

Report of the field season in Vårsolbukta, 3.5. – 16.6. 2003

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Project: Plant-herbivore interactions in an Arctic pre-breeding area for geese: effects of timing and intensity

This project lasts over three years (2003-2005) and is financed by the Norwegian research Council, the Roald Amundsen Center in Tromsø and the Norwegian National Committee on Polar Research. Permission for fieldwork was given by the Governor of Svalbard.

The results presented here are part of a PhD-project and are still unpublished. Thus, the data have to be considered as confidential. For permission to use these data please contact the author.

General conditions

Snowmelt was late, which was partly caused by heavy snowfall the 15th of May. The 25th of May about 80% of the tundra was still snow-covered (**Fig. 1**). First in beginning of June snow melted fast, leaving only snow patches between rocks and ravines at the 15th of June. Temperature started to increase in the end of May (**Fig. 2**).

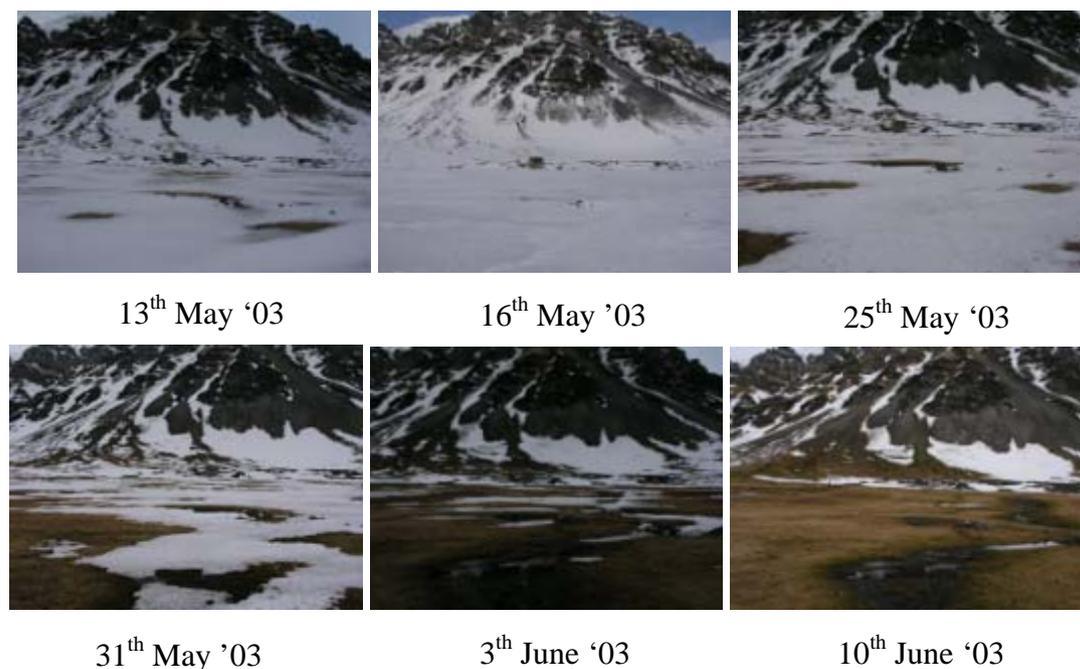


Fig. 1: Progress of snowmelt in Vårsolbukta during spring 2003.

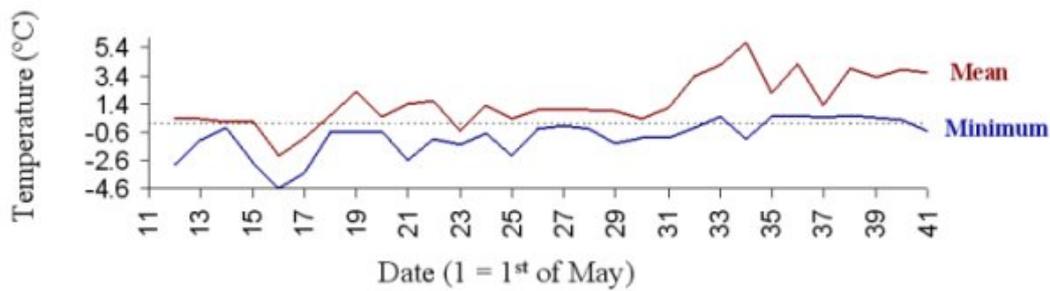


Fig. 2: Ground temperature on plain in front of Camp Millar, Vårsolbukta, 2003.

Goose staging

Goose counts were conducted in an area of about 2 km² around Camp Millar, from the south-west edge of Diabasbukta to approximately Camp Bell.

The first geese arrived in middle of May (Pink-footed geese (*Anser brachyrhynchus*): 11th of May, barnacle geese (*Branta leucopsis*): 13th of May, light-bellied brent geese (*Branta bernicla hrota*): 26th of May) and the most intense period of goose staging was between the 25th of May and 3rd of June. Daily goose counts gave maximum goose numbers of 1911 barnacle geese (26.5.), 126 pink-footed geese (20.5.) and 162 brent geese (31.5.), see **Fig. 3** and **4**.

This is the first count in this area that includes the complete spring staging period for all three goose species. In combination with the intensive ring reading efforts, valuable information, like total use of the area, number of individual geese using the area, migration patterns and total impact on the vegetation could be assessed. One aim of the study is to contribute to the knowledge needed for management decisions. The above-mentioned results can be used to assess the importance of the area for the Svalbard goose populations. These results will get more robust due to the study period of three years.

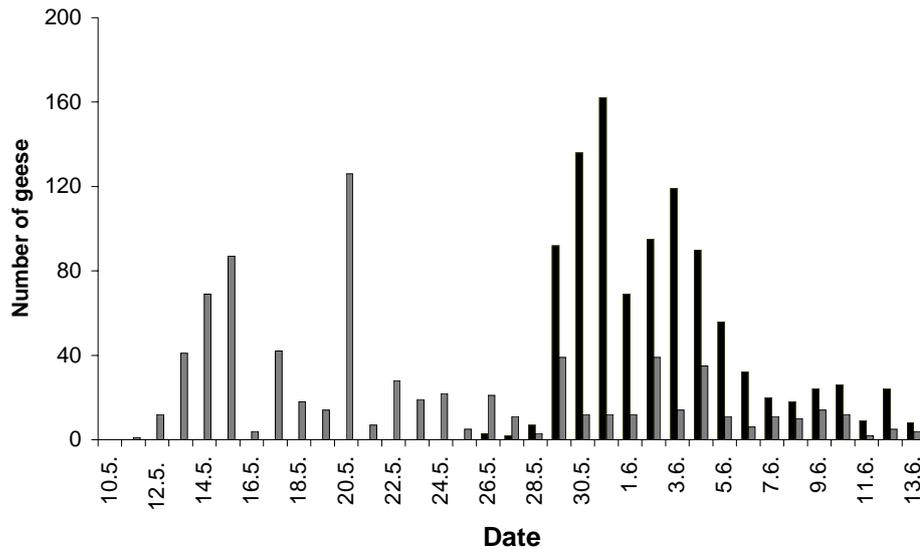


Fig. 3: Daily number of pink-footed geese (grey) and light-bellied brent geese (black) in Vårsolbukta, spring 2003.

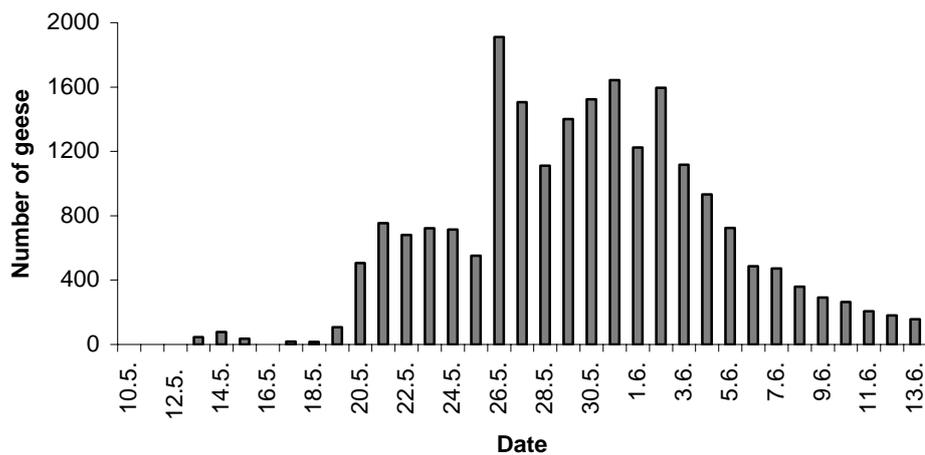


Fig. 4: Daily number of barnacle geese in Vårsolbukta, spring 2003.

Food use

To investigate food use, barnacle goose droppings were collected and analysed with the microscope. Plant particles in the droppings can be identified due to different epidermis cell structures. First results indicate that moss is the main food for barnacle geese in Vårsolbukta during spring (**Fig. 5**). Chemical analyses will assess the nutrient content of the plants and energy input rates can be calculated (using time budget data, which were collected during three days during the intense period of goose staging). In

addition, records of body condition at arrival and departure of individual geese will give an estimate of the effective increase of body mass during the stay in Vårsolbukta.

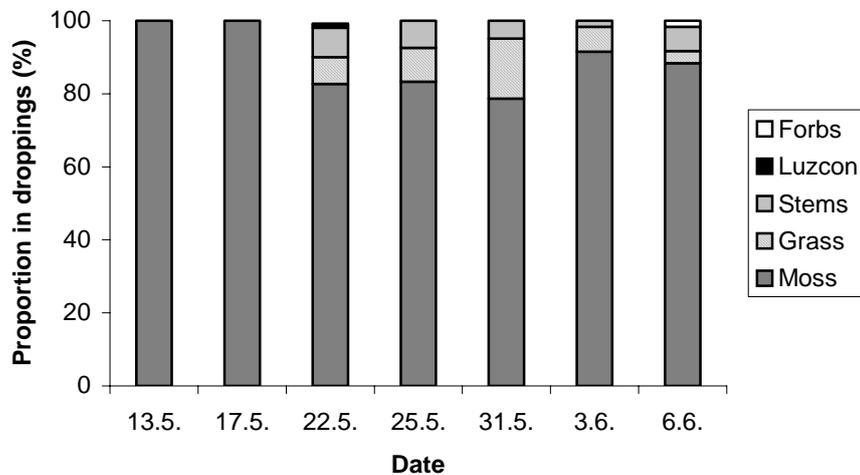


Fig. 5: Diet in barnacle geese feeding on a wet site in spring 2003, Vårsolbukta, Svalbard (data from dropping analysis). Luzcon = *Luzula confusa*; Stems = unidentified stems of vascular plants.

Other observations

Beside the ‘usual ‘ birds in the area we made following sightings:

Species			Date	Remarks
Mallard	Stokkand	<i>Anas platyrhynchos</i>	11.,15.& 19.5.	1 pair
Great black-backed gull	Svartbakke	<i>Larus marinus</i>	15.5.	First sighting
Golden plover	Heilo	<i>Pluvialis apricaria</i>	19.5.	1 individual
Great skua	Storjo	<i>Stercorarius skua</i>	23.5.	First sighting; pair
Ringed plover	Sandlo	<i>Charadrius hiaticula</i>	27.5.	1 individual
Arctic skua	Tyvjo	<i>Stercorarius parasiticus</i>	31.5.	First sighting; pair
Canada goose	Kanadagås	<i>Branta canadensis</i>	2.6.	1 individual; with pink-footed & barnacle geese
Common teal	Krikkand	<i>Anas crecca</i>	6.6.	Pair
Reindeer	Rein	<i>Rangifer tarandus platyrhynchus</i>	9.6.	First newborn calf

During our stay in Vårsolbukta we saw no sign of polar bears.

In addition to the daily goose counts, we recorded the number of reindeers in the area (**Fig. 6**). However, these numbers have to be taken as minimum counts, since we did not search the area thoroughly for reindeers.

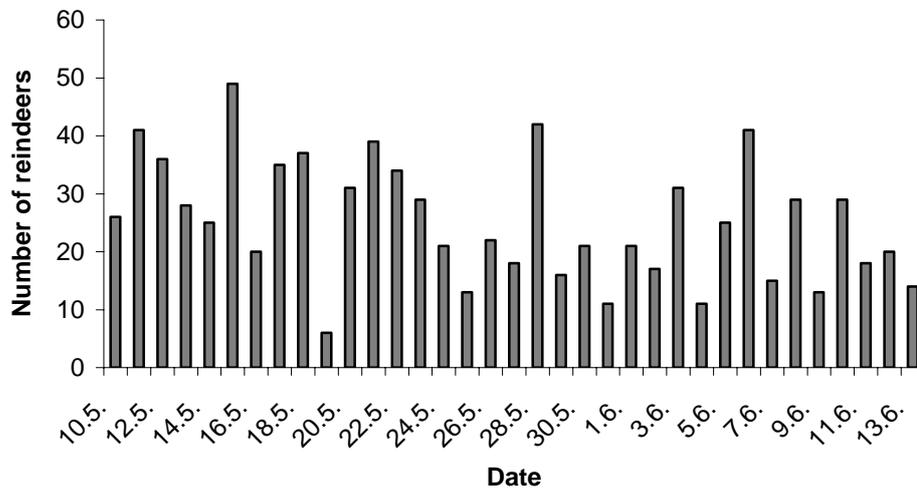


Fig. 6: Crude number of reindeers in Vårsolbukta in spring 2003, assessed during daily goose counts.

Installations in the field

For the project it was vital to install a grid of poles in the study area that will last for the whole study period. These poles are fixed in aluminium tubes, which stay all-year-round in the ground, whereas the poles can be removed during summer and winter. Right after arrival in Vårsolbukta we installed the poles temporarily in the snow. Later we pushed the poles further in the ground, following the thawing of the ground. Shortly before we left Vårsolbukta, we installed the final aluminium tubes. The ground was then thawed and thus, the risk of damage on cultural artefacts hidden in the ground could be minimised. For the same reason, we also increased the distance between the cabins and the grid, as opposed to the original plan to install the grid in direct proximity to the cabins.

Use of the Governors cabin

I appreciate that we could stay the entire period in the Governors cabin. Generally, living in the Governors cabin made logistics much easier, e.g., better control over the area due to windows in all directions, less goose disturbance due to indoor toilet, more storage place etc. More important, the upper floor windows are easy to open as

opposed to the windows in the LJFF cabin. Thus, behavioural observations could be made directly from the cabin without disturbance for the geese. Furthermore, the move from one cabin to the other would have coincided with the time of first goose arrival and geese might have settled further away from the cabin, hampering our observations. Therefore I hope, that we will be permitted to stay in the Governors cabin also during the following field seasons.

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