50-55 6.5-7.1	40 10.5	41 5.3

Tab. 3. Wader territories in the census areas (Nos 1-14). For each species the upper line shows the absolute number and the lower line the population density in territories per km². Vade fugleterritorier på Lok. 1-14. For hver art viser øverste linie antallet af territorier og nederste bestandsræthed i territorier pr km².

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Ringed Plover Stor Præstekrave	19-23 2.7-3.3	8-9 2.4-2.6	16-19 1.9-2.3	15-16 1.6-1.7	12-15 1.2-1.6	11 2.5	0-1 0-0.2	14-18 1.3-1.7	15-16 7.7-8.2	15-16 5.5	19-21 5.9-6.6	9-11 1.2-1.4	0 0	24-26 3.1-3.4
Knot Islandsø Ryle	0 0	0 0	0 0	0 0	1-2 0.1-0.2	1-2 0.2-0.5	4-5 0.7-0.9	0 0	0 0	0 0	0 0	1-3 0.1-0.4	6-7 1.6-1.8	13 1.7
Sanderling Sandløber	6-7 1.0	4 1.2	9-11 1.1-1.3	2 0.2	12-15 1.2-1.6	14 3.2	11 2.0	21-23 2.0-2.2	1 0.5	4 1.4	2-4 0.6-1.3	8-12 1.0-1.6	5-7 1.3-1.8	12-14 1.6-1.8
Dunlin Abmødelig Ryle	39-40 5.7	9 2.6	6 0.7	9 1.0	10-12 1.0-1.2	10 2.3	0-1 0-0.2	15-16 1.4-1.5	6-7 3.1-3.6	6 2.1	8 2.5	13-16 1.8-2.1	1-4 0.3-1.1	25 3.2
Turnstone Stenvønder	15-18 2.1-2.6	7-8 2.1-2.4	14-15 1.7-1.8	19-23 2.1-2.5	21-23 2.2-2.4	17-21 3.9-4.8	10 1.9	34-37 3.2-3.5	5 2.6	3-4 1.0-1.4	1 0.3	8-9 1.0-1.2	14-16 3.7-4.2	34 4.4
Red Phalarope Thorshane	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0-1 0-0.1	0 0	0 0	0 0	0 0	1 0.3	1 0.1
All species Alle arter	79-88 11.2-12.5	28-30 8.2-8.8	45-51 5.5-6.2	45-50 4.9-5.4	56-67 5.8-7.0	53-58 12.2-13.4	25-28 4.6-5.2	84-95 8.0-9.1	27-29 13.8-14.8	28-30 9.6-10.3	30-34 9.4-10.6	39-51 5.1-6.6	27-35 7.1-9.2	109-113 14.1-14.6

rius longicaudus were found in all census areas with densities ranging from 0.1 to 1.4 per km² (Tab. 2). The lemming *Dicrostonyx torquatus* population was very low in the whole region, and in the Danmarkshavn area no "lemming-years" have been recorded since the winter of 1979/80 (staff at Danmarkshavn pers. comm.). Consequently, most of the Long-tailed Skuas were not breeding: of the 72-79 territorial pairs recorded, 18-20 had or probably had eggs. 12 clutches were controlled: 11 with one egg and one with two eggs. The densities are similar to densities found in other sites in Northeast Greenland: 0.2 - 1.7 territorial or nesting pairs per km² (Manniche 1910, Hall 1966, Hall & Waddingham 1966, Korte 1977 and 1988, Ferns 1978, Meltofte et al. 1981, Hansen 1984, Elander & Blomqvist 1986, Forchhammer 1990).

The Raven *Corvus corax* was found breeding at the head of Bessel Fjord (No. 1), close to the Barnacle Goose colony. It is the northernmost breeding record in Northeast Greenland. Manniche (1910) reported several Ravens from Germania Land in 1906-1908. Some of these may have bred, but no proof was found.

Arctic Redpoll *Carduelis hornemanni* was found in 11 of the census areas. In most localities only singing males were recorded, but newly fledged juveniles were seen at the head of Bessel Fjord (No. 1) on 17 June, Lindhard Ø (No. 2) on 19 June and at Danmarkshavn on 15 July. The species was particularly numerous in Tværdal (No. 11) where the highest density of Snow Bunting was also recorded. This locality was characterized by large areas of *Cassiope* heath in contrast to the others, where grassland was dominant.

The Snow Bunting densities

ranged between 5 and 19 territories per km². This is high compared to other Snow Bunting censuses in Northeast Greenland which have resulted in 0.3 - 5.8 singing males per km² (Meltofte 1976, 1977, Hansen undated) or 3.3 - 4.7 pairs or nests per km² (Rosenberg et al. 1970, Meltofte 1977, Ferns 1978).

The Snow Bunting densities found in the present survey are probably overestimated: some singing Snow Bunting males have been registered more than once, because the transects were spaced relatively closely. Besides, our census method does not discriminate between paired and lone males. There is a considerable surplus of males which hold territories until the beginning of July, often in suboptimal habitats (Meltofte 1983). On the other hand, our census areas are in general very favourable to Snow Buntings, and the density found in No. 14, for example, was similar to the density found at Danmarkshavn during a more thorough census (Meltofte 1977). It can therefore be con-

cluded that the inland of central Northeast Greenland holds rather dense populations of Snow Buntings.

The present Snow Bunting densities are similar to densities found in a "lowland oasis" in high-arctic Ellesmere Island, where Freedman & Svoboda (1982) reported 9.8-10.6 territories per km², and to densities found in a Greenland low-arctic habitat in Saqqaq Valley, where Joensen & Preuss (1972) found 11.2-13.2 breeding pairs per km².

Significance of the selected sites

The survey showed that high population densities – in a high-arctic context – are found in the best vegetated areas in central Northeast Greenland. Especially in the arid inland areas, the studied sites lie like oases in a barren arctic desert. Areas with more extensive vegetation are found closer to the outer coast, but these are often snow-covered late in spring and support only low densities of breeding birds (Meltofte 1975, 1985).

Tab. 4. Comparison of wader censuses at Danmarkshavn since 1907. For each species upper line shows absolute number of territories and lower line the population density in territories per km². c = common. vc = very common. * outside census area. ** estimate probably too high.

*Sammenligning af vadefugleoptællinger ved Danmarkshavn. For hver art er i øverste linie vist det totale antal territorier i optællingsområdet og i nederste linie bestandstætheden i territorier pr km². c = almindelig. vc = meget almindelig. * udenfor det optalte område. ** sikkert overestimeret.*

Year År	1907-08 ^a	1969 ^b	1970 ^b	1975 ^c	1986 ^d	1987 ^d	1988 ^d	1989 ^e
Size of census area km ²	?	7.6	1.36	4.49	3.16	4.49	4.49	4.49
<i>Åreal af optællingsområde</i>								
Ringed Plover <i>Stor Præstekrave</i>	>100** -	60** 7.8	22 16.2	21-22 4.7-4.9	21-24 6.6-7.6	30-31 6.7-6.9	22-24 4.9-5.3	27 6.0
Knot <i>Islandsk Ryle</i>	0 -	0 0	0 0	2 0.4	1-2 0.3-0.6	1 0.2	0 0	0 0
Sanderling <i>Sandløber</i>	vc -	14 1.8	2-4 1.5-2.9	13-15 2.9-3.3	5-7 1.6-2.2	12-15 2.7-3.3	10-11 2.2-2.4	4-8 0.9-1.8
Dunlin <i>Almindelig Ryle</i>	>50** -	23 3.0	5-6 3.7-4.4	18-20 4.0-4.5	16-17 5.1-5.4	21-22 4.7-4.9	19-20 4.2-4.5	18-19 4.0-4.2
Turnstone <i>Stenvender</i>	0 -	14 1.8	2-3 1.5-2.2	17 3.8	6-7 1.9-2.2	8-9 1.8-2.0	5-6 1.1-1.3	6-8 1.3-1.8
Red Phalarope <i>Thorshane</i>	c -	0 0	1* -	1 0.2	1 0.3	3-4 0.7-0.9	0 0	0 0
All species <i>Alle arter</i>	-	111 14.6	31-35 22.8-25.7	72-77 16.0-17.1	50-58 15.8-18.4	75-82 16.7-18.3	56-61 12.5-13.6	55-62 12.3-13.8

Sources: a) Manniche 1910; b) Meltofte 1975; c) Meltofte 1979; d) M. Forchhammer unpubl.; e) present study/denne undersøgelse.



Breeding ptarmigans were unusually common in the study area in 1989. Photo: M. F. (area No 5).
Der ynglede usædvanligt mange Fjelddryper i undersøgelsesområdet i 1989, og adskillige reder blev fundet.

In spite of the relatively high bird densities in these well-vegetated areas, they probably support a small proportion only of the entire population in the region. This is due to the small size of the "oases" and the low absolute population figures (Tabs 2 and 3). Thus, the relative significance of these sites is hard to evaluate. Nevertheless, it can be stated that they are important to a number of species such as Long-tailed Duck *Clangula hyemalis*, King Eider *Somateria spectabilis*, Dunlin and Red Phalarope, as these are largely confined to such habitats. And, even in other species, it appears likely that breeding success is particularly high in these areas, and that a significant proportion of the young is produced here, at least in unfavourable breeding seasons.

Most of the species recorded during the present survey are not particularly sensitive to human disturbance, as long as their habitats are not destroyed. When planning activities in the inland areas, the most important precautions to be taken with regard to the breeding birds are therefore those that ensure conservation of the habitat. In contrast, moulting geese are extremely sensitive to almost any kind of disturbance. Very large concentrations of moulting geese are found in the studied region (Bay & Boertmann 1989, Boertmann 1991).

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Resumé

Ynglefugletætheder i det centrale Nordøstgrønland

I sommeren 1989 gennemførtes optællinger af ynglefugle på 14 udvalgte lokaliteter i den centrale del af nationalparken i Nord- og Nordøstgrønland (Fig. 1). Formålet hermed var at give det grønlandske hjemmestyre en bedre viden om nationalparkens biologisk følsomme områder samt om de videnskabelige muligheder fremover. Tab. 1 giver en kortfattet karakteristik af de enkelte optællingslokaliteter og en oversigt over hvornår de besøgte og hvor lang tid optællingen tog.

De enkelte lokaliteter blev kun gået igennem én gang,

i transekter med ca 100 meters mellemrum, og alle fugle, der viste territorial- eller yngleadfærd, blev tegnet ind på arbejdskort. Metoden er ikke beregnet på en eksakt optælling, men til at give et kvalificeret overslag, hvilket er tilfredsstillende i denne forbindelse, da så mange lokaliteter som muligt skulle undersøges.

De udvalgte lokaliteter er særligt fridige. De fleste ligger i forholdsvis tørre indlandsområder, som bliver tidligt snefrie sammenlignet med kystlandet. Det måtte derfor forventes, at de rummede høje tætheder af ynglende vadefugle. Dette holdt stik. Sammenlignes vadefuglenes tætheder (Tab. 3) med optællinger fra hele det øvrige højarktiske Grønland (Meltofte 1985), ses det, at det centrale Nordøstgrønland må rumme de største bestande af ynglende vadefugle. Også Snespurv viste høje tætheder.

Blandt de øvrige arter skal Hvidsiskan fremhæves, fordi den var overraskende talrig og forekom på de fleste af lokaliteterne.

De fleste af fuglearterne i denne undersøgelse er ikke specielt følsomme over for menneskelig aktivitet, så længe deres ynglehabitater ikke ødelægges.

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