IVORY GULL SURVEY IN GREENLAND 2019

Scientific Report from DCE – Danish Centre for Environment and Energy No. 343 2019

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Data sheet

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Abstract: In July and August 2019 all areas in Greenland with breeding ivory gulls were surveyed from aircraft. In total 36 known breeding sites were surveyed and of these 16 were occupied. In addition 9 new sites with breeding ivory gulls were located. The total number individuals recorded were 2028 in 25 colonies, of which the 22 were in the northern distribution area and three in the southern area. The population in the northern areas seems to be unchanged since the previous surveys in 2008/09. The survey was a part of a pan-Arctic effort to map and survey all known breeding areas.

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Contents

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Preface

The International ivory gull *Pagophila eburnea* conservation strategy and action plan issued by CAFFs circumpolar seabird group (Gilchrist et al. 2008) recommended among a number of research and monitoring actions the following: 'For each major Ivory Gull breeding population work to estimate population size, productivity adult survival rates and identify migration routes and wintering grounds.' Plans for estimating the population size of the major populations were developed during 2017, and should have been carried out in 2018. However, the Greenland survey was given up due to a grounded survey aircraft, which 'luckily' coincided with a postponing of the surveys in Canada, Svalbard and Russia. Therefore all major populations were surveyed in summer 2019 This report describe the Greenland part of the survey.

Summary

CAFFs (Arctic Councils Conservation of Arctic Flora and Fauna working group) Circumpolar Seabird Group initiated a pan-Arctic survey of all the major breeding populations of ivory gull in 2019. The Greenland part of the survey took place In July and August, and all areas in Greenland with breeding ivory gulls were surveyed from aircraft. In total, 36 known breeding sites were surveyed and of these 16 were occupied. In addition, nine new sites with breeding ivory gulls were located. The total number individuals recorded were 2028 in 25 colonies, of which the 22 were in the northern distribution area (79°-83° N) and three in the southern area (67°-70°). The population in the northern areas seems to be unchanged since the previous surveys in 2008 / 09. In the southern area, the colonies are so difficult to locate, that it is not possible to evaluate any trends. The surveys was financed partly by the *Strategic Environmental Study Program for the Northeastern Greenland area* (Greenland Government) and the Danish Environmental Protection Agency (DANCEA-programme).

Sammenfatning

Arbejdsgruppen CAFFs (Conservation of Arctic Flora and Fauna, under Arktisk Råd) havfuglegruppe foreslog i 2008, at alle de større ynglebestande af ismåge skulle optælles, som et led i forvaltningen af bestandene, som er truede af klimaændringerne. Denne fælles-arktiske optælling blev gennemført i 2019, og rapporten her beskriver resultaterne af den grønlandske del af arbejdet. I Grønland er bestanden af ismåger fordelt på to områder: Et nordligt mellem 79° og 83° N og et sydligt mellem 67° og 70° N. Begge områder blev undersøgt fra fly i juli og august. I alt 36 tidligere kendte ynglesteder blev besøgt og ved 16 af disse var der fugle. Der blev dertil fundet ni nye steder med ynglende ismåger. I alt blev der optalt 2028 fugle i de 25 ynglekolonier, af hvilke de 22 var i den nordlige område og de 3 i det sydlige. Bestanden i det nordlige område, ser ikke ud til at have ændret sig væsentligt siden den tidligere optælling i 2008/09. Det er mere vanskeligt at udtale sig om bestanden i det sydlige område, fordi kolonierne er meget vanskelige at lokalisere i de udstrakte nunatak-områder. Optællingen blev finansieret dels af forskningsprogrammet: *Strategic Environmental Study Program for the North-eastern Greenland area* (Grønlands Landsstyre) og dels af Dancea-programmet (Miljøstyrelsen i Danmark).

Imaqarniliaq

CAFF-ip (Issittup naasuinik uumasuinillu nungutsaaliuineq, Issittumi Siunnersuisoqatigiit ataanniittoq) ataani suleqatigiissitaq 2008-mi siunnersuuteqarpoq ataatsimoortunik silap allanngorneranit ulorianartorsiortitaasunik aqutsinermut atatillugu naajavaarsuit erniortut ataatsimoortukkuutaat annerit tamarmik kisinneqassasut. Issittumi ataatsimoorluni kisitsineq taanna 2019-imi naammassineqarpoq, nalunaarusiarlu manna Kalaallit Nunaanni suliat inernerinik imaqarluni. Kalaallit Nunaanni naajavaarsoqarfiit marluijupput: Avannarliit avannarpasissutsit 79° aamma 83° N akornanni ipput kujalliillu avannarpasissutsit 67° aamma 70° N akornanni illutik. Sumiiffiit taakku marluk juulimiit augustimut timmisartumiit misissuiffigineqarput. Ineqarfii tilisimaneqareersut katillugit 36 takusarneqarmata taakkunannga 16 timmissanit inigineqarput. Taakku saniatigut ineqarfiit nutaat naajavaarsunnit erniorfigineqartut nassaarineqarput. 2018-mi erniorfinni katillugit 25-ini timmissat kisinneqarput, taakkunanngalu 22-it avannarlerniipput 3-illu kujallermiillutik. Naajavaarsuit avannarlermiut siusinnerusukkut kisitsinerup 2008/09-imi ingerlanneqartup kingorna amerlassutsimikkut allannguuteqangaarsimarpasinngillat. Kujallerniittut naajavaarsuit qanoq oqaatigissallugit nalunakuluppoq, erniorfiimi nunataqarfimmi ittut nassaariuminaaqimmata. Kisitsineq ilisimatusarnernut aningaasaliissutit aqqutigalugit aningaasalersorneqarput: *Tunup avannaani avatangiisinik misissuineq (Kalaallit Nunaanni Naalakkersuisut)* kiisalu ilaatigut Danceap suliniutaa (Danmarkimi Avatangiisinik Aqutsisoqarfik.

1 Introduction

This report gives a summary of the ivory gull *Pagophila eburnea* survey in East Greenland in July-August 2019. The survey was part of a pan-Arctic survey of the species' breeding grounds, organised by CAFF (Conservation of Arctic Flora and Fauna).

The survey was divided in two parts:

1/ A survey of the northern breeding range in Greenland between 79° and 83° N. This was a part of the *Strategic Environmental Study Program for the North-eastern Greenland area*, a background study program related to the now relinquished oil exploration licences in the Greenland Sea.

2/ A survey of the southern breeding range between 67° and 70° N.

Besides the ivory gull activities, also walrus haul-outs were surveyed on the ferry flights between Constable Pynt and St. Nord, and little auk colonies were surveyed on 30 and 31 July.

Acknowledgements

The survey in the northern area was funded by the license holders through the Greenland government. The survey in the southern area was funded by the Danish Environmental Protection Agency (as part of the environmental support program Dancea – Danish Cooperation for Environment in the Arctic). The authors of this report are solely responsible for all results and conclusions presented, and these do not necessary reflect the position of the Danish Environmental Protection Agency. The Villum Research Station kindly lended to us a PhaseOne camera, and Olivier Gilg gave valuable comments to the manuscript.

2 Methods

The survey used a Twin Otter (DHC-6) from the Icelandic company Nordlandair as observation platform (Figure 1). This was equipped with four bubble windows, a ferry tank for long range flights (with an airborne duration of up to seven hours) and tundra wheels for short gravel air strip landing. In total, 52 hours were spend airborne, including surveying and ferry flying between Iceland and Greenland (Table 1). Three observers and a camera operator participated.

All observations were recorded on tape recorder, and each observation was dictated together with the observation time. A GPS (Nomad Rugged PDA IP67) recorded the flown track lines, and each observation was geo-referenced by combining the observation time and GPS time. All clocks were synchronized with the GPS clock (UTC-time).

The northern range was surveyed from the airport at Station Nord (NOR) and the southern - between Scoresby Sound and Tasiilaq – from the airports at Constable Pynt (CNP) and Kulusuk (KUS). Between the northern and the southern area only two ivory gull sites have been reported – at Dove Bugt and both were surveyed on the ferry flights between Constable Pynt / Mestersvig and Station Nord. Due to bad runway conditions at Constable Pynt there was a night stop at Mestersvig (MVG) between 29 and 30 July 2019 on the return trip from Station Nord.

The survey was carried out between 22 July and 2 August, 2019 (Table 1).

Known ivory gull colonies were surveyed from the air and new colonies were searched for along the coasts, in areas with solid and stable ice cover (gravel covered icefloes and -bergs) and in the nunatak areas both in the southern range and in the northern.

Figure 1. The observation platform. A Twin Otter DHC-6. Note the bubble windows (arrows) providing panoramic views (Photo: D. Boertmann) At right, the front observer is photographed from the aft bubble window (Photo: E. Haase).

Table 1. Overview of the survey, hours spend in the air and km flown. IVGU = ivory gull, LIAK = little auk. CNP = Constable Pynt, NOR = Station Nord, MVG = Mestersvig, KUS = Kulusuk.

Date	Activity	Airborne hours	Distance flown, km	Nightstop	Survey area
22 July	Ferry: Iceland-CNP	02:22	600	CNP	
23 July	Weather day			CNP	
24 July	IVGU and walrus	05:27	1361	NOR	North
25 July	IVGU	05:06	1136	NOR	North
26 July	IVGU	05:01	1005	NOR	North
27 July	IVGU	06:06	1332	NOR	North
28 July	Pilots day off			NOR	
29 July	IVGU and walrus	06:03	1425	MVG	North
30 July	LIAK	05:36	1408	CNP	
31 July	IVGU and LIAK	05:33	1384	CNP	South
1 Aug.	IVGU	05:30	1404	KUS	South
2 Aug.	IVGU and ferry to Iceland	05:26	1397		South
Total		52:10	12452		

At all colonies the number of individual birds were recorded, and colonies are identified by their unique id-number in the Greenland Seabird Colony Register.

The little auk colony survey was a photo survey, where two cameras; a Nikon D850 and a PhaseOne iXU1000, were mounted in the camera bay of the Twin Otter (Figure 2). The Nikon recorded 50 megapixel colour (RGB) images and the PhaseOne 100 megapixel near infrared (NIR) images. The survey covered the entire range of breeding little auks in the Scoresby Sund area: The Liverpool Land coast was surveyed from an altitude of 4500 feet and the Volquart Boon Kyst from 7000 feet. The difference in survey altitude was due to terrain differences, as Liverpool land is considerably lower altitude than the Volquart Boon Kyst. The PhaseOne camera was also tested for use to wildlife photography (see Figures 5, 10 and 12).

Figure 2. The camera bay of the Twin Otter, seen from the outside, with both cameras mounted (Photo: E. Haase).

Known walrus haul-outs were surveyed on the flight from Constable Pynt to St. Nord on 24 July and again on the return flight from St. Nord to Mestersvig on 29 July. The sites were overflown at 700 feet above ground during the northbound survey, while at 1500 feet during the southbound survey.

2.1 Weather conditions

The surveys in the northern area were carried out in very good weather, with sky clear and calm winds. However, on 24 July fog covered the coast and the islands between 75° and 81° N, and also on the 25 July fog prevented observations along parts of the north coast of Greenland. However, most of these fog covered areas (except between 77° and 79° N and to the west of 45° W) were surveyed again under better conditions. The Tobias Ø (79501) was visited three times, and only during the last visit it was possible to observe through the fog.

The little auk colony survey and the ivory gull survey in the southern area were also carried out in optimal weather conditions.

3 Results

In total, 52 hours and 10 minutes were spend in the air covering 12,400 km. Of these figures the ivory gull survey accounted for 8,900 km, the little auk survey for 2,048 km. Ferry flying between Iceland and Greenland amounted to 1,504 km.

In the text below we quote Colony Site ID numbers. For those, please refer to Appendix 1 for site specifications.

3.1 The northern area

The northern area was surveyed during two flights between Constable Pynt / Mestersvig and Station Nord and during three flights out from St. Nord, in total approx. 5000 km (Figure 3).

Of the 37 known sites, 31 were sought after and in 15 of these birds were present, and at 16 of these sites no birds were detected (Figure 3).

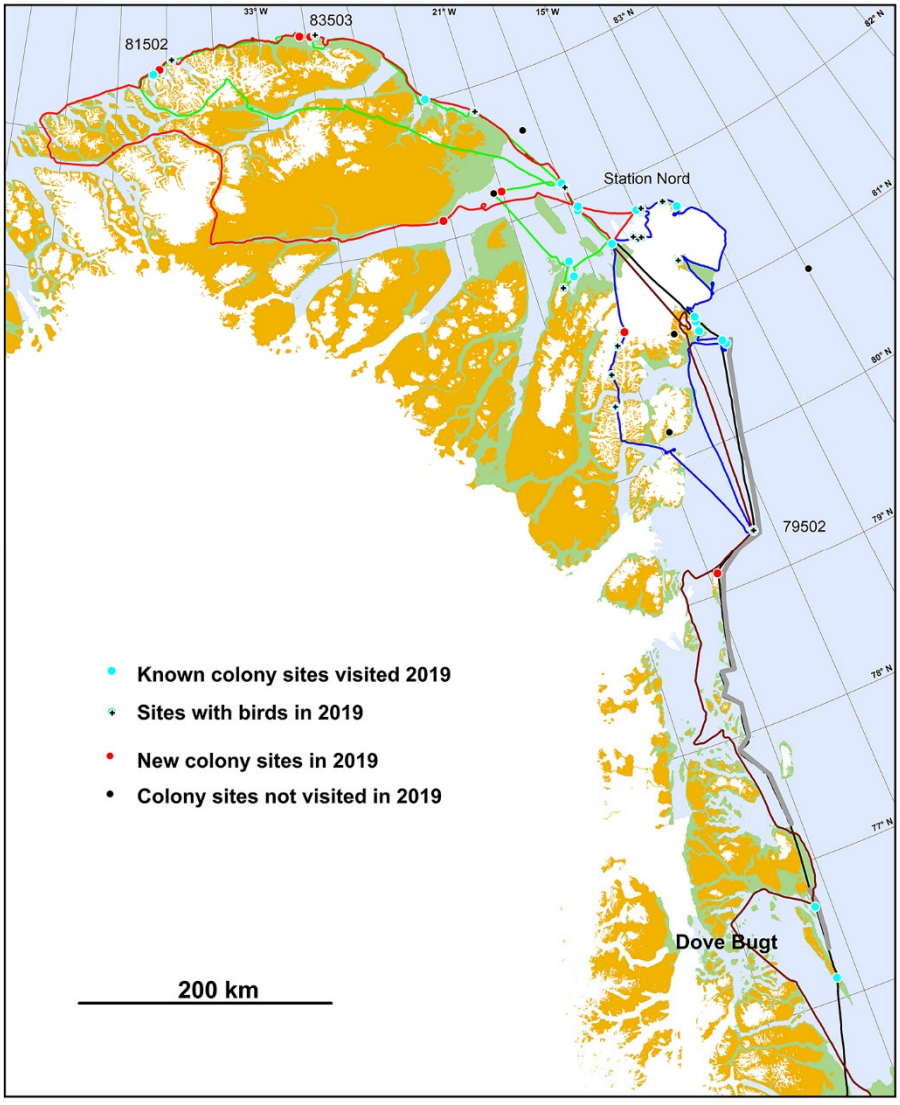

Figure 3. Map showing the survey routes in the northern area and the location of ivory gull colonies. The daily surveys have different colours and the grey line indicates fog en route.

Seven new sites were discovered, and three of these were on gravel covered ice floes and -bergs (Table 2).

In total, 22 occupied sites were located and 1968 individuals were counted in the northern area.

Figures 6-11 gives an impression of how some the colonies are placed in the northern survey area.

Table 2. The number of colonies and recorded ivory gulls (individuals) in the northern survey area.

Category	Numbers	Commets
Known sites	37	4 of these on icefloes
Visited 2019	31	
Occupied 2019	15	
New sites 2019	7	3 of these on ice floes
No. of indvs. in known sites	1,031	
No. of indvs. in new sites	937	
Total no. of indvs.	1,968	

3.2 The southern area

The southern area was surveyed by flights out form Constable Pynt, from a flight between Constable Pynt and Kulusuk and from a flight out from Kulusuk; in total approx. 2500 km (Figure 4).

Five (out of six known) colonies were investigated, and of these one was occupied, and two new sites were located, which gives a total of three occupied sites holding 60 individuals (Table 3).

In addition, we searched a nunatak area south of Kulusuk (as far south as 65° S) for potential new sites, because it is well known that ivory gulls occur in numbers during summer time along the adjacent coasts (Boertmann & Rosing-Asvid 2014). No ivory gulls were recorded in that area.

Finally two previously known sites in the Dove Bugt area between the two survey areas were visited. No ivory gull were observed there.

Appendix 1 gives an overview of all colonies known from Greenland including the new found in 2019.

Table 3. The number of colonies and recorded ivory gulls (individuals) in the southern survey area.

Category	Numbers	Comment
Known sites	6	
Visited 2019	5	with some reservation, see discussion
Occupied 2019	1	
New sites	2	
No. of indvs. in known sites	12	
No. of indvs. in new sites	48	
Total no. of indvs.	60	

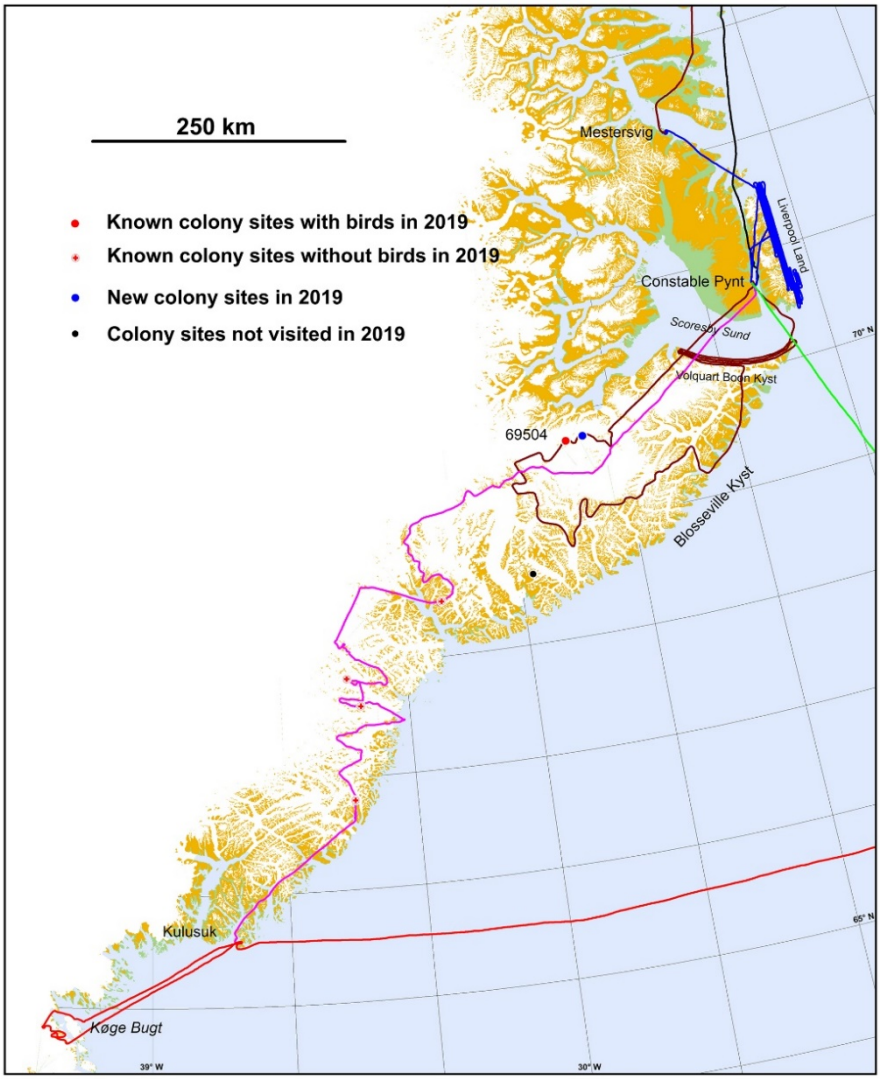

Figure 4. Map showing the survey routes in the southern area. The daily surveys have different colours. The survey of little auk colonies appear very marked due to the closely spaced parallel survey transects.

3.3 Little auk colony survey

In total 2,040 km were flown along parallel transects over the colonies and over 7000 images were obtained, 2885 of which were in near-infrared. The result of this survey will be reported elsewhere.

3.4 Walrus haul-outs

Walruses were only found at four of the ten surveyed sites (Table 4, Figure 5).

Table 4. Survey dates, site names and number of observed animals for each of 10 visited walrus haul-outs.

Date	Site name	No. of walruses	Images
24 Jul.	Sandøen	11	
29 Jul.	Kap Bjarne Nielsen	3	Figure 5
29 Jul.	Shannon SW	2	Figure 5
29 Jul.	Kap Karl Ritter	22	Figure 5
29 Jul.	Lille Snenæs	0	
29 Jul.	Hvalrosodden	0	
29 Jul.	Port Arthur	0	
29 Jul.	Nørresundbyhytten	0	
29 Jul.	Kap Peschel	0	
29 Jul.	Slædeøen	0	

Figure 5. Three of the four occupied walrus haul outs. From left: Kap Carl Ritter, Kap Bjarne Nielsen and Shannon SW (Photos: E. Haase, with the PhaseOne camera).

4 Discussion of ivory gull results

The coverage of the survey was very good in the northern range. Almost all known sites were visited. We missed a not hitherto known colony in Amdrup Land that was located by an individual fitted with a GPS-tracking tag (Olivier Gilg and Glenn Yannic pers. comm.), due to a navigation error. Three other sites located on gravel covered ice-floes in 2007, 2008 and 2009 (Boertmann & Nielsen 2010, Boertmann et al. 2010, O. Gilg pers. comm.) could not be relocated due to the fact, that the floes had drifted away during an open water situation in late summer in the subsequent years. However, three new colonies were found on gravel covered ice – one actually on a gravel spot on a low, flat iceberg (Figure 6).

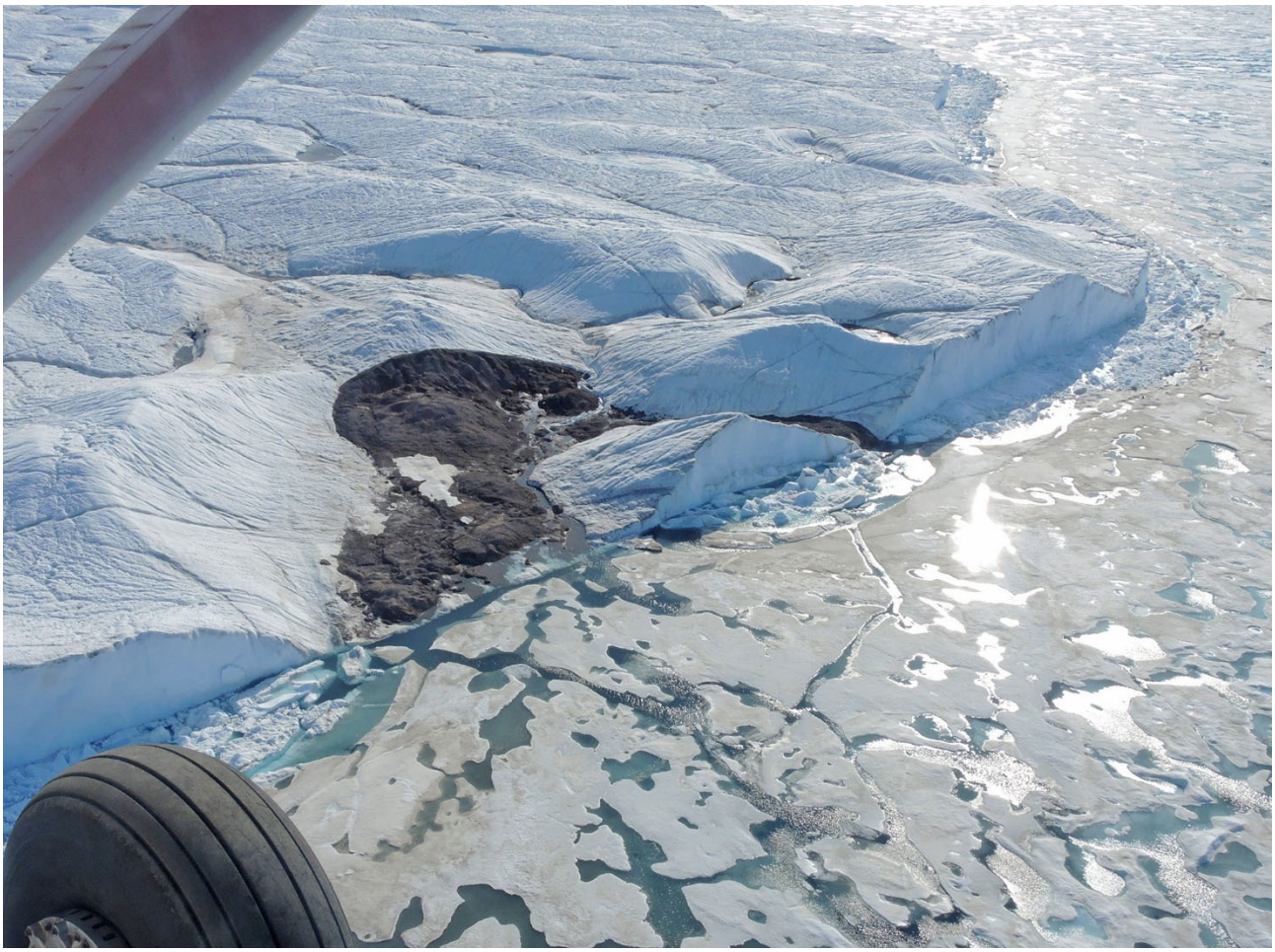

Figure 6. Gravel patch on tabular iceberg (colony 82509). Eleven ivory gulls were counted here. This site looks very much alike the iceberg colony described by Nachtsheim et al. (2014) (Photo: D. Boertmann).

The new sites on the north coast of Greenland was close to the site 83503 (see Appendix 1). These colonies are placed on low gravel banks (Figure 7), which change position and size between years due to the movements of the sea ice, and the location of the colonies change accordingly.

The new site located on Kap Nansen at Norske Øer (79502), held 820 birds breeding on a steep cliff facing northeast. According to vegetation of lichens, mosses and vascular plants, this colony must have been there for many years (Figure 8).

Generally, the distribution and numbers in the individual colonies had changed much since the previous survey in 2008 / 2009 (Boertmann & Nielsen 2010). Many small colonies was deserted, while some of the large had increased considerably.

The site on Kap Washington (81502) on the north coast of Greenland can be used to illustrate how challenging it is to detect ivory gulls in cliff colonies. A small colony (numbers unknown) was found here in 1980 (Bennike & Higgins 1989), but when surveyed in 2009, no birds were observed. However, in 2019 14 ivory gulls were detected on a part of the cliff slightly to the south of where the 2009 survey searched.

If all most recent, previous survey results (primarily 2008 / 09) of the individual colonies are added, a total of 1,300 individuals is reached. The total of the 2019 survey is 2,028 individuals, however, if the large new site (Kap Nansen 79502) is excluded the total is around 1,200 individuals., which is not significantly different from the estimate from 2008 / 09. Gilg et al. (2009) calculated a breeding population of 1,800 birds and commented that the breeding population could possibly be higher than 4,000 birds (2,000 pairs). Today, we can conclude, that the coasts of the northern range are well surveyed, but undiscovered colonies may hide in some of the inland area (such as the one we missed in Amdrup Land) and especially in the nunatak-areas, which are so difficult to survey.

Figures 7 to 12 give an impression of the different colony locations.

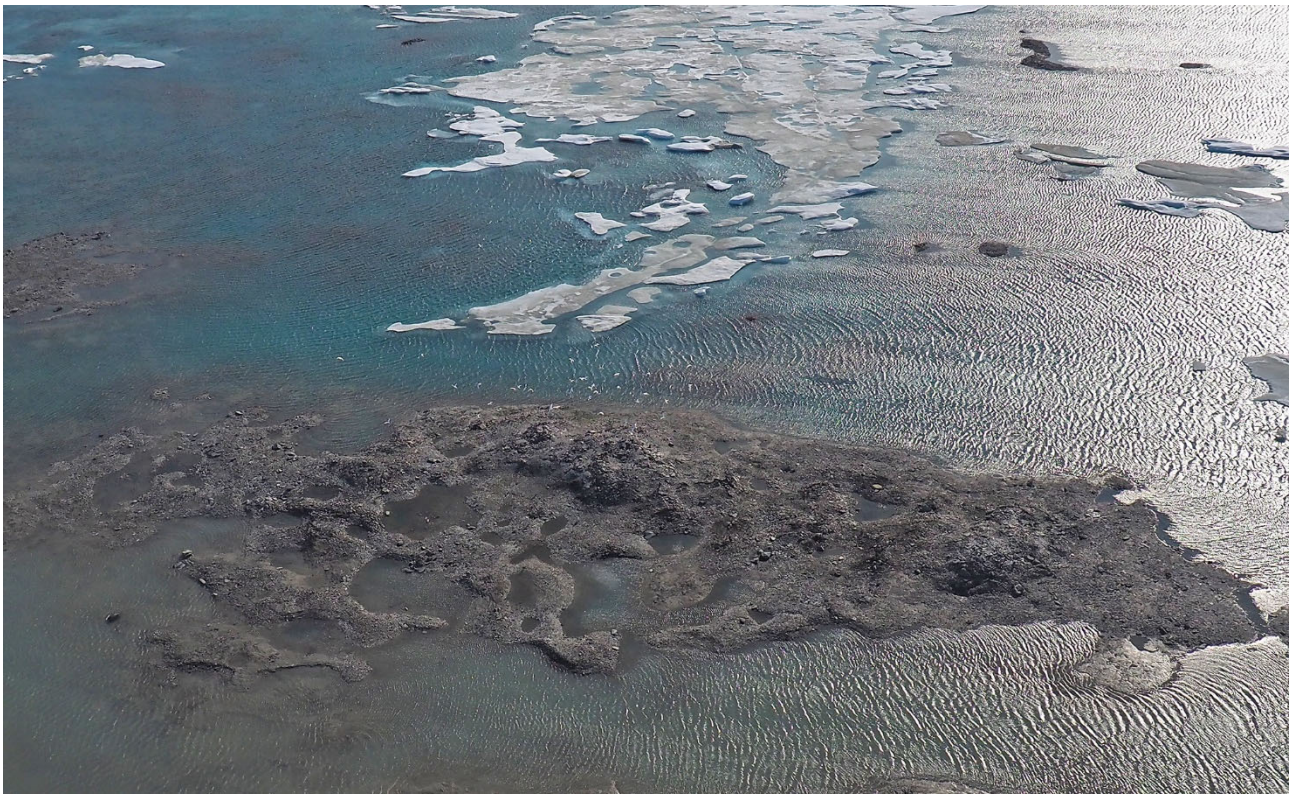

Figure 7. One of the new sites (83506) on low gravel banks to the west of 83503. Twelve ivory gulls, five Arctic terns and fourteen Sabines gulls were counted (Photo: H. Haaning Nielsen).

Figure 8. The new site on Kap Nansen (79502), and the largest ivory gull colony so far located in Greenland. Note the vegetation on the talus slopes below the high density areas on the cliff (Photo: H. Haaning Nielsen).

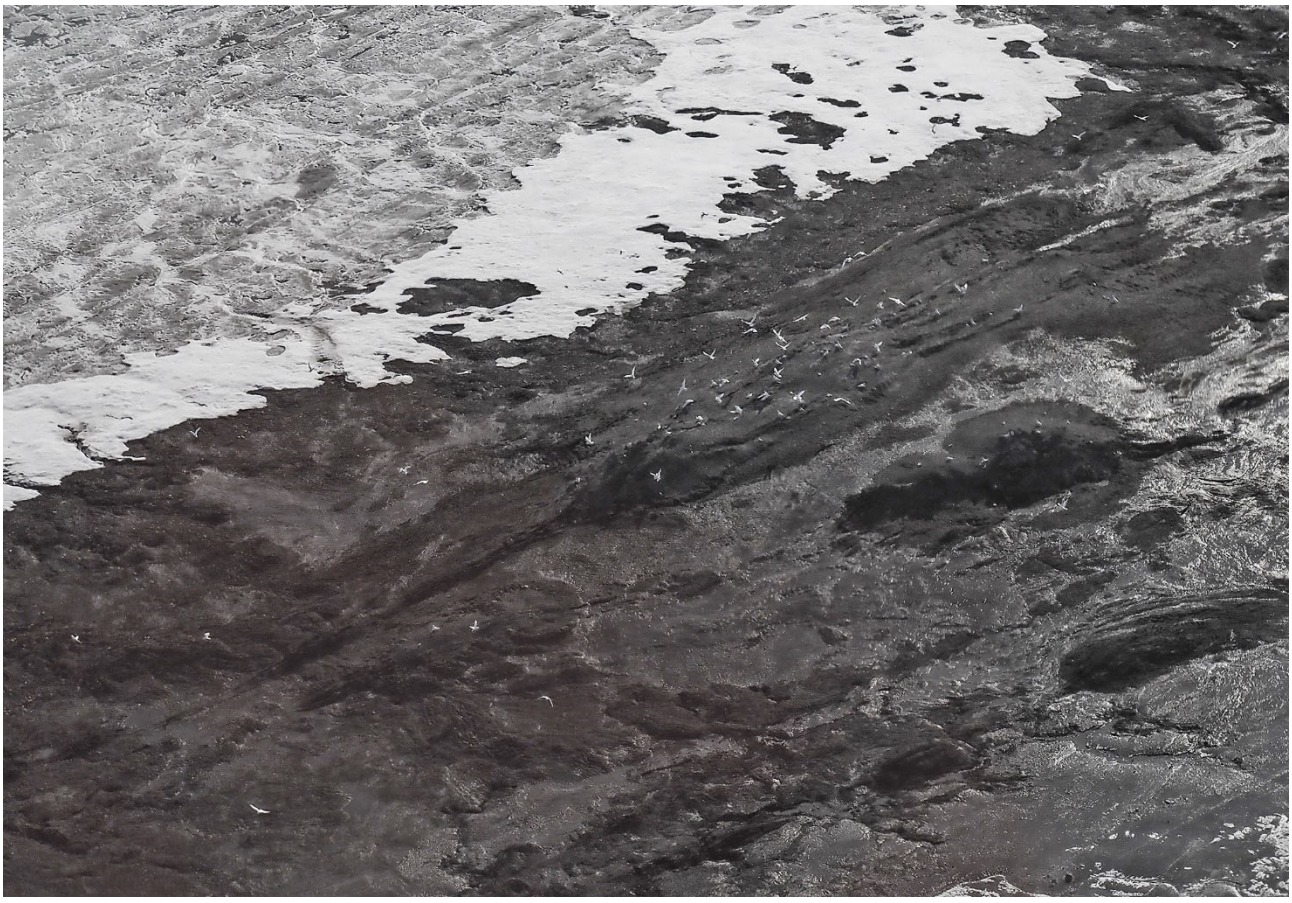

Figure 9. Colony (81520) placed on a medial moraine (Photo: H. Haaning Nielsen).

Figure 10. Colony (81511) placed in a canyon (Photo: H. Haaning Nielsen).

Figure 11. Colony 69504 is located on the backside of the nunatak in the front, 133 km from the outer coast (Photo: D. Boertmann).

The southern area was extremely difficult to survey, because all the known sites are located in the nunatak-areas. The topography there is characterized by numerous, steep, tall cliffs, where small white birds are very difficult to detect. It was remarkable that we observed birds at the remote nunatak (Figure 11) just to the south of Scoresby Sund (69504). No ivory gulls were observed there in 2009. Even more remarkable was two previously unknown sites 30 km away from that. But, at all other known sites no birds could be located. This cannot be taken as a sign of decrease, as these sites are difficult to locate precisely and the birds are so small in these huge cliffs. Unfortunately the colony 68510 in Watkins Bjerge was missed due to another navigation error.

The nunatak areas west of Blosseville Kyst and Køge Bugt (64° 45' N) was searched for new sites, because ivory gulls are regularly observed during summer along this coasts. However, no colonies were found. Especially the nunataks west of Køge Bugt looked unsuitable as nesting sites for ivory gulls. Most were capped with snow and there were also snow on the ledges. This was also true for the nunataks at approx. 67° N. Further north there were much less snow, with numerous snow free nunataks.

The two sites at Dove Bugt were both without ivory gulls. The southern site was discovered in 1976 (Meltofte et al. 1981), and it may be due to misidentifcation of glaucous gulls (Meltofte pers. comm.). The other site is an island with breeding Arctic terns and Sabines gulls, and ivory gull have only been recorded here in 1908 and 2004.

A more efficient way to find the breeding sites of ivory gulls foraging along the coast, will be to catch them on their coastal fouraging sites and track them to their colonies.

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Appendix 1

All reported breeding sites for ivory gull in Greenland. Grey cells show the 2019 results. x = not visited

Colony no.	Colony name	Lat.	Lon.	Morphology	Latest survey	Numbers, indvs.	2019 result, indvs.	Remark
66504	Kronprins Frederik Bjerge	66,8016	-34,4175	nunatak	2008	0	0	
67501	Kronprins Frederik Bjerge	67,6340	-34,1997	nunatak	2008	26	0	
67502	Kronprins Frederik Bjerge	67,8851	-34,4175	nunatak	1978	45	0	
68506	Ivory Tower	68,49484	-31,9805	nunatak	2008	0	0	
68510	Watkins Bjerge	68,63045	-29,6791	nunatak	2008	2	x	
69504	Point 2038	69,7423	-28,8943	nunatak	2009	0	12	
69521	30 km east of 20138	69,76798	-27,9024	nunatak	2019	-	33	New
69522	30 km east of 20138	69,76853	-27,897	nunatak	2019	-	15	New
76502	Renskæret	76,68481	-18,5111	island	2004	2	0	
76522	Trækpasset	76,15735	-18,6266	cliff	2008	0	0	
79501	Tobias Island	79,34363	-15,7608	low island	2009	225	81	
79502	Kap Nansen	79,14856	-17,6586	coastal cliff	2019	-	820	New
80505	Henrik Krøyer Holme	80,637	-13,67	island	2017	0	0	
80511	Holm Land	80,217	-17,4	nunatak	1980	2	x	
80515	Caroline Mathilde Alper	80,5188	-19,1838	nunatak	2008	40	15	
80516	Hjørnegletscher	80,7402	-18,86	nunatak	2008	200	5	
80517	Amdrup Land	80,8	-14,5333		1993	2	0	
80518	Prinsesse Elisabeth Alper	80,92001	-18,1702	nunatak	2009	50	94	
80520	East Amdrup Land	80,87	-14,5	plain	2009	200	0	
80521	Amdrup Land	80,905	-14,45	cliff	1980	2	0	
80522	Kronprins Chr. Land	80,99541	-17,6524	nunatak	2019	-	35	New
80523	West Amdrup Land	80,85	-15,6	nunatak	2007	1	x	
80524	Henrik Krøyer Holme 2	80,86	-13,6937	island	2009	0	0	
80526	Northeast Water	80,8497	08,9492	iceberg	2014	60	x	Nahtsheim et al. 2016
81503	Kilen	81,31755	-14,0685	inland cliff	2009	55	95	
81505	Nakkehoved	81,74388	-13,5602	coastal cliff	2009	74	400	
81506	Flade Isblink	81,685	14,55	low coast	2009	0	0	
81507	Station Nord	81,61349	-16,6639	low coast	2018	0	0	
81511	Land S of Prins Frederik Øer	81,43957	-19,6195	inland cliff	2008	10	26	
81512	Kongefjord	81,493	-18,9579	low coast	2009	0	0	
81513	Peninsula SE of Prins Frederik Øer	81,6065	-18,9245	low coast	2009	0	0	
81514	West of Kap Prins Knud 2	81,76363	-14,667	low coast	2008	55	5	
81515	West of Kap Prins Knud	81,76775	-14,9168	low coast	2009	55	0	
81516	Prinsesse Magrethe Ø	81,925	-17,6444	low island	2009	2	0	
81517	Prinsesse Magrethe Ø	81,9517	-17,5592	low island	2009	110	0	
81518	Glenn's Hill B	81,5721	-15,4028	medial moraine	2018	1	34	Discovered 2018
81519	Glenn's Hill C	81,57424	-15,2292	medial moraine	2018	44	108	Discovered 2018
81520	Glenn's Hill A	81,6	-15,57	medial moraine	2018	220	110	Discovered 2018
82502	Prinsesse Magrethe Ø middle 2	82,10894	-17,8385	island	2009	1	6	

82503	Prinsesse Magrethe Ø middle 1	82,13134	-17,8686	island	2009	8	0	
82504	Prinsesse Magrethe Ø north	82,14444	-17,9054	island	2009	5	0	
82505	Sound north of Kap Rigsdagen	82,2372	-21,4449	ice floe	2008	125	0	
82506	East of Kap Erik Bunch	82,8327	-21,0841	low island	2009	0	22	
82507	Kap Eiler Rasmussen	82,5976	-18,8784	ice floe	2009	35	0	
82508	Indpendence Fjord	82,23242	-21,0221	ice floe	2019	x	5	New
82509	Indpendence Fjord	82,14553	-24,3818	iceberg	2019	x	11	New
82511	Independence Fjord	82,334	-20,7014	ice floe	2007	unknown	x	
83001	Kap kane	83,44046	-39,8014	coastal cliff	2009	0	0	
83002	Kap Washington	83,5442	-38,6602	coastal cliff	2009	0	14	
83501	G.B. Schley Fjord	83,0172	-23,6368	low island	2009	0	0	
83503	Islands N of Bliss Bugt	83,634	-29,3873	low island	2009	80	16	
83504	Hunt Fjord	83,4736	-39,4429	ice floe	2019	x	9	New
83505	Islands north of Bliss Bugt 2	83,62686	-29,7226	low island	2019	x	45	New
83506	Islands north of Bliss Bugt 3	83,64134	-30,3955	low island	2019	x	12	New

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IVORY GULL SURVEY IN GREENLAND 2019

In July and August 2019 all areas in Greenland with breeding ivory gulls were surveyed from aircraft. In total 36 known breeding sites were surveyed and of these 16 were occupied. In addition 9 new sites with breeding ivory gulls were located. The total number individuals recorded were 2028 in 25 colonies, of which the 22 were in the northern distribution area and three in the southern area. The population in the northern areas seems to be unchanged since the previous surveys in 2008/09. The survey was a part of a pan-Arctic effort to map and survey all known breeding areas.

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