

Diet of Barn Owl *Tyto alba* and Tawny Owl *Strix aluco* in central Anatolia, Turkey

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Data are presented on the diet of Barn Owl and Tawny Owl in central Anatolia, Turkey. Diet of the two species differed in type and number of prey species. The predominant prey were small mammals, comprising up to 96.9% of the Barn Owl's diet, as voles *Microtus* spp and house mice *Mus* sp, together representing 76.3%. The Tawny Owl utilized more diverse food resources than Barn Owl, with small mammals comprising 76.3% and birds 23.7%. New locality records of two rare small mammals (*Suncus etruscus*, *Chionomys nivalis*) from this part of Turkey are presented.

INTRODUCTION

The Barn Owl *Tyto alba* and Tawny Owl *Strix aluco* are widespread in Europe, but in Anatolian Turkey they occur mainly along the coast (König & Weick 2008). Records of Barn Owl from inner Anatolia are scarce (Kasperek 1988). In contrast with Europe, where the feeding biology of both owl species is well studied (Cramp & Simmons 1988), data from Anatolia have been collected sporadically by various authors. Contributions to the Barn Owl's diet from Turkey were made by Hope (1986), Kasperek (1988), Niethammer (1989), Brinkmann *et al* (1990) and Obuch & Benda (2009), mainly from the coast and islands. Data on Tawny Owl diet were provided by Kock (1990), Obuch (1994, 2011) and Arslangündoğdu *et al* (2013). We present additional data on the diet and distribution of these owl species in central Anatolia.

MATERIAL AND METHODS

The material was collected during a field survey in April 2009 in central Anatolia. Pellets and food remains were collected from Kilbasan village and its surroundings, Karaman district. Barn Owls inhabited an old barn in the village (37.3206° N, 33.1871° E, 1070 m asl). Tawny Owl pellets and food remains were found in a 2 m high, 4 m deep rock recess in Karadağ mountain (37.3582° N, 33.1722° E, 1390 m asl), near the village. The straight-line distance between the two sites is about 5.5 km. Pellets of a given taxon were identified (based on differences in size, color and shape) by following recommendations of Toms (2014). Mammal remains were identified according to Kryštufek & Vohralik (2001, 2005, 2009) mainly by skulls, mandibles and single teeth. Bird remains were identified through comparison using the osteological bird collection of the National Museum of Natural History, Sofia, Bulgaria. Diet width was calculated using Levins' index (Levins 1968) $B = 1/P_i^2$, where P_i is the proportion of the i^{th} prey or prey group.

RESULTS

In the diet of the Barn Owl, 32 prey items were found from 8 species of small mammals and a small passerine (Table 1). Small mammals represented 96.6 % of the diet. The main prey components, 78.1%, were Macedonian House Mouse *Mus macedonicus*, voles *Microtus* spp and shrews (*Crocidura*, *Suncus*). An interesting record is the finding of Pygmy White-toothed Shrew *Suncus etruscus*. This species occurs mainly along the Mediterranean coast of Anatolia and is rare inland (Kryštufek & Vohralik 2001). This is a new location for the species in Turkey.

In the diet of the Tawny Owl, 38 prey items were found, both small mammals and birds (Table 1). Small mammals represented 76.3% of the diet, and involved 12 species. Most prevalent were middle-sized small mammals such as Turkish Hamster *Mesocricetus brandti* and Tristram's Jird *Meriones tristrami*, in contrast to the Barn Owl's diet. We found a left

mandible of a Snow Vole *Chionomys nivalis*, which is a rare species in inner Anatolia (Kryštufek & Vohralik 2005). Birds were represented by 8 species (23.7%). It is worth noticing the presence of two typical wetland bird species, *Porzana porzana* and *Rallus aquaticus*.

DISCUSSION

Our data on the diet of the Barn Owl, predominantly house mice *Mus* sp and white-toothed shrews *Crocidura* sp, are similar to some previous research on this species in Turkey. They constituted 83.7% at lake Bafa (Kasperek 1988), 65.8% from Hatay (Hope 1986) and 84.4% from Milet (Niethamer 1989); in other studies house mice *Mus* sp and voles *Microtus* sp formed the bulk of prey: 81.2% from Menderes delta (Brinkmann *et al* 1990) and 73.6% from Adana (Obuch & Benda 2009). Only two studies on the diet of Tawny Owl in Anatolia have been published. Obuch (1994, 2011) found a very diverse diet of the Tawny Owl there: small mammals (30 taxa, 38.4%), birds (42 taxa, 17.7%), but also amphibians, reptiles and fish were important (43.6%). In spite of the 980 prey items in their study, Turkish hamster was absent from the Tawny Owl diet which contrasts with that of the Eagle Owl *Bubo bubo*, where this prey predominated (Obuch 1994).

The diet width of Tawny Owl in our study was almost twice that of the Barn Owl, likely due to the different feeding habits and behaviour of these owls. The Tawny Owl is a generalist and uses diverse food resources, in contrast to the Barn Owl, which is specialized in hunting and feeding on small mammals (consisting up to 90% of its diet, Cramp & Simmons 1988). Tawny Owl is one of the most aggressive species amongst European owls (after Eagle Owl), and it attacks and eats other owl species (Mikkola 1982).

ACKNOWLEDGEMENTS

A reviewer provided useful comments. Yurii Kornilev significantly improved the manuscript’s language.

Table 1. Diet composition of *Strix aluco* and *Tyto alba* from central Anatolia

Taxon	Strix aluco		Tyto alba	
	N	%	N	%
<i>Erinaceus concolor</i>	1	2.6		
<i>Suncus etruscus</i>			1	3.1
<i>Crocidura suaveolens</i>			5	15.6
<i>Lepus europeus</i>	1	2.6		
<i>Microtus cf levis</i>	7	18.4	6	18.8
<i>Microtus cf guentheri</i>	2	5.3	1	3.1
<i>Chionomys nivalis</i>	1	2.6		
<i>Mesocricetus brandti</i>	8	21.1	1	3.1
<i>Cricetulus migratorius</i>			4	12.5
<i>Meriones tristrami</i>	6	15.8	1	3.1
<i>Mus macedonicus</i>	1	2.6	12	37.5
<i>Mus</i> sp	1	2.6		
<i>Spalax xanthodon</i>	1	2.6		
Mammalia subtotal	29	76.3	31	96.9
<i>Columba livia</i>	1	2.6		
<i>Columba palumbus</i>	1	2.6		
<i>Crex crex</i>	1	2.6		
<i>Fringilla coelebs</i>	1	2.6		
<i>Melanocorypha calandra</i>	1	2.6		
<i>Porzana porzana</i>	2	5.3		
<i>Rallus aquaticus</i>	1	2.6		
<i>Athene noctua</i>	1	2.6		
<i>Anthus</i> sp			1	3.1
Aves subtotal	9	23.7	1	3.1
Total	38	100	32	100
Levin's index	10.65		5.11	

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