

PRELIMINARY RESULTS ON ENERGETIC PARAMETERS OF *TURDUS PHILOMELOS* IN A MEDITERRANEAN AREA

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Abstract

Hunted song thrushes were collected from a typical mediterranean wintering area. It is shown that the food intake of birds was sufficient and the food fat and protein was high. Also, fat deposition was increasing when temperature was decreasing. This study demonstrates that song thrush doesn't meet any energy deficiency that can justify hunting restrictions.

Key Words: bird migration, physiology, fat deposition, predation

Introduction

Mediterranean is important region for the wintering of song thrush (*Turdus philomelos*). According to Birds Directive 79/409/EEC, migratory species must not be hunted during their return to breeding grounds (article 7.4). The main reason for this restriction is that hunting may cause reduction of energy accumulation for the demands of prenuptial migration (European Commission 2004).

Fat reserves show considerable diurnal and seasonal variation. For example, blackbirds (*Turdus merula*) lost at least 1–9% of their body weight overnight depending on temperature (Cresswell 1998). Seasonal variation in fat reserves arises because the foraging opportunities may become reduced, the different predation risk and the migratory needs (Metcalf and Ure 1995). The aim of this study is to give preliminary results on the energetics of song thrush.

Methods

The study area consists of a 5 Km² area of pinus forest and olive groves. The hunting of song thrush is permitted from 15/9 – 28/2. In total, 282 thrushes were collected from December to February in 14 sampling days. Thrushes were aged from the plumage (Jenni and Winkler 1994) and sexed from the gonads (Brooke and Birkhead 1991). Fat levels were assessed on the basis of a body condition index (Gosler 1996). Stomach contents were removed from the birds, weighted and frozen. Total lipids and total nitrogen content was estimated with AOAC methods (AOAC 2006).

Results and discussion

The analysis of stomach content showed that the total lipids were 24,07% – 36,36% and the total nitrogen was 6,81 – 14,15%. These nutrient contents appear to be high to supply the energy requirements of migratory birds (Bairlein 1987).

We did not find a significant diurnal variation of body condition (ANCOVA, $P > 0,37$). This result agrees with the theoretical prediction that fat will be regained more evenly throughout the day when feeding becomes more predictable (Bednekoff and Houston 1994). Fig 1 shows that the stomach content weight has a similar diurnal pattern independently from the mean air temperature, and it does not differ between the five time periods ($F_{4,146} = 0,60505$, $P > 0,65961$). Fig 2 shows that

body condition, reversely of air temperature, is higher during December and January than in February (ANOVA, $F_{13,268} = 6,623$, $P < 0,001$).

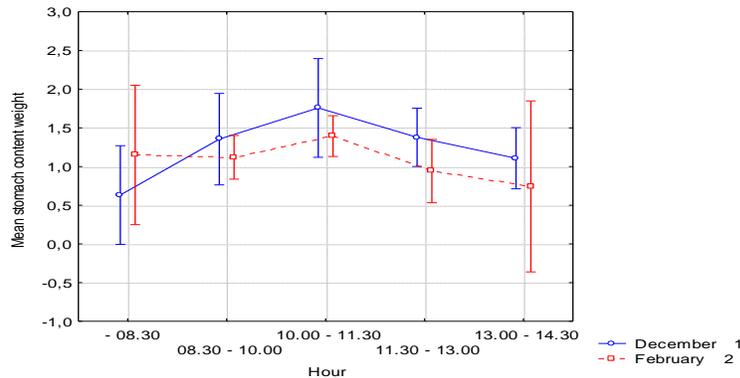


Fig 1. The pattern of feeding rate (expressed as stomach content, after regression controlling for temperature) at two periods 1) December with mean air temperature: -0,3, 2) February with mean air temperature: 2,8.

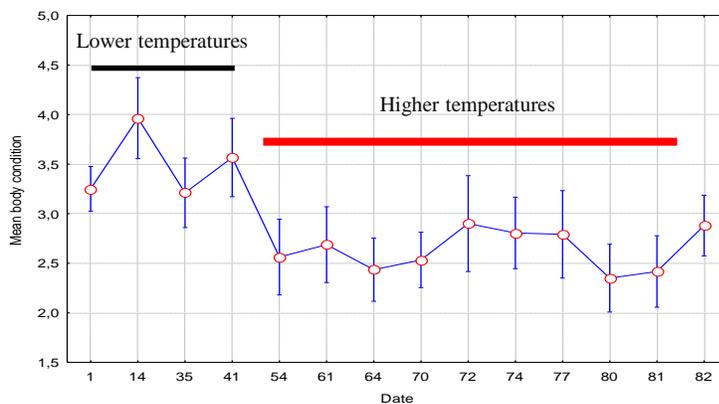


Fig 2. The pattern of seasonal variation of body condition (fat reserves) for a period of 82 days. The period of sampling is lasting 82 days, from 09/12 (1) to 28/02 (82) (n = 282).

Conclusions

The food lipids and nitrogen content of song thrushes were high, food intake was sufficient and the fat deposition was increasing when temperature was decreasing. This study demonstrates that song thrush doesn't meet any energy deficiency that can justify hunting restriction for the protection of population from disturbance during winter.

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