

**REGISTRATION OF  
BRENT GOOSE  
MIGRATION AND STOPOVER  
AT HORNSUNDNESET, 25.5. - 28.5.2007**



Arbeidsrapport 2-2007

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By  
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## Introduction

During the yearly goose census conducted by the Governor of Svalbard, we spent three days at Hornsundneset (76 °53'N 15 °36'E). Our main task was to evaluate the importance of Hornsundneset for migrating geese with special emphasis on the light-bellied brent goose (*Branta bernicla hrota*). We searched the area for suitable habitats used by migrating geese, conducted counts and recorded ring codes of brent geese, pink-footed geese (*Anser brachyrhynchus*) and barnacle geese (*Branta leucopsis*).

## Methods

### Transport and location of camp

We were transported by helicopter and chose a dry rocky area in the middle of our study site as camp site (UTM: 33x 515166, 8533488, 'CAMP' in Fig. 3). In our experience this camp location worked very well and we recommend to use this camp site also during future surveys. We were able to reach most areas with high goose densities without disturbing the geese, were able to observe migrating geese that passed by from the camp site and had a good overview over the area - both in terms of bird observations and polar bear safety.

### Study area and approach

We concentrated our survey on the plain and slopes below Hohenlohefjellet and the northern part of Sergeijevfjellet (see Fig. 3). The plain was a rocky dry moss tundra, with occasional wet moss patches (similar vegetation to Vårsolbukta). These moss patches were the preferred grazing areas of the geese and fertilised by the large colonies of Little Auks in the scree slopes. Snow cover was still extensive on the lower part of the plain towards the coastline (95% snow cover), whereas the snow melt on the upper slopes was in most areas much more advanced (40-80%). During our stay, wind speed was moderate and the wind direction was mainly southerly, except for the last day with strong northerly winds.

We divided the area in several sub-areas to facilitate the counting and counted from four counting points (Fig. 3). Both, binoculars (10x42 and 10x32) and a telescope with 20-60 zoom ocular were used for counts and also to assess the body condition of the geese in form of abdominal profiles AP (Clausen, 2006).

## Results

**25.05.2007**

**Observation time:** 17:20 - 23:10.

**Weather conditions:** overcast, no wind.

We did not leave the camp site but observed two flocks of brent geese that came from South and alnded in the area, as well as one flock with approx. 150 individuals that passed by along the shore line (Table 1).

**26.05.2007**

**Observation time:** 8:30-0:30

**Weather conditions:** overcast, little wind, good visibility

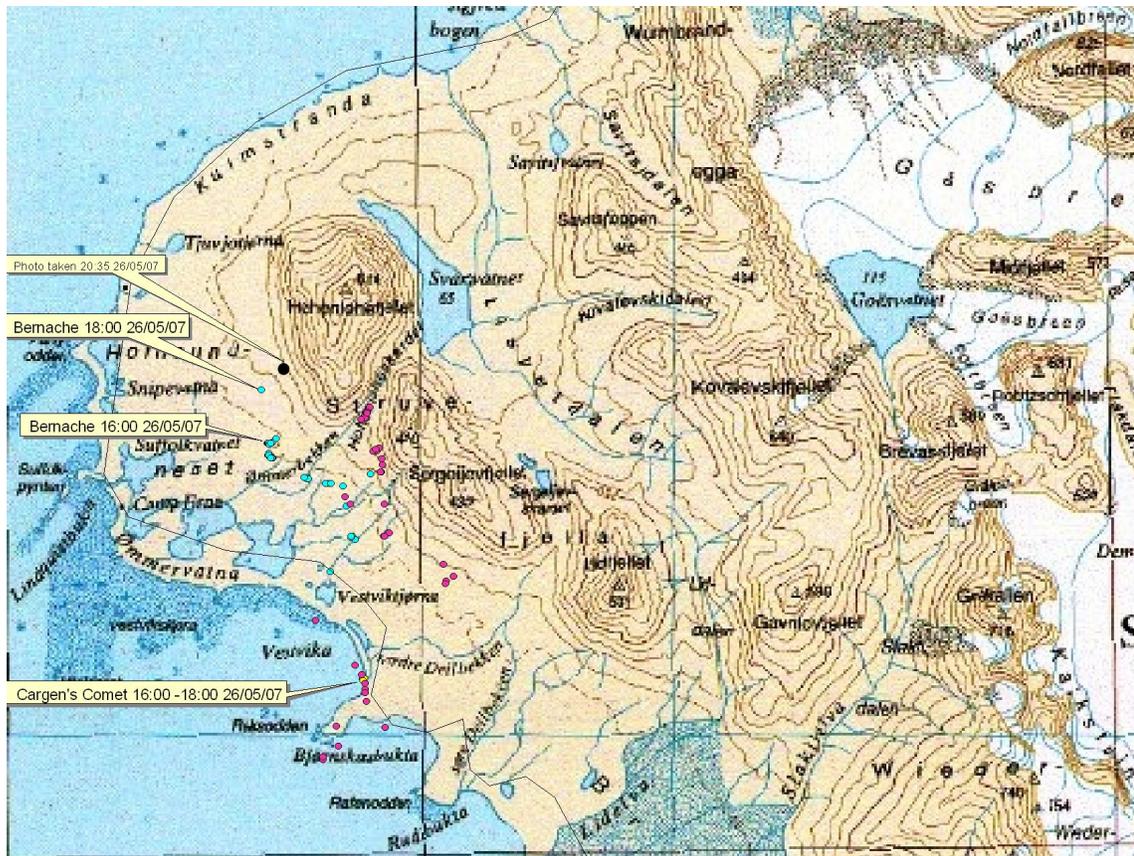
We used the day to get an overview of the area and find the 'hotspots' for the geese. We first walked south towards Sergeijev fjellet and turned in the afternoon north on the little plateau below Hohenlohefjellet (area F in Fig. 3). On this plateau we detected a goose with a satellite transmitter (Fig. 1). We recorded time and GPS position but were not able to read the ring, since it was sitting. Later we contacted Larry Griffin from WWT in Scotland, who had installed the transmitter. Although there were two geese with satellite transmitter in the area, he could identify 'our' goose as 'Bernache' with help of the GPS tracks (Fig. 2). In total five of eight transmitter geese used Hornsundneset during spring migration 2007 (see <http://www.wwt.org.uk/barnacle/Maps.asp>). Also in 2006, two geese had been equipped with satellite transmitters and both geese stopped over in Hornsundneset during spring migration. Additionally, 'Magnar' - the goose breeding at Dunøya - staged in the area in autumn 2006. These data suggested that Hornsundneset is frequently used by barnacle geese. Our observations of large flocks of barnacle geese in the area could confirm the extensive use during pre-breeding.

For counts of staging and migrating geese in the subareas see Table 1 and 2.

We also scanned a flock of 34 brent geese in area E for APs and recorded 5 geese with an AP=0.6 and 3 geese with an AP=1.



**Figure 1.** A barnacle goose with a satellite transmitter



**Figure 2.** Reconstruction of the identity of the observed goose with help of GPS-positions and time fixes

## 27.05.2007

**Observation time:** 9:15-0:10

**Weather conditions:** sunny (morning)- overcast (afternoon), very little wind, good visibility

In order to have the sun in the back during the counts, we decided to first count the northern part of the area and leave the southern part for the afternoon. We recommend this order for future counts! On the lower part of both Hohenlohefjellet and Sergeijevfjellet a minimum of 15 pink-footed goose pairs nested on the slopes. On the big boulders on these slopes also several glaucous gull nests were found. For counts of staging and migrating geese see Table 2 and 1).

## 28.05.2007

**Observation time:** 9:30-13:20

**Weather conditions:** low hanging clouds, some snow in the air, strong wind, variable visibility

We counted only the Southern part of the area (Table 2), since we had to put down our camp in the afternoon. There were no migrating flocks, which may be caused by the strong head winds that day. The helicopter came to pick us up at around 16:00.

## Other birds and mammals

In total, we observed 14 bird species in addition to the three goose species in Hornsundneset (Table 4. We also counted 38 reindeer north of the camp site and 26 south of the camp site. On 28 May

we recorded a mother with a newly born calf close to our camp site. The number of Arctic foxes *Alopex lagopus* in the area could be estimated with help of the characteristic patterns during their fur shift and we were able to distinguish between 6 - 10 different foxes in the area, including one blue fox.

## Conclusion

Our observations suggest that Hornsundneset is an important staging area for all three goose species in Svalbard. Goose numbers were much lower the second day, indicating that stopover times may be rather short or that weather conditions for migration were favourable. This is also indicated by the large numbers of geese passing by in various flock sizes during the first day. There were two main migration corridors in the area, one along the coast line and one following the mountain base.

The number of ringed barnacle geese was relatively low compared to Vårsolbukta and Hyttevika. In addition, a large proportion of the rings was orange, indicating that the birds were marked in the UK. Rings used in the two breeding areas with frequent ringing events, Ny-Ålesund and Nordensiöldkysten, are light green and the majority of rings seen in Vårsolbukta are lightgreen. The low proportion of lightgreen rings in Hyttevika suggests that the area may be less frequently used by birds from Ny-Ålesund and Nordenskiöldkysten, and that the composition of the flock in terms of colony affiliation at the time of our survey was different to that observed in Vårsolbukta during the entire pre-breeding period. This may support the hypotheses in Hübner (2007) on differences in usage of pre-breeding areas along the west coast in relation to the distance to the breeding areas. However, the observation period in Hornsundneset was very short and further observations - preferably longer than three days - should be conducted to confirm this pattern.

All over Spitsbergen, snowmelt was relatively late in 2007. Therefore, sites with low snow cover due to favourable conditions were especially important for the migrating geese and goose numbers in such areas may be lower in years with early snow melt. We recommend to repeat the survey in this area in the next year in order to confirm the intensive use of Hornsundneset as stopover site for geese during spring.

Thanks for three superb days in this beautiful area!

## References

- Clausen, P. 2006. Preben Clausen's quick-guide til aflæsning af fargemærkede knortegjæs. *Pdf-file*.
- Hübner, C. E. 2007. *Spring stopover in the Arctic: Implications for migrating geese and their food plants*. PhD thesis, University Centre in Svalbard and University in Tromsø, Norway. 141 pp.

**Table 1.** Observations of brent goose migration at Hornsundneset. All migrating flocks moved from South to North.

Time	Flock size	Total numbers
<b>25.05.2007</b>		
17:25	9+3	12
22:35	ca.150	ca.150
Total		ca.172
<b>26.05.2007</b>		
8:30-11:15	3-200	400
11:16-18:00	7-50	142
18:01-23:30	6-216	654
Total		1196
<b>27.05.2007</b>		
11:00-13:00	3-12	29
13:01-19:00	-	0
19:01- 22:50	4-6	18
Total		47

**Table 2.** Goose counts in Horsundneset. Total numbers (evt. min and max nummbers) of geese in the sub-areas are shown.

Area	Time	Brent geese	Barnacle geese	Pink-footed geese
<b>26.05.2007</b>				
A	11:30	13	21	17
B1	11:51	15	71	10
B2	11:54	70	21	46
B3	13:22*	220-340	>293	>88
B4	13:40	42	140	54
C	15:17	0	50	44
D	12:14 & 18:44**	43-64	43-69	12-13
E	18:53	8	55	102
Total		412-551	694-733	373-380
<b>27.05.2007</b>				
B1	17:52	16	42	14
B2	18:01	26	67	93
B3	18:48	32	292	51
B4	19:04	0	58	33
C	17:55	0	32	15
D	12:34	0	109	9
E	12:54	0	2	21
F	15:40	8	79	13
G	13:51	35	141	13
Coastal plain	15:02	0	27	0
Total		117	849	262
<b>28.05.2007</b>				
B1	10:38	0	70	6
B2	10:50	4	37	63
B3	11:20	18	353	129
B4	11:36	0	58	4
C	11:00	0	34	66
D	10:19	0	4	11
Coastal plain	10:18	0	6	0
Total		22	562	279

\* all geese in area flew up; barnacle & pink-footed geese only counted on the ground

\*\* area counted twice

**Table 3.** Ring readings of all three goose species in Hornsundneset. We checked approximately 80% of all brent and pink-footed geese and 60% of barnacle geese for rings.

Species	Date	Ring number	Sex	AP	Comments
Brent goose	26 May	y(XB)ry		0.6	white Darvic ring??
	26 May	rl(), m.			left with a flock passing by; paired to w(B)
	26 May	w(B),-			left with a flock passing by; paired to rl()
	27 May	w(X), y(P)	male	1	paired to w(X),y(S)
	27 May	w(X), y(S)	female	0.6	paired to w(X),y(P)
Barnacle goose	26 May	g()		2	
	27 May	o()	female	4	with an unringed male (AP=1)
	27 May	o(BYC)		1.5	
	27 May	o(BXY)			unringed partner
	27/28 May	g(LCH)	male	1.5/2	paired to g(LCF)
	27/28 May	g(LCF)	female	4/3.5	paired to g(LCH)
	27 May	o(DDB)	male	1?	?; paired to o(DDC)
	27 May	o(DDC)	female	3	?; paired to o(DDB)
	27 May	w(CM)	female	1.5	unringed partner (AP=1)
	27 May	o(AHD)	female	1	unringed partner
	28 May	g(?BD)	female	3	partner with green ring
	28 May	o(XBY)			
	28 May	g(HUX)?			U unsure
	28 May	g(BDF)?			B unsure
Pink-footed goose	26/28 May	b(H3X)	male	1/-	
	27/28 May	w(C51)		3.5/-	
	27 May	b(H47)?			4 unsure



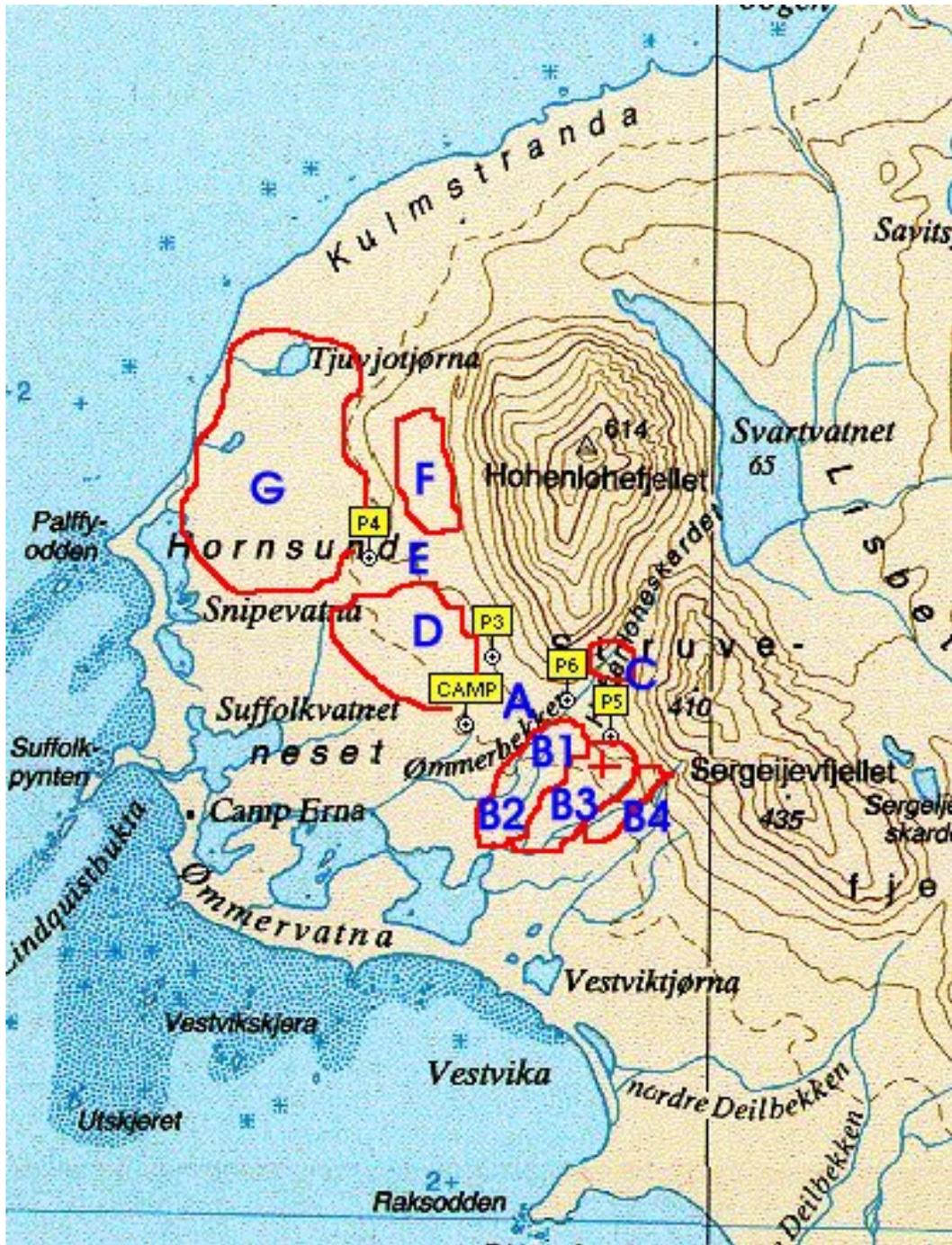


Figure 3. Map over the study area. Subdivisions of the area are shown.