# Mindre meddelelser

## Diet of Canada Geese and White-fronted Geese in Isungua, West Greenland

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Although six goose species breed in Greenland only the Greenland White-fronted Goose *Anser albifrons flavirostris*, historically occurred in the low arctic west coast region (Salomonsen 1950, 1967). Recently, however, the Canada Goose *Branta canadensis* have colonised this part of the country (Fox et al. 1996). Sporadic observations of Canada Geese in Greenland have been reported for many years (Salomonsen 1950), mostly from the Disko Bay area. Since 1988 annual surveys of White-fronted Geese have been carried out in the Isungua area (67°05'N, 50°30'W) north of Kangerlussuaq (Sdr. Strømfjord) airport. In this area the number of Canada Geese remained stable (10-20 birds) until 1995 where it suddenly increased to over 100, including several families (A. D. Fox pers. comm.). In 1996 there were more than 150 birds and in 1997 more than 200 (own unpubl. data).

During a ground survey in the Isungua area in 1996, droppings of Canada Geese and White-fronted Geese were collected to analyze the diet since there had been few accounts of the feeding ecology of the Greenland White-fronted Goose on the breeding grounds (Fencker 1950, Madsen & Fox 1981), and no attempt to determine the diet of the Canada Goose in Greenland.

**Study Area and methods**

The Isungua area lies north and west of the airport of Kangerlussuaq adjacent to the ice-cap, in low arctic West Greenland. The area is characterised by gently sloping grassland and heath between 100-600 m above sea level (a.s.l.) with numerous marshes and lakes of varying size. The climate is continental and relatively stable. Details of the vegetation are found in Wright & Mitchell (1993) and Fredskild (1996).

Twenty-five fresh goose droppings were collected on 22-24 July at three sites: a White-fronted Goose site, used by two families (3 adults and 11 goslings), on a peninsula in Sanningassoq lake (c. 850 ha) 100 m a.s.l.; Canada Goose site I, 200 m a.s.l. at a 35 ha lake used by 15 adult non-breeders; and Canada Goose site II, 350 m a.s.l. at a 9 ha lake used by 4 adult non-breeders . At each site geese were observed feeding for at least half a day prior to dropping collection. Droppings were preserved in 70 % alcohol and thoroughly mixed for later examination. Plant reference specimens were collected from each site, and epidermis from each species was microscopically photographed at 10× and 40× magnification. Five subsamples were taken at random from each dropping sample and spread on microscope slides. Plant epidermal fragments in subsamples were quantified by determination of 100 fragments following the quadrate sampling procedure of Owen (1975) which takes account of fragment area (area index) as well as frequency. Using epidermal structure of the plant reference material, plant fragments in the fecal material were identified to appropriate taxonomic level.

**Results and discussion**

Equisetaceae, Juncaceae, Cyperaceae and Poaceae were the most important groups in the diet of both goose species, with Bryophyta and various Dicotyledones as minor constituents (Tab. 1.). Equisetaceae and Juncaceae/Cyperaceae occurred more frequently in droppings from White-fronted Geese (61%; 21%) than in droppings from Canada Geese (7%/38%; 12%/15%), which, on the other hand, had a much higher content of Poaceae (67%/34%) than droppings from White-fronted Geese (13%).

The White-fronted Geese and Canada Geese were only seen feeding in a relatively narrow strip along the water edge. Plants identified in the droppings all belonged to species growing in the marsh zone around the lakes (Böcher et al. 1978).

Equisetaceae have previously been shown to be a major food item in the diet of White-fronted Geese (especially goslings) at a study site 70 km north of Isungua (Madsen & Fox 1981); most droppings from White-fronted Geese in the present study were from well-grown goslings. Canada Geese foraged more on grasses. However, the apparent diet variation between goose species may simply reflect the relative abundance of available plant species at each site, which was not investigated.

The ongoing expansion of Canada Geese into an area hitherto exploited only by White-fronted Geese suggests the potential for feeding competition between the two species. Future research in the area should aim at detecting the occurrence and extent of such interspecific competition which might have significant implications for the Greenland White-fronted Goose.

Tab. 1. Diet of White-fronted Geese and Canada Geese (pct) in Isungua, West Greenland, as determined from analysis of plant epidermal fragments in droppings.
*Føden hos Blisgås og Canadagås (pct) i Isungua, Vestgrønland, bestemt ud fra plantefragmenter i gåseekskrementer.*

| | White-fronted Goose | Canada Goose site I | Canada Goose site II |
|---|---|---|---|
| **Bryophyta** *Mosser* | | | |
| Unident. mosses | 0.1 | 2.5 | 0.2 |
| **Equisetaceae** *Padderokker* | | | |
| *Equisetum* sp. | 60.6 | 6.6 | 37.7 |
| **Dicotyledones** *Tokimbladede* | | | |
| *Hippuris vulgaris* | 0.7 | 0.8 | 0 |
| *Polygonum viviparum* | 1.0 | 5.1 | 1.2 |
| *Stellaria longipes* | 0 | 0.2 | 3.0 |
| *Vaccinium uliginosum* | 0 | 0 | 0.2 |
| *Euphrasia frigida* | 0 | 0 | 1.0 |
| Unident. Dicotyledones | 0.5 | 2.4 | 1.5 |
| **Monocotyledones** *Enkimbladede* | | | |
| Juncaceae *Siv* | | | |
| *Juncus arcticus* | 0.7 | 0 | 1.5 |
| *Luzula multiflora* | 0.4 | 0 | 0.8 |
| Cyperaceae *Halvgræsser* | | | |
| *Eriophorum scheuchzeri* | 0 | 0.7 | 1.7 |
| *E. angusitfolium* | 6.3 | 0 | 0 |
| *Carex saxatilis* | 0 | 0 | 2.3 |
| *Carex* sp. | 0.4 | 0.3 | 0 |
| Unident. Juncaceae/Cyperaceae | 13.2 | 10.5 | 8.4 |
| Poaceae *Græsser* | | | |
| *Calamagrostis langsdorffii* | 6.5 | 7.1 | 0 |
| *C. neglecta* | 0 | 0 | 10.6 |
| *Deschampsia pumila* | 0 | 0 | 1.7 |
| *Poa arctica* | 0 | 18.5 | 9.7 |
| *Trisetum spicatum* | 1.0 | 2.3 | 2.8 |
| Unident. Poaceae | 5.0 | 39.0 | 9.4 |
| Potamogetonaceae *Vandaks* | | | |
| *Potamogeton alpinus* | 0 | 0 | 0.2 |
| **Unknown species** *Ubestemt* | 3.6 | 4.0 | 6.1 |

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**Resumé: Fødevalg hos Canadagæs** *Branta canadensis* **og Blisgæs** *Anser albifrons flavirostris* **i Isungua, Vestgrønland**

I forbindelse med en monitering af Blisgæs og den ekspanderende bestand af Canadagæs i Isungua, Vestgrønland, 1996, blev der indsamlet gåseekskrementer fra Blisgæs (én lokalitet med 3 adulte og 11 gæslinger) og Canadagæs (to lokaliteter med hhv. 15 og 4 adulte ikkeynglende fugle) til analyse af fødevalget. Indtil nu foreligger der kun få oplysninger om fødebiologien hos den Grønlandske Blisgås på ynglepladserne (Fencker 1950, Madsen & Fox 1981), mens Canadagåsens fødevalg i Grønland aldrig er blevet undersøgt. Hos begge gåsearter var de dominerende plantegrupper padderokker, siv, halvgræsser og græsser (Tab. 1), mens mosser og forskellige tokimbladede planter var af mindre betydning. Hos Blisgæssene var andelen af såvel padderokker som siv og halvgræsser højere end hos Canadagæssene, mens andelen af græsser var højst hos Canadagæssene. Også tidligere undersøgelser (Madsen & Fox 1981) har vist, at padderokker er en væsentlig bestanddel i føden hos gæslinger af Blisgæs i Grønland. Den antydede forskel i fødevalg hos de to gåsearter kan dog skyldes forskelle i forekomsten af de forskellige plantearter på de tre lokaliteter, som ikke blev undersøgt.

Den voksende bestand af Canadagæs i et område, der indtil for nylig stort set kun blev udnyttet af Blisgæs, kunne medføre fødekonkurrence mellem de to arter. Påvisning af eksistensen og omfanget af en sådan konkurrence, som kunne have væsentlig betydning for de Grønlandske Blisgæs, bør have høj prioritet i fremtidige undersøgelser.

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