Turk J Zool
30 (2006) 357-360

The Feeding Biology of *Ophisops elegans* Menetries, 1832 (Reptilia: Lacertidae) Populations of the Bursa Region*

Abdulmüttalip AKKAYA, İsmail Hakkı UĞURTAŞ
Uludağ University, Faculty of Arts and Science, Department of Biology, Bursa - TURKEY

Received: 19.07.2005

Abstract: The feeding biology of *Ophisops elegans* inhabiting Bursa was investigated. Stomach contents of 66 adult (28 ♂♂, 38 ♀♀) specimens collected from 3 localities were investigated by numerical analysis. Most of the foods of the *Ophisops elegans* specimens were insects (64.58%), the majority of which were of larval form (19.44%). Two specimens that were collected from Gürsu were maintained in a terrarium to observe their feeding behaviors.

During observations, *Ophisops elegans* exhibited various feeding behaviors depending on the type of prey and sometimes bit and ate pieces of its prey (legs, wings, etc.).

Key Words: *Ophisops elegans*, feeding biology, stomach content

Bursa Yöresi *Ophisops elegans* Menetries, 1832 (Reptilia: Lacertidae) Populasyonlarının Beslenme Biyolojisi

Özet: Bu çalışmada Bursa'da yaşayan *Ophisops elegans*'ın beslenme biyolojisi araştırılmıştır.

Bu amaçla üç farklı istasyondan yakalanan 66 ergin (28 ♂♂, 38 ♀♀) örneğin mide içerikleri analiz edilmiştir. Neticede *Ophisops elegans*'ın besininin büyük bir kısmını (% 64,58) böceklerin oluşturduğu belirlenmiştir. Özellikle böcek larvalarının en sık tercih edilen besinler olduğu görülmüştür (% 19,44).

Gürsu istasyonundan yakalanan iki adet birey canlı muhafaza edilerek terraryumda beslenmişlerdir. Türün, avın tipine göre değişen yöntemlerle avlandığı ve bazı durumlarda da avın sadece bacak, kanat gibi vücut parçalarını yediği tespit edilmiştir.

Anahtar Sözcükler: *Ophisops elegans*, beslenme biyolojisi, mide içeriği

Introduction

Ophisops elegans is the most common lizard in Turkey. It is distributed among Balkan countries, Aegean and Mediterranean islands, southwest Asia, and Punjab in northern India, with a vertical distribution to 2000 m (Baran and Atatür, 1998). In Turkey, it is represented by 4 subspecies: *Ophisops elegans elegans* Menetries, 1832, *Ophisops elegans basoglui* Baran-Budak, 1978, *Ophisops elegans centralanatoliae* Bodenheimer, 1944, and *Ophisops elegans macrodactylus* Berthold, 1842. It is generally found in open, arid plains with sparse vegetation and rocky, soiled substrates, and often prefers steppes (Baran and Atatür, 1998). Many studies have been carried out on the feeding biology of reptiles (Turgay and Atatür, 1994; Mermer et al., 1996; Daltry et al., 1998; Olgun, 1999; Düşen and Öz, 2001), but no detailed research exists on the feeding biology of *Ophisops elegans*. This study was conducted with the aim of establishing the various animal groups that are taken as prey by this species.

* Based partly on the MSc thesis of A. AKKAYA, supervised by İ.H. UĞURTAŞ.
** E-mail: hakki@uludag.edu.tr

Materials and Methods

The specimens of *Ophisops elegans* used in this study were collected in 3 localities between October 2002 and October 2003 (Figure 1). These localities were Gürsu (11 ♂♂, 16 ♀♀), Görükle (5 ♂♂, 5 ♀♀), and Karacabey (12 ♂♂, 17 ♀♀).

All specimens used in this study belonged to *O. e. macrodactylus*. The specimens were found between 8: 00 AM and 12:00 PM. They were anesthetized in an ether-filled glass container and then fixed with 95% ethanol. Specimens were subsequently kept in 70% ethanol until their stomach contents were examined. The stomach contents were placed in separate glass bottles containing a 70% ethanol + 5% glycerin mixture. The methods of Demirsoy (1997, 2001), Lodos (1983, 1984, 1986), and Chinery (1985) were used for identifying prey items.

Two lizards captured from Gürsu were maintained in a laboratory terrarium to observe their feeding behaviors.

Results

Significant differences in stomach contents were not observed between males and females. Moreover, among the 3 collecting localities, great similarity was observed; therefore, all localities were pooled and evaluated together. Of the 66 specimens captured during the feeding period, none had an empty stomach. All contained either intact arthropods or arthropod body parts in their stomachs. Among the stomach contents investigated, 432 prey items were counted, of which 279 (65.58%) belonged to Insecta, 80 (18.51%) to Arachnida, 12 (2.77%) to Crustacea, and 3 (0.69%) to Gastropoda.

The number of the prey items found in stomachs and their taxonomy are listed in the Table. The majority of food items taken by *Ophisops elegans* were insects (64.58%) and 84 insect food items (19.44%) were in larval form. Among the insects there were 43 Homoptera (9.95%), 20 Coleoptera (4.63%), 19 Collembola (4.40%), 16 Hymenoptera (3.70%), 9 Diptera (2.08%), 9 Saltatoria (2.08%), and 2 Lepidoptera (0.46%) (Figure 2).

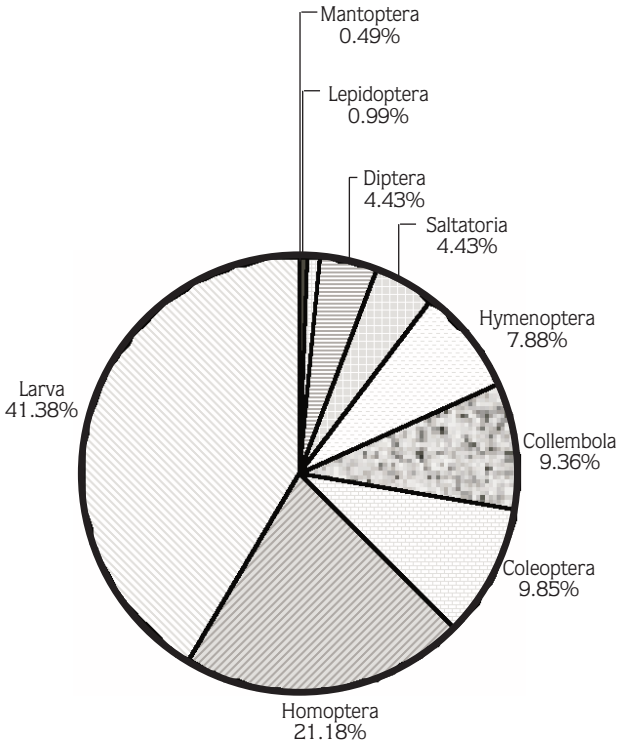

Figure 2. The percentages of the insect groups taken as prey.

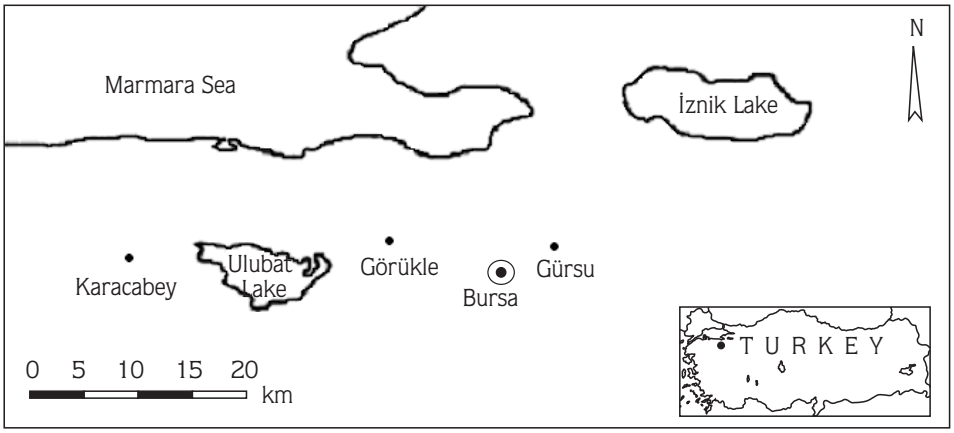

Figure 1. The localities where *Ophisops elegans* specimens were collected (●).

Table. Composition of the stomach contents of *Ophisops elegans* captured from the Bursa region during 2002-2003.

Items	Number of Food Items Contents	Food Item Percentage of Total Food Item	Number of Lizards With Contained Food Item	Percentage of Lizards That
Gastropoda	3	0.69	3	4.55
Arachnida				
Araneae	19	4.40	16	24.24
Gnaphosidae	5	1.16	5	7.58
Haplodrassus sp.	1	0.23	1	1.52
Zelotes sp.	1	0.23	1	1.52
Thomisidae	21	4.86	8	12.12
Xysticus sp.	11	2.55	10	15.15
Xysticus sabulosus	1	0.23	1	1.52
Lycosidae	2	0.46	2	3.03
Aulonia sp.	1	0.23	1	1.52
Salticidae	7	1.62	5	7.58
Phlegra sp.	4	0.93	3	4.55
Salticus sp.	1	0.23	1	1.52
Theridiidae				
Steatoda sp.	5	1.16	5	7.58
Linyphiidae	1	0.23	1	1.52
Crustacea				
Malacostraca				
Isopoda	12	2.78	8	12.12
Insecta (Larva)	84	19.44	29	43.94
Collembola	17	3.94	8	12.12
Sminthuridae				
Sminthurus sp.	2	0.46	2	3.03
Saltatoria	5	1.16	4	6.06
Caelifera				
Acrididae	1	0.23	1	1.52
Anacridium sp.	3	0.69	3	4.55
Mantoptera	1	0.23	1	1.52
Homoptera	1	0.23	1	1.52
Cicadina	4	0.93	4	6.06
Cercopidae	1	0.23	1	1.52
Aphidina				
Aphididae	37	8.56	11	16.67
Coleoptera	20	4.63	17	25.76
Hymenoptera	15	3.47	10	15.15
Formicoidea	1	0.23	1	1.52
Diptera	8	1.85	8	12.12
Culicidae	1	0.23	1	1.52
Lepidoptera	2	0.46	2	3.03
Eggs (probably insect eggs)	24	5.56	4	6.06
Plant fragments	4	0.93	4	6.06
Body Parts (legs, wings, etc.)	76	17.59	44	66.67
Non-Food Material (small stones, bristle, etc.)	30	6.94	13	19.70

During observations, *Ophisops elegans* exhibited various feeding behaviors depending on the type of prey item. Hunting of harmless invertebrates was performed with a single attack. Hunting of potentially harmful prey items, such as spiders, was performed with a series of attacks. Sometimes during this process body parts of the prey were eaten even though the prey was still alive.

Discussion

Our study was conducted to learn more about the feeding biology of *Ophisops elegans* in the Bursa region of Turkey. The results of our study show that *Ophisops elegans* feeds heavily on Insecta, which accounted for 64.58% of the observed stomach contents of the specimens; however, this proportion was lower than the insect-prey proportions found in the diets of *Agama stellio* (99.18%) (Düşen and Öz, 2001) and *Hemidactylus turcicus* (96.96%) (Turgay and Atatür, 1994). The presence of insect orders in the 3 lizard species was also significantly different. These differences were larval form (41.38%) and Homoptera (21.18%) in *Ophisops elegans*, Hymenoptera (73.32%) in *Agama stellio*, and Diptera (64.81%) in *Hemidactylus turcicus*.

Ophisops elegans sometimes bites and eats pieces of its prey (legs, wings, etc.) that are very difficult to identify. Nevertheless, these parts have been included in evaluations because they decrease the capacity of the stomach. The 15 undigested eggs found in the rectum of a specimen suggest that eggs cannot serve as an adequate food source for *Ophisops elegans* unless the eggs are broken.

As a result of this study on stomach contents, we conclude that *Ophisops elegans* is an opportunistic feeder that utilizes any prey in its environment that it has the ability to consume. We therefore suggest that *Ophisops elegans* may be useful in the biological control of agricultural pests, such as aphids, cicada, and grasshoppers instead of the presently used chemical methods.

References

Baran, İ. And Atatür, M.K., 1998, Turkish Herpetofauna (amphibians and reptiles) Republic of Turkey Ministry of Environment, Ankara.

Chinery, M. 1985. A Field Guide to the Insects of Britain and Northern Europe. Collins, London.

Daltry, J.C., Wuster W. and Thorpe, R.S. 1998. Intraspecific variation in the feeding ecology of the Crotaline Snake *Calloselasma rhodostoma* in Southeast Asia. Journal of Herpetology. 32 (2): 198-205.

Demirsoy, A. 1997. Yaşamın Temel Kuralları Omurgasızlar / Böcekler Entomoloji, Cilt II / Kısım II. Meteksan A.Ş., Ankara.

Demirsoy, A. 2001. Yaşamın Temel Kuralları Omurgasızlar / Böcekler Dışında, Cilt II / Kısım I, Meteksan A.Ş., Ankara.

Düşen, S. and Öz, M. 2001. A study on the feeding biology of *Laudakia (= Agama) stellio* (L. 1758) (Lacertilia: Agamidae) populations in the Antalya Region. Turk. J. Zool. 25: 177-181.

Lodos, N. 1983. Türkiye Entomolojisi – I. Ege Üniversitesi Ziraat Fakültesi Yayınları No: 282, İzmir.

Lodos, N. 1984. Türkiye Entomolojisi – III. Ege Üniversitesi Ziraat Fakültesi Yayınları No: 456, İzmir.

Lodos, N. 1986. Türkiye Entomolojisi – II. Ege Üniversitesi Ziraat Fakültesi Yayınları No: 429, İzmir.

Mermer, A., Göçmen, B. and Tok, C. V. 1996. Kuzey Kıbrıs *Chalcides ocellatus* Forskal, 1775 (Sauria: Scincidae) örnekleri hakkında. Turk. J. Zool. 20: 265 – 269.

Olgun, K. 1999. *Lacerta leavis* Gray, 1838 (Sauria: Lacertidae)'in üreme ve beslenme biyolojisi üzerine gözlemler. Turk. J. Zool. 23 (2): 675 – 678.

Turgay, F., Atatür, M.K. 1994. Feeding biology in *Hemidactylus turcicus* (Lacertilia: Gekkonidae) populations of the İzmir region. Tr. J. of Zoology. 18: 123 – 129.