

# Notes on a short-term recovery of a juvenile Sanderling *Calidris alba*

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The intensive ringing of waders has resulted in a huge amount of recovery data which has improved knowledge about migration systems and the seasonal distribution on species and population levels. However, only very few birds have been recovered within several hours over long distances, so that considerations about flight range and energetic costs of migration are at most theoretical (Davidson 1984). In order to test models of flight range, I present data on a short-term recovery of a juvenile Sanderling *Calidris alba*.

The bird (Gdansk JN57562) was ringed at Vistula Mouth (Gdansk, Poland, 54°22'N/18°56'E) on 7 September 1993 and released at 17 hr. After only 17 hours it was retrapped 715 km further west on the island of Helgoland (German Bight, North Sea, 54°11' N, 7°55' E) on 8 September (10 hr). Wing length was measured as 123 mm at Vistula Mouth and 124 mm on Helgoland while there were no differences between the measurements of bill, total head and tarsus-toe (24.5 mm, 49.1 mm and 43 mm, respectively). At both sites, the bird was weighed to the nearest 1 g within less than one hour after capture. Body mass decreased by 5 g from 48 g to 43 g, but on Helgoland the bird was still carrying small amounts of fat (score 2 according to Prater 1975).

According to Zwartz *et al.* (1990) most waders migrate at a speed of 60-70 km/hr. Thus, the Sanderling should have flown to Helgoland within 10 to 12 hours. The flight speeds of 60 km/hr and 70 km/hr introduced in the model of Castro & Myers (1989) give flight ranges of 805 km and 939 km, respectively, the 60 km/hr-value being closer to the real distance of 715 km. Using the same formula but introducing the real distance of 715 km, flight speed is 53 km/h resulting in a flight duration of 13.4 hours. However, applying the model of Davidson (1984) a flight speed of 70 km/hr gives an estimate closer to the observed value with a flight range of 703 km (602 km at 60 km/hr). The flight speed then would be 71 km/hr with the Sanderling covering the distance of 715 km in only 10 hours.

Therefore, under the assumption that the Sanderling followed a direct route, both models can explain the

observed difference in body mass. It is difficult to decide which model fits better, because flight altitude and therefore wind conditions faced by the Sanderling are not known. Wind measurements on the ground along the Baltic Sea coast from Gdansk via Arkona (island of Rügen, Mecklenburg-Vorpommern) and Lübeck (Schleswig-Holstein) to Helgoland (North Sea) show a shift from light westerly winds (0-4 Beaufort) on 7 September to light easterly winds (1-4 Beaufort, but Helgoland 6 Beaufort) on 8 September. Consequently, the Sanderling started with light headwind, but was wind-assisted in the second part of its flight. However, it seems to be appropriate to assume migratory flight speeds of 60-70 km/hr for estimates of flight range (as recommended by Zwartz *et al.* 1990).

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