

Tracking Fall stopovers in Russian Barnacle Geese: *When, Where and How Long?*

Eichhorn, G.¹, R.H. Drent¹, J. Stahl², H. van der Jeugd¹, V. Afanasyev³ & K. Litvin⁴

¹ Zool. Lab., University of Groningen, P.O. Box 14, 9750 AA Haren, NL, g.eichhorn@rug.nl

² Landscape Ecology Group, University of Oldenburg, P.O. Box 2503, 26111 Oldenburg, D

³ British Antarctic Survey, High Cross, Madingley Road, Cambridge, CB3 0ET, UK

⁴ Moscow Bird Ringing Centre, Leninsky prospekt 86-310, Moscow 117313, RUS

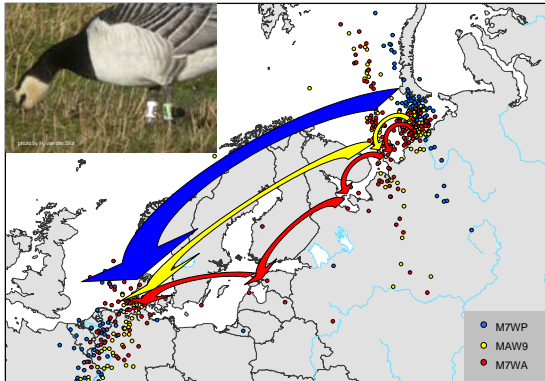


Fig. 1. Position estimates of three female geese in the period end August until 15 November. Each dot represents one of two daily fixes. In GLS day (night) length predicts the latitude and time of local midday (midnight) the longitude. Close to the equinox day length varies little with latitude, which then cannot be reliably calculated for 2-3 weeks (here c. 23 Sep-mid Oct.). This explains why several dots lie far off north or south from the actual migratory route (see also Fig. 3). However, the longitude estimate is not affected by the equinox, and is also in general more accurate (SD c. 110 km and 185 km for longitude and latitude, respectively). The largely east-west movement of the study birds within a narrow corridor along coastal lines allows the reconstruction of shifts between stopover sites by means of the longitude estimates alone. The photo shows the logger attachment to the legging.

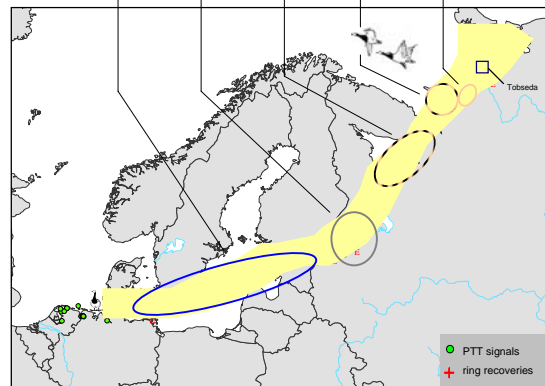
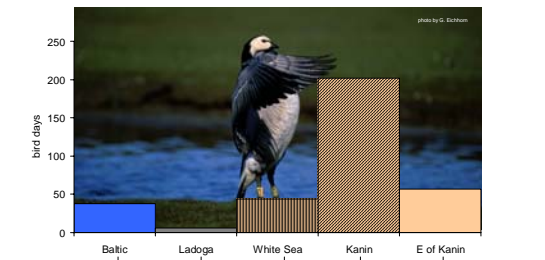


Fig. 3. Positions from satellite tracked birds (2004) and ring recoveries (1965-2003). The yellow shaded area shows the migratory corridor reconstructed from these accurate positions and direct observations published in literature. Stopover sites for geese from the Tobseda colonies are encircled and the relative use by the 'logger birds' in 2003 is expressed in 'bird days' in the figure above.

Many geese staged extensively in or near the breeding colonies before commencing migration. The Kanin Peninsula was the most important stopover site used by 80 % (15/19) of the 'logger birds' for on average 2 weeks (3-27 days) in 2003, and at least by 7 of 13 'satellite birds' in 2004 (2 unlikely, 4 unknown). Little use was made of staging sites in the Baltic, where only 8 birds spent >1day. There was no obvious relationship of individual stopover duration in the Baltic between fall and subsequent spring migration. However, more time was spent in the Baltic in spring (shown at right).

We hope to welcome our birds back to the colony this season.



Supported by: ESF Programme BIRD | Schure-Beijerink-Popping Fonds | Russian Academy of Science | Marianne und Dr. Fritz Walter Fischer-Stiftung | Ubbo Emmius Programme RUG | NAP

Methods: By attaching 9g loggers to the legrings of Barnacle Geese caught in a recently established breeding colony at Tobseda (68.35°N, 52.20°E) on the Arctic coast of Russia in 2003 and recaptured in 2004 we here reconstruct the fall movements of 19 females from the light-level data recorded by these GLS (Global Location Sensing) units. Additional fixes were received from 13 birds tracked by satellite in 2004 and from fall ring recoveries made over the years 1965-2003.

On their >3,000 km travel the geese used 0-3 stopover sites where they staged longer than 1 day. The variation in individual travel schedules and strategies is displayed in Fig. 1 and 2. Most birds (63%) travelled within 1-3 days directly from arctic staging sites (White Sea and east of it) to the wintering grounds in the Wadden Sea.

Arctic staging sites were used as long as possible: the geese left the Arctic 11-16 Oct. (mean 13) shortly before the onset of frost and snowfall (17 Oct.).

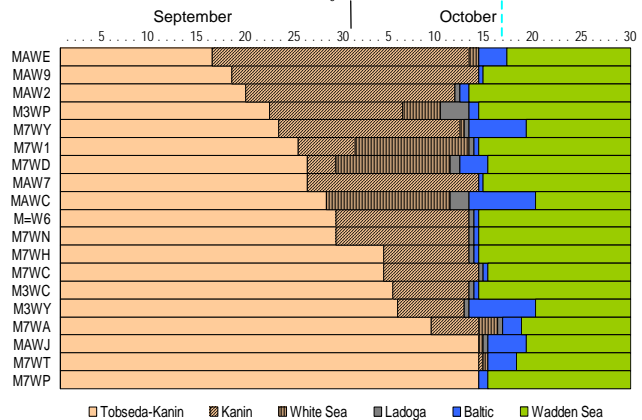
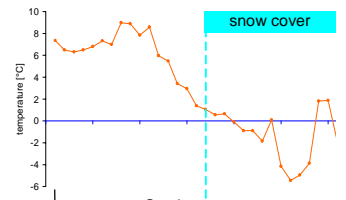


Fig. 2. Spatiotemporal pattern of 19 females (codes given at the left side) in the period September to October 2003. The individual cases are sorted by the departure date from the breeding grounds or adjacent sites within 200 km.

Baltic staging [days]

