Update of goose breeding, staging and moulting areas

Scientific briefing from DCE – Danish Centre for Environment and Energy

Dato: 12 December 2022 | **85** (UK)

AARHUS UNIVERSITET
DCE – NATIONALT CENTER FOR MILJØ OG ENERGI

PINNGORTITALERIFFIK
Greenland Institute of Natural Resources

Data sheet

	Scientific briefing from DCE – Danish Centre for Environment and Energy
Category:	Scientific briefing
Title:	Update of goose breeding, staging and moulting areas
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External comment:	No external comments
Claimant:	The Environmental Agency for Mineral Resource Activities (EAMRA), Greenland Government.
Please cite as:	Boertmann, D., Johansen, K.L, & Mosbech, A. 2022. Update of goose breeding, staging and moulting areas. – Aarhus University, DCE – Danish Centre for Environment and Energy, 13 s. – Scientific briefing no. 2022|85 (UK). https://dce.au.dk/fileadmin/dce.au.dk/Udgivelser/Notater_2022/N2022_85UK.pdf
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Photo on front page:	Flock of moulting pink-footed geese at Constable Bay, July 29, 2009. Photo D. Boertmann
Number of pages:	13

Background

The document *Rules for field work and reporting regarding mineral resources (excluding hydrocarbons) in Greenland* ('Field Rules') (Anon. 2000) provides special provisions for field work related to mineral exploration activities. The provisions are applied to activities within areas and periods of particular significance to wildlife.

The areas and provisions in the Field Rules were defined based on the existing biological knowledge of the time. EAMRA is the responsible agency for the protection of nature and environment in relation to mineral exploration has requested a revision of Field Rules' chapters 2 and 3 including report and digital map to be available in NatureMap (https://naturemap.eamra.gl). NatureMap is an online mapping portal for environment and nature of Greenland. Information from NatureMap can be viewed in NunaGIS (https://nunagis-asiaq.hub.arcgis.com) and in LicenseMap on GovMin (https://govmin.gl) as direct data link service.

This brief is an update of the text on goose areas in section 2.03.04 of the Field Rules, including an updated map of the areas and an appendix listing them all.

General description and sensitivity

In Greenland, several goose populations spend the summer (Boertmann & Glahder 1999). A part of these populations breeds and raises offspring, while another part, mainly consisting of young and immature birds, spend the summer moulting their feather plumage. This latter part often includes many more birds than the breeding population. While the breeding pairs usually move around in the wetlands in single pairs or small flocks, the moulting birds often assemble in huge aggregations numbering thousands of birds in a single locality. These moulting birds shed their flight feathers simultaneously and become flightless for a period of three weeks until new feathers have developed. During these three weeks, the flightless birds are extremely sensitive to human disturbance of any kind, which may lead to reduced fitness of the exposed birds (Frederiksen et al. 2017). The moulting period takes place in July and early August, with some variation between species and sites.

Particularly for the red listed Greenland white-fronted goose are spring staging areas important. The geese arrive in late April/early May to a still snow covered landscape, and need snow free feeding areas to refuel after a long migration from Icelandic spring staging areas. Such areas are found in some specific valleys and here the geese are very sensitive to disturbance (Glahder 1999b). Such areas are not known for the other goose species occurring in Greenland, mainly because they arrive later in the season to their breeding grounds.

The goose species occurring in Greenland are listed in Table 1. Note that pale-breasted brent goose occurs with two different flyway populations: one in east and one in west. Cackling goose is so far a very rare breeder in Greenland (Thule), but it may increase in numbers in the future.

Table 1: Goose species breeding Greenland, including their national and international Red List status (LC: least concern, NT: near threatened, VU: vulnerable, EN: endangered, NA: not applicable) (Boertmann & Bay 2018; https://www.iucnredlist.org/).

English name	Danish name	Greenlandic name	Scientific name	Greenland Red List status	IUCN global Red List status
Greenland white-fronted goose*	Blisgås	Nerleq qinngoqutilik	*Anser albifrons flavirostris**	EN	LC**
Pink-footede goose	Kortnæbbet gås	Nerleq siggukitsoq	*Anser brachyrrhynchus*	LC	LC
Snow goose	Snegås	Kangoq	*Anser caerulescens*	LC	LC
Barnacle goose	Bramgås	Nerlernarnaq	*Branta leucopsis*	LC	LC
Pale-breasted brent goose east	Lysbuget knortegås vestlig bestand	Nerlernaq	*Branta bernicla hrota*	NT	LC**
Pale-breatede brent goose west	Lysbuget knortegås østlig bestand	Nerlernaq	*Branta bernicla hrota*	VU	LC**
Canada goose	Canadagås	Canadap nerlia	*Branta canadensis*	LC	LC
Cackling goose	Dværg-canadagås		*Branta hutschinsii*	NA	LC

*endemic subspecies breeding only in Greenland. **applies to the global population, and not to the subspecies/populations occurring in Greenland.

Period of importance

The periods when geese are most susceptible to disturbance are when they are 1/ flightless during moult – from mid-July to early August, 2/ when they are brooding and rearing chicks, which typically takes place May to early August and when the Greenland white fronted geese arrive in spring.

Recommended revision of the Field Rules

In the latest version of the Field Rules (November 2000), regulations regarding geese are detailed in section 2.03.04:

2.03.04. Areas with breeding and moulting geese: During the following periods the activities indicated in section 2.02.01 are subject to BMP's approval:

a) breeding and moulting areas: During periods May 15 to May 31 and June 15 to August 10, however, with exemptions in sections 2.02.02-2.02-03 for the period July 11 to August 10.

b) colony of barnacle geese: During the period May 15-July 10.

DCE and GINR advise that these sections are revised both in wording and with the addition of a third section:

2.03.04. Areas with breeding and moulting geese: During the following periods the activities indicated in section 2.02.01 are subject to EAMRA's approval:

a) goose breeding and moulting areas: During periods May 15 to May 31 and June 15 to August 10, however, with exemptions in sections 2.02.02-2.02-03 for the period July 11 to August 10.

b) barnacle goose breeding colony: During the period May 15-July 10.

c) *white-fronted goose spring staging area: During the period April 20 to May 20.*

The white-fronted goose staging areas were actually shown on the maps in the 2000-edition of the Field Rules, but not mentioned in the text.

These recommended revisions are based on an extensive review of environmental rules and regulations related to mineral activities in Greenland, recently undertaken by DCE and GINR on behalf of EAMRA with the aim of assuring that the rules reflect state-of-the-art environmental research and best international praxis (Mosbech et. al. 2020).

Update of designated areas for geese

On the maps in the latest version of the Field Rules (November 2000), goose protection areas were designated and shown on printed maps.

In connection with the current revision, all sources published after 2000 describing occurrence of geese in Greenland have been checked, new areas have been added, and the current status of the areas designated in 2000 have been evaluated.

Note that unrecorded important goose areas might exist, particularly in remote areas, and that the same regulations apply should such unmapped areas be encountered.

DCE and GINR advise that the map showing the goose protection zones in the Field Rules are updated on a regular basis to reflect new data.

2.03.04.a goose breeding and moulting areas

As a consequence of the update, several new goose moulting areas have been added to the map (Figure 1).

An area (area 7, Figure 1) has lost its importance to moulting and breeding geese, and is removed from the list.

For many of the originally designated areas there is no new information to evaluate their actual importance as goose moulting areas, and new surveys of the geese are highly needed.

2.03.04.b barnacle goose breeding colonies

The colonies mapped in the Field Rules of 2000 are most likely still active, and many new colonies have presumably been established since, because the population is increasing. However, these new colonies remain unmapped and there is thus no new information to update the map (Figure 2).

2.3.04.c white-fronted goose spring staging areas

These areas are of outmost importance to the white-fronted geese arriving from their winter quarters (Figure 3). The designation is based on data from 1995 and 1997 (Glahder 1999b), and new surveys are badly needed to evaluate their current status. These areas were only shown on the original maps (and in the legend) (Anon. 2000), and not in the text of the rules.

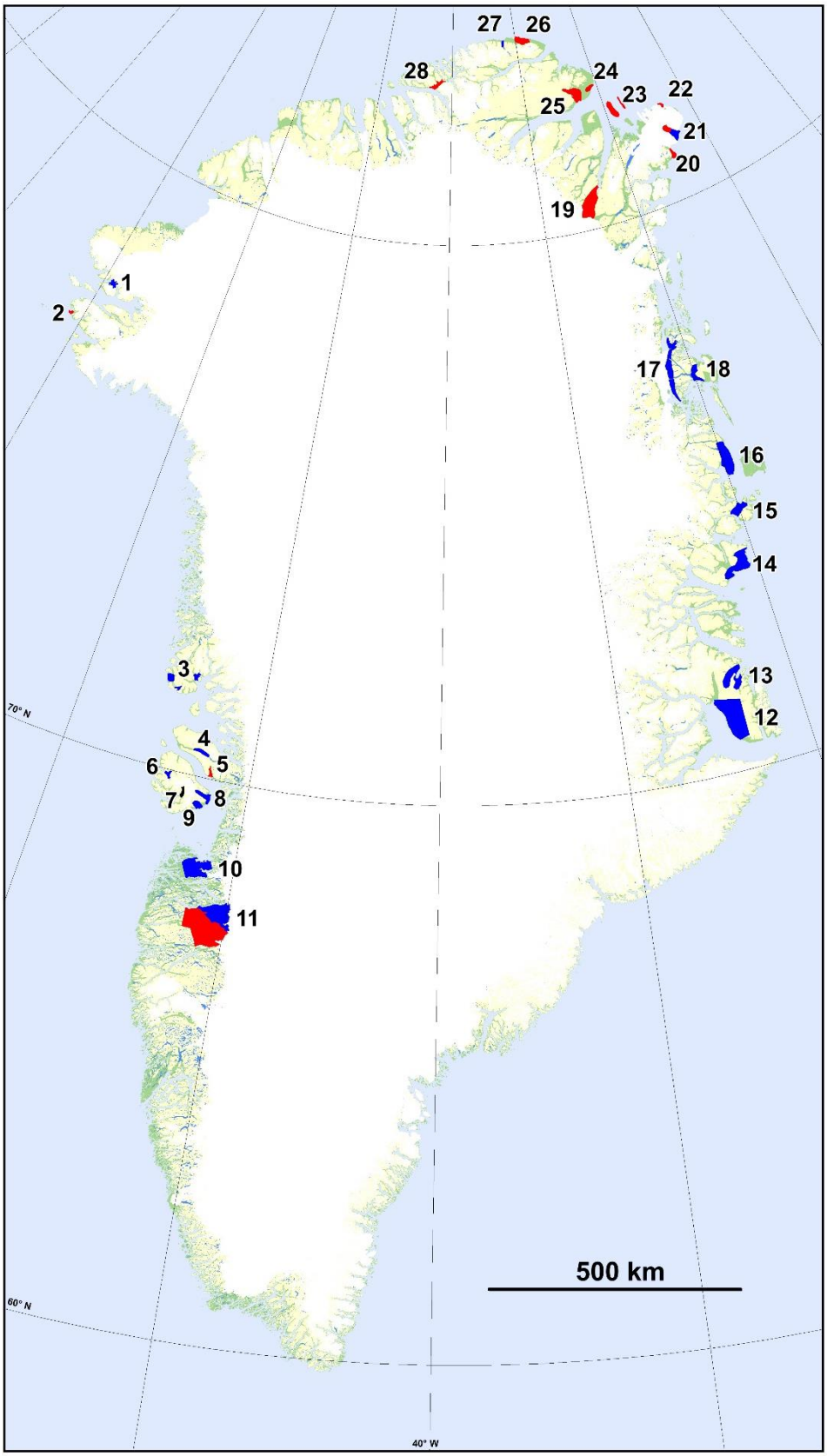

Figure 1: Updated map of goose moulting and breeding geese. Red signature indicates new areas, blue signature, areas shown in the printed version of the Field Rules (2000). The black signature (area 7) shows an area, which have lost its importance and is removed from the list.

Figure 2: Map showing the position of breeding colonies for barnacle goose (red dots). This map has not been updated.

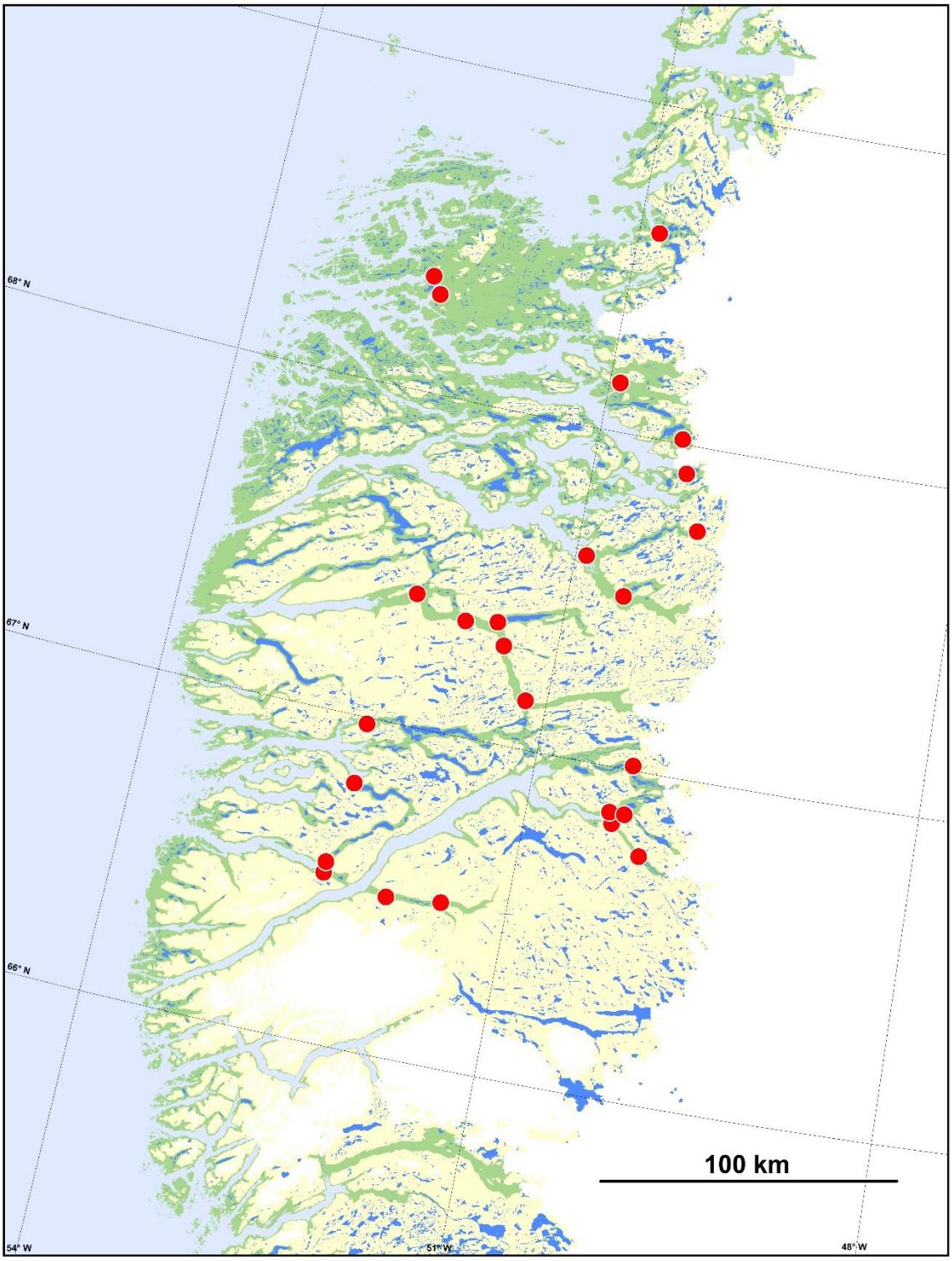

Figure 3: Map showing the spring staging areas (red dots) for Greenland white-fronted geese. This map has not been updated.

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Appendix 1: Goose breeding, staging and moulting area for which Field Rule 2.03.02 apply

Area number refers to the map in Figure 1 and the references are found in the list above. "International importance" follow the definition in the *Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat*.

1 Tasersuit northwest of Qaanaaq

Important breeding and moulting area for snow geese (Best & Higgs 1990).

2 Drown Bugt and Booth Sund northwest of Thule Air Base

Important moulting area for snow geese (Boertmann & Mosbech 1999, Burnham et al. 2014). New since the Field rules.

3 Sigguup Nunaa/ Svartenhuk Halvø, three areas

Area of international importance for moulting and breeding Greenland white-fronted geese (Glahder 1999a, Fox & Glahder 2010, DCE unpublished).

4 Aaffarsuaq-valley, Nuussuaq Halvø

Area of international importance for moulting Greenland white-fronted geese (Madsen 2004, Wegeberg & Boertmann 2016, Boertmann & Petersen 2016).

5 Saqqaq-valley, Nuussuaq Halvø

Important moulting and breeding area for Greenland white-fronted geese (Wegeberg & Boertmann 2016, Boertmann & Petersen 2016). New since the Field rules.

6 Kangersooq and Kuussuaq / Nordfjord and Stordalen, Disko

Area of international importance for moulting and breeding Greenland white-fronted geese (Glahder 1999a, Egevang & Boertmann 2001a, b, Boertmann & Petersen 2016).

7 Kuannersiut Kuussuat, Disko

This area has lost its importance as habitat for Greenland white-fronted goose, and is removed from the list (Egevang & Boertmann 2001b, Boertmann & Petersen 2016).

8 Sullorsuaq og Qaamassoq / Kvandalen and Flakkerhuk, Disko

Area of international importance for moulting Greenland white-fronted geese (Egevang & Boertmann 2001a, b, Wegeberg & Boertmann 2016).

9 Blåbær- and Laksedal, Disko

Important moulting and breeding area for Greenland white-fronted geese (Wegeberg & Boertmann 2016, Boertmann & Petersen 2016).

10 Naternaq/ Lersletten, southeast of Aasiaat

Area of international importance for moulting and breeding Greenland white-fronted geese (Egevang & Boertmann 2001a, Boertmann & Petersen 2016).

11 Eqalummiut Nunaat

Area of international importance for moulting and breeding Greenland white-fronted geese (Egevang & Boertmann 2001a, b). Enlarged since the Field Rules.

12 Heden, Jameson Land

Area of international importance for moulting and breeding barnacle and pink-footed geese (Boertmann 1991, Boertmann et al. 2015).

13 Ørsted and Pingel Dal, Jameson Land and Scoresby Land

Area of international importance for moulting and breeding barnacle and pink-footed geese (Boertmann 1991, Boertmann et al. 2015).

14 Østersletten, Badlanddal and Vestersletten, Hold with Hope and Gauss halvø

Area of international importance for moulting and breeding barnacle and pink-footed geese (Boertmann 1991, Boertmann et al. 2015).

15 Albrechtsletten, Wollaston Forland and A.P. Olsen Land

Area of international importance for moulting and breeding pink-footed geese (Boertmann 1991, Boertmann et al. 2015).

16 Hochstetter Forland

Area of international importance for moulting and breeding pink-footed geese (Boertmann et al. 1991).

17 Western part of Germania Land

Area of international importance for moulting and breeding pink-footed geese (Boertmann et al. 1991).

18 Central Germania Land

Area of international importance for moulting and breeding pink-footed geese (Boertmann et al. 1991).

19 Skjoldungedal

Important moulting area for pink-footed geese (Boertmann et al. 2015). New since the Field rules.

20 Sommerterrassen, northeast Amdrup Land

Area of international importance for moulting and breeding pale-breasted brent geese (Boertmann et al. 2015). New since the Field rules.

21 Kilen, Kronprins Christian Land

Area of international importance for moulting and breeding pale-breasted brent geese (Hjort et al. 1987, Boertmann et al. 2015). Enlarged since the Field Rules.

22 Nakkehoved, Kronprins Christian Land

Area of international importance for moulting and breeding pale-breasted brent geese (Boertmann et al. 2015). New since the Field rules.

23 Prinsesse Margrethe Ø and Prinsesse Thyra Ø, Independence Fjord

Area of international importance for moulting and breeding pale-breasted brent geese (Boertmann et al. 2015). New since the Field rules.

24 Mudderbugten, Herluf Trolle Land

Area of international importance for moulting and breeding pale-breasted brent geese (Boertmann et al. 2015). New since the Field rules.

25 Vitskøl Elv-area, Herluf Trolle Land

Area of international importance for moulting pink-footed geese Boertmann et al. 2015. New since the Field rules.

26 Bliss Bugt and land east of, Johannes. V. Jensen Land

Important moulting area for pink-footed geese (Boertmann et al. 2015). New since the Field rules.

27 Land south of Constable Bugt, Johannes. V. Jensen Land

Area of international importance for moulting pink-footed geese (Boertmann et al. 2015).

28 Siriuspasset, Nansen Land

Area of international importance for moulting pink-footed geese (Boertmann et al. 2015). New since the Field rules.

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