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Short communication

Food habits of the Barn Owl (*Tyto alba*) in a steppe area of Tunisia

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Abstract

The diet of the Barn Owl (*Tyto alba*) is well known in different habitats but a lack of data persists for arid and subarid environments. We provide preliminary information on food selection of barn owls in Tunisia by the analysis of the composition of pellets. The diet consists largely of rodents and the three-toed Jerboa (*Jaculus jaculus*) that accounted for more than 50% of total prey biomass. Results suggest that barn owls show a nonrandom tendency toward rodent species especially small and young individuals.

Keywords: *Tyto alba*; Prey choice; Diet; Gerbils; Jerboas; Small mammals

1. Introduction

Several papers described the feeding ecology of the Barn Owl (*Tyto alba*) in warm and dry regions of southern Europe and the Middle East (see Taylor, 1994 for a review). Few papers have focused on the diet of the North African populations, especially in steppe environments (Brosset, 1956; Goodman, 1986; Boukhamza, 1989). In these open habitats with xerophytic vegetation, the Barn Owl hunts almost only small mammals, mainly

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jerboas and gerbils, and occasionally insects, amphibians, reptiles and birds (Taylor, 1994; Roulin, 2002).

Previous studies showed that some prey species occurred in a pellet more often than expected by chance (Roulin, 2002). Prey size is an obvious limiting factor in pellet production (Andrews, 1990) but pellet composition can reflect habitat related prey-assemblage (Roulin, 2002). For instance, desert rodents avoid risks of predation by use of covered patches and measured rates of owl predation could reflect their patterns of habitat partitioning (Kotler et al., 1991). Nevertheless, Barn Owls can predate non-random towards young (Barta, 1983; Garde and Escala, 1993) and substandard individuals (Vargas et al., 1988).

The aims of this study were to provide preliminary information on the diet of Barn Owls in a steppe habitat of North Africa. Also, we try to examine their food selection by the analysis of pellet compositions (Yom-Tov and Wool, 1997).

2. Study area and methods

The study site was in the National Park of Bou-Hedma in the Governorate of Sidi Bouzid, central-southern Tunisia (33°30′N, 9°38′E). Scattered small groups of *Acacia raddiana* trees and low bushes and shrubs dominate the plain, while rocky cliffs appear bare (Le Houerou, 1969). We collected pellets in August 2000 at two roost sites found by areas of whitewash. We identified and counted mammals from skulls, dentaries and post-cranial bones through keys and tables in Bernard (1970) and Mendelssohn and Yom-Tov (1987). Where possible, mandibular lengths provided information on age of rodent prey (Mendelssohn and Yom-Tov, 1987). In general, prey remains determined from pellet analysis matched closely with real diet but sometimes birds deliver beheaded prey (Raczynski and Ruprecht, 1974). This may vary individually or regionally (Taylor, 1994) and in our study area more than 75% of 146 prey had complete mandibles (Yom-Tov and Wool, 1997). The biomass, calculated by multiplying the number of individuals found in pellets by the mean body mass was expressed as a percentage of total biomass consumed. The mean weight and body length of prey originate from literature (mammals) and from beaks, sternum and humerus bones (birds) (Bernard, 1969; Morris and Burgis, 1988; Le Berre, 1990). The exoskeleton, leg and head capsule remains identified insect prey.

To estimate mean weight of prey (MWP), we multiplied each prey item by its average weight (Table 1), summed the products and divided the sum by the total number of prey. We assigned a weight of 1 g to each insect prey species. Food-niche breadth (FNB) was calculated using Levins' (1968) equation: $B = 1/\sum P_i j^2$, where p_i is the proportion of prey in different categories (mainly species). We standardized this measure of niche breath on a scale of 0–1 (FNBs). Analyses of prey choice were performed by contingency tables in SYSTAT 9.0 statistical software (1998 SPSS Inc., Chicago, USA) for Pearson's chi-square test and *G*-test (see Table 2).

3. Results and discussion

We identified 146 prey items from 120 pellets (Table 1). The mean number of ingested items per pellet was 1.4 ± 0.6 ($\pm$S.D., range = 1–6) and the average pellet size was $4.2 \pm 1.2 \times 2.3 \pm 0.5$ mm ($\pm$S.D., $n = 93$). The Barn Owl in the Bou-Hedma National Park feeds largely on small mammals but occasionally exploits other food resources (Table 1;