

## **Fueling rate of European Robins (*Erithacus rubecula*) at two European stopover sites: a long term study**

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Most time during migration birds spend on stopovers, where they replenish energy reserves. The rate at which migrating birds put up with fuel is a crucial factor determining overall speed of migration and hence migratory strategy. However little is known about fuel deposition rate (FDR) of wild birds under natural conditions. We analyzed long term data sets of trapped European robins from two stopover sites: the Courish Spit (1994-2003, 55°09'N, 20°51'E, Russia) and the island Greifswalder Oie (1994-2006, 54°15'N, 13°55'E, Germany) in order to calculate FDR. Apart from individual digestive ability, FDR might be affected by food availability and competition at a given site and season. For insectivorous birds, weather may be important factors governing food availability and abundance. We found that European robins gain mass at faster rate in autumn than in spring at both sites and faster on Greifswalder Oie than in Rybachy in both seasons (Rybachy: spring - 0.003g·day<sup>-1</sup>, autumn 0.065 g·day<sup>-1</sup>; Greifswalder Oie: spring 0.035 g·day<sup>-1</sup>, autumn 0.103 g·day<sup>-1</sup>). We found no trend in the variation of FDR between years. FDR was negatively related to initial body condition at both sites and in both seasons: lean individuals gained mass at faster rate than fat birds, some of the latter even lost mass. Temperature did not influence FDR. Number of birds, present at the stopover site at a particular time, was negatively related with FDR. These results suggest that FDR attained by European robins at migratory stopover sites is mainly affected by initial body condition and partly by competition. The difference in FDR between sites also hints on the significance of intrinsic quality of the site, e.g. productivity of habitats. We argue that the European robin is a flexible species which is able to replenish energy stores despite of the influence of weather factors within migration seasons.