

Diet of the Golden Eagle (Aquila chrysaetos) (Aves: Accipitridae) in Sarnena Sredna Gora mountains (Bulgaria)

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Abstract. The material of pellets and food remains (as bone and shell fragments, hair, and feathers) was collected after the breeding season from below and within one nest of Golden Eagles on rocks at Sarnena Sredna Gora Mts., north-east of Stara Zagora town. Our study was carried out during a three year period (1999, 2000 and 2002). Total 65 specimens from minimum 10 species of preys were identified among the food remains from which the reptiles dominated. Mostly preyed by the Golden Eagles couple were the tortoises (*Testudo sp.*) with 55.4% from all registered individual preys. The most common prey from mammals was the hedgehog (*Erinaceus roumanicus*) with 13.8%. Interesting fact was and the relatively high percentage of the cats with 7.7% (possibly most of them domestic ones).

Key words: Golden Eagle, food spectrum, nesting season.

Introduction

The European Golden Eagle (*Aquila chrysaetos chrysaetos* (Linnaeus, 1758)) is a wide food spectrum predator feeding on a variety of animal species (CRAMP & SIMMONS, 1980) but in different areas only a few particular prey species play a significant role in its diet (SULKAVA *et al.*, 1984; THIBAUT *et al.*, 1998; NYSTRÖM *et al.*, 2006).

In their extensive study for Bulgaria, KOUZMANOV *et al.* (1996) found that the main Eagle prey were the tortoises

(70.7% of the individuals recorded). The rest of the prey taxa were occasionally caught and all with low percents. From mammals most abundant were the hedgehogs (*Erinaceus roumanicus*) (6.2%) and hares (*Lepus capensis*) with 4.2%. Other taxa were: *Spermophilus citellus*, *Glis glis*, *Microtus aroalis*, *Vulpes vulpes*, *Mustela putorius*, *Felis domestica*, *Martes foina*, *Cervus elaphus*, *Capreolus capreolus*, *Capra hircus juv.* The most preyed birds were partridges (*Perdix perdix*) and the rest species were rare in the diet (as

Alectoris sp., *Gallus domestica*, *Columba livia forma domestica*, *Columba palumbus*, *Falco tinnunculus*, *Strix aluco*, *Corvus frugilegus*, *Corvus cornix*). Reptile species found in Eagle food remains were *Ophisaurus apodus*, *Coluber caspius*, *Lacerta sp.* In their monography, SIMEONOV *et al.* (1990) recorded also and *Corvus monedula* as a single catch. These authors reported and the souslics as one of main Golden Eagle's prey.

In this paper we represent results from a food spectrum study on one particular couple of eagles nesting in Sarnena Sredna Gora Mts. (Southern Bulgaria).

Material and methods

The material of pellets and food remains (as bone and shell fragments, hair, and feathers) was collected after the breeding season from below and within one nest of Golden Eagles on rocks at Sarnena Sredna Gora Mts., north-east of Stara Zagora town. Our study was carried out during a three year period (1999, 2000 and 2002). Unfortunately the only couple of eagles in the mountain was strongly disturbed by poachers and now (2009) they do not breed in the area.

All the material collected was identified mainly using comparative collections of bones, hairs and feathers. For the quantitative study (percentage calculations) the minimal number of individuals registered was accepted.

Results and Discussion

Total 65 specimens from minimum 10 species of preys were identified among the food remains from which the reptiles dominated (Table 1). Mostly preyed by the Golden Eagles couple were the tortoises (*Testudo sp.*) with 55.4% from all registered individual preys. Among identified species the number of *T.*

hermanni was two times higher than *T. graeca* a fact which could be due to prey availability in the area. The mammals in the eagles' food spectrum varied through species and sizes, from souslics (*S. citellus*) to foxes (*V. vulpes*) and juvenile wild boars (*Sus scropha*). Of course the adult boars found as food remains were considered to be taken as a carcass.

Table 1. Diet of the Golden Eagle (*Aquila chrysaetos*) in Sarnena Sredna Gora Mts., N – number of specimens.

Species	N	%
<i>Insecta</i> undet.	2	3.1
Total insects	2	3.1
<i>Testudo hermanni</i>	14	21.5
<i>Testudo graeca</i>	7	10.8
<i>Testudo sp.</i>	15	23.1
<i>Ophidia</i> undet.	1	1.5
Total reptiles	37	56.9
<i>Garrulus glandarius</i>	2	3.1
Total birds	2	3.1
<i>Erinaceus roumanicus</i>	9	13.8
<i>Vulpes vulpes</i>	1	1.5
<i>Felis domesticus</i>	1	1.5
<i>Felis sp.</i>	4	6.2
<i>Spermophilus citellus</i>	1	1.5
<i>Lepus capensis</i>	2	3.1
<i>Sus scropha</i> juv.	3	4.6
<i>Sus sp.</i>	2	3.1
<i>Mammalia</i> undet.	1	1.5
Total mammals	24	36.9
Total specimens	65	100.0

The most common prey type from the mammals was the hedgehogs (*Erinaceus roumanicus*) with 13.8%. Interesting fact was and the relatively high percentage

of the cats with 7.7% (possibly most of them domestic ones). From birds only two jay (*Garrulus glandarius*) specimens were found (3.1%). A single unidentified snake individual was also registered (1.5%). The insects (3.1%) probably originated from the stomachs of hedgehogs among which hairs we collected the chitin remains in the pellets.

Conclusions

According to the main food source of the Golden Eagle in Bulgaria (tortoises) our data fits with the previously published information by SIMEONOV *et al.* (1990) and KOUZMANOV *et al.* (1996), and partly considering the secondary preys (hedgehogs *Erinaceus roumanicus*). Interesting fact was the finding of relatively high numbers of cats (five specimens) in eagles diet, possibly most of them domestic ones.

Acknowledgements. I express my gratitude to all the members of NGO "Green Balkans - Stara Zagora" for the trips made, collections of materials and data gathering about the studied Golden Eagle couple. I would like to thank and to Dr. Evgeni Raichev (Trakiiski University) for helping me during the identification of the large mammals' remains in the Golden Eagles diet.

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**Хранителен спектър на скалния орел
(*Aquila chrysaetos*) (*Aves: Accipitridae*) в
Сърнена Средна гора (България)**

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Резюме. Проучен е хранителния спектър на една двойка скални орли (*Aquila chrysaetos* Linnaeus, 1758) гнездяща в Сърнена Средна гора. Материал от хранителни остатъци и погадки е събиран през 1999, 2000 и 2002 година от и под гнездото след приключване на размножителния период на птиците. От установените минимум 65 екземпляра от 10 вида животни в храната на скалните орли, повече от половината са костенурки (*Testudo spp.*) (n = 26, 55.4%). Относително висок е процента и на таралежите (*Erinaceus roumanicus*) (n = 9, 13.8%) и котките (*Felis spp.*) (n = 5, 7.7%), повечето от които вероятно са домашни (*F. domesticus*). Всички други видове животни са с нисък процент в храната на орлите от изследваната двойка.

Received: 25.06.2009
Accepted: 28.07.2009