

Unusual movement of a Black-tailed Godwit *Limosa limosa* family

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Black-tailed Godwits can move with their chicks over considerable distances when food availability or other conditions are unfavourable in the nesting area. Although the families normally stay within 250 m of the nest site, Schekkerman & Müskens (2000) found a family moving over a distance of at least 1.6 km from the nest. Movements of chicks over some hundred meters are reported from some other studies (Junker *et al.* 2003, Schekkermann & Beintema 2007). Here we report an unusual movement of a Black-tailed Godwit family.

For more than ten years, we have been surveying local breeding populations of Black-tailed Godwit in northern Germany which are linked by a common roost.

One breeding site, Koelzen, is located in Lower Saxony; there we started monitoring in 1999 (Melter 2004). It has held a population of about 13–18 breeding pairs on 110 ha during the last 10 years. In 2007 there were 14 pairs (Fig. 1). The area is divided roughly equally between grassland and arable land. Farming practice is commercial, except for about 5 ha managed for meadow birds. The surrounding area is nearly all arable land (>90%); however some pairs of Black-tailed Godwits also breed on arable fields (even in maize crops). At a nearby breeding site, Jivit, there is a smaller population of Black-tailed Godwits (4–8 breeding pairs), which breed exclusively on arable land.

Another breeding site, Recker Moor, is a nature reserve of about 327 ha located in Northrhine-Westphalia. It forms a part of the Düsterdieker Niederung Special Protected Area (Hönisch *et al.* 2008). Recker Moor is a re-wetted peatbog with wet meadows along the southern border. About five pairs of Black-tailed Godwits breed regularly at this site. Some very wet areas with shallow water are used as a roost by godwits in the early part of the breeding season. As we know from colour-ringing studies, all breeding birds of the whole region use this roost.

The minimum distance between Koelzen and Recker Moor is about 2.3 km. Almost all the fields in between are arable. Moreover, the sites are divided by several ditches (up to 3 m deep), roads and the small village of Rothertshausen, which is located alongside a highway (K 104) that carries

a fair amount of traffic. We search for Black-tailed Godwit nests in both sites (to carry out nest protection measures and investigate hatching success). Nests are marked with small sticks. At Koelzen, nests were checked every five days; at Recker Moor, at least once a week. Nests were checked by observing breeding birds from a considerable distance with binoculars or telescopes. If no bird could be seen breeding or the behaviour of the adults indicated loss of clutch or hatching (Schekkermann *et al.* 2009) we inspected the nest site again. Determination of the fate of clutches was carried out as described by Bellebaum & Boschert (2003).

At Koelzen, nest “U3” was found with four eggs on 25 April 2007. During a check of the nest on 5 May, the female was still brooding four eggs and was caught by hand. There were no signs of hatching in any of the four eggs. The bird was ringed with a unique colour-combination with three rings above intertarsal joint on each leg; left leg: blue over metal (Helgoland 5332868) over black; right leg: black over yellow over black. The male was unringed. Generally there were very few birds ringed in the population.

The nest was next checked on 14 May. We found small egg-shell fragments from which we inferred that two eggs had hatched (Bellebaum & Boschert 2003), the other two eggs were cold. The adults (the colour-ringed female and the unringed male) were seen making warning/alarm calls about 350 m north of the nest, but we could not determine how many chicks were with them. It is likely that the eggs hatched between 7 and 13 May. The family and the colour-ringed female were not seen during our next visit to Koelzen on 19 May.

Surprisingly, however, the colour-ringed female was again seen with an unringed male and one chick in the Recker Moor nature reserve on 21 May. The age of the chick was estimated at about 14 days. In that part of the reserve there were no godwit breeding territories (Fig. 1). We are sure that none of the godwits breeding near this site had successfully hatched any young that year. The last time this site was visited on 17 May, there definitely were no adult godwits present that showed the typical behaviour of parents with young (Schekkermann

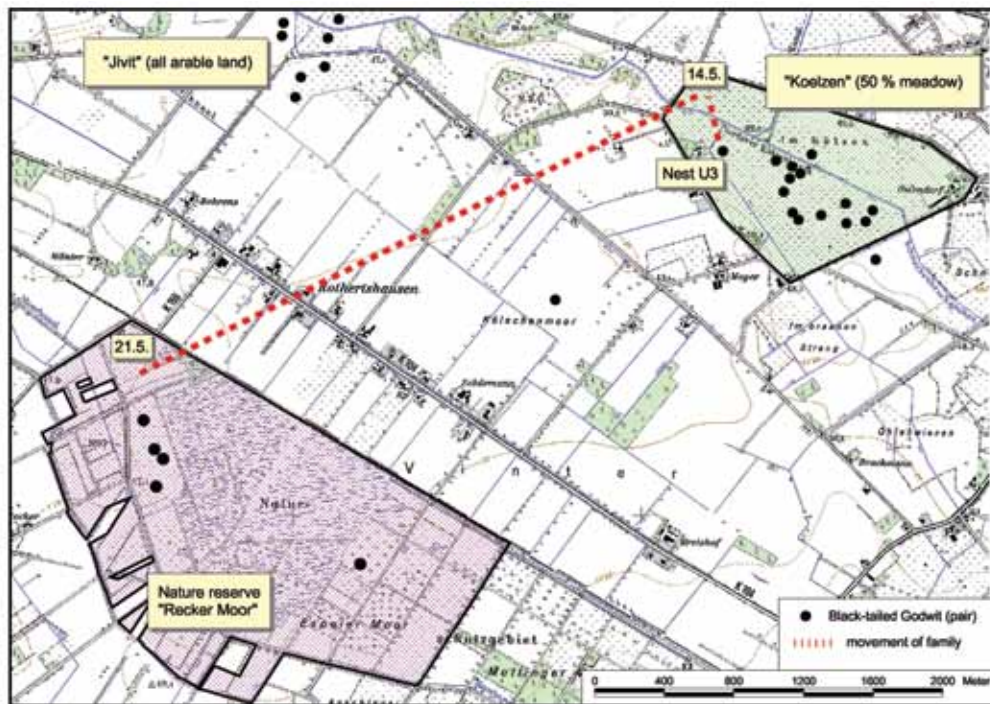


Fig. 1. Study sites and location of territories of Black-tailed Godwits in 2007, Lower Saxony and Northrhine-Westphalia, Germany.

& Müskens 2000, Schekkermann *et al.* 2009). Therefore it seems to be very unlikely that the colour-ringed female had joined with other families after the failure of her own brood.

It seems certain that the family had moved with their own chick(s) over a distance of at least 3.6 km (direct line) from Koelzen to Recker Moor (Fig. 1).

We can only speculate about the reasons for this movement. The availability of food for the chicks might have been unfavourable in the area around the nest, forcing the family to move to a better area. However, breeding success of the other godwits at Koelzen was 0.57 fledglings/pair that year. This value is within the estimated range of 0.5–0.7 young/pair required to maintain a stable population (Schekkermann & Müskens 2000). Moreover, some families reared their broods successfully on fields located close to the U3 nest. Therefore food shortage does not seem to be a satisfactory explanation. In contrast to the birds at Koelzen, the pairs breeding on the exclusively arable land at Jivit have very low breeding success in most years. Possibly the catching and ringing of the female produced the reaction, but this also seems unlikely because at least part of the brood hatched successfully. Perhaps the most likely explanation is that the brood was disturbed immediately after hatching. Maybe the disturbance (e.g. by the mowing of a field in between or the presence of a predator) could have separated the pair from the others at Koelzen.

Implications for studies of breeding success and management

This case shows that, like other wader species, Black-tailed Godwits are able to move with their chicks over considerable distances (Schekkermann & Müskens 2000). Such behaviour may often be a response to poor feeding conditions, especially for the chicks (Johannsson & Blomquist 1996, Schekkermann & Beintema 2007, Verhulst *et al.* 2007). The implication for studies of fledging success is that searching for families may need to be carried out over a very large area.

It would seem likely that moving chicks long distances is detrimental to their chances of survival. They may have to cross roads, ditches and open areas increasing the risk of being run over, drowning or being taken by a predator (Hönisch *et al.* 2008, Junker *et al.* 2003, Schekkermann *et al.* 2009).

In some of our study sites (e.g. Jivit), Black-tailed Godwits did not abandon the nesting area even after the conversion of (wet) meadows into arable land several years ago. Fidelity to breeding areas despite habitat changes detrimental to chicks is also described in other studies (e.g. Schroeder *et al.* 2008). At Jivit, arable farming activities mean that the birds have only a limited period and a limited number of fields in which to rear their broods; therefore they are often forced to move them elsewhere. In view of this, it would be beneficial to restore some wet meadows or provide for wet fallow fields through management agreements in areas close to the nesting sites. This should lessen the need for broods to be moved long distances and improve their chances of fledging successfully. Generally, the aims of nature conservation and agri-environment schemes in regions with threatened waders such as Black-tailed Godwits, Eurasian Curlew *Numenius arquata* and Northern Lapwing *Vanellus vanellus* should be the creation of a mosaic of habitats (see also Verhulst *et al.* 2007).

In order to achieve a better understanding of the conservation situation of waders in our study area and of the relation between the different sites, it will be valuable to carry out more studies of chick movements including the use of radio-tags on chicks.

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