

## ARAŞTIRMA MAKALESİ/RESEARCH ARTICLE

### ON THE AMPHIBIANS AND REPTILES OF İZMİT-BOLU REGION: RESULTS OF FIELD SURVEY

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#### ABSTRACT

Although the general information about Herpetofauna of Turkish has been provided, the number of herpetological studies related to certain region are very limited. In order to complete this lack of information, a total of 30 specimens, collected from 7 localities around the province of İzmit and Bolu, belonging to 2 amphibian and 8 reptilian species were reported. The morphometric measurements, pholidosis, coloration of the specimens were presented.

**Key Words:** İzmit, Bolu, Amphibian, Reptilian.

### İZMİT-BOLU BÖLGESİNİN AMFİBİ VE SÜRÜNGENLERİ HAKKINDA: ARAZİ ÇALIŞMALARININ SONUÇLARI ÖZ

Türkiye Herpetofaunası hakkında temel bilgilerin ortaya konmasına karşılık, belirli bölgelerin herpetofaunasına ait çalışmalar oldukça azdır. Bu eksikliği tamamlamak amacıyla İzmit ve Bolu civarındaki 7 ayrı lokaliteden 2 kurbağa ve 8 sürüngen türüne ait 30 örnek toplanarak bunların morfometrik ölçümleri, folidosis ve renk durumları verilmiştir.

**Anahtar Kelimeler:** İzmit, Bolu, Amfibi, Reptil.

#### 1. INTRODUCTION

The researches about Herpetofauna of Turkey have started 160 years ago and continuing since then (Bottger, 1889; Bird, 1936; Bodenheimer, 1944; Mertens, 1952; Werner, 1902; Eiselt and Baran, 1970; Başoğlu and Baran, 1977; Başoğlu and Baran, 1980; Baran, 1976; Baran and Atatür, 1998). The general information about herpetofauna of Turkey were reported in these papers but no detailed information has been given for a certain region. Although there are publications on some species that were collected from different localities of İzmit-Bolu region, it is very important to add the information about the herpetology of this region with our specimens that were collected.

In this study, it is aimed to complete the deficiency of knowledge about the herpetofauna of İzmit-Bolu region, by presenting the new data about the samples collected.

#### 2. MATERIALS AND METHODS

Our survey carried between 10-13 June 1999 in the vicinity of İzmit and Bolu. Since a new road was built between Yığılca and Bolu recently, it was possible to reach from Yığılca to Bolu and collect herpetological material from this region. The localities, where specimens were collected, are shown in Figure 1. A total of 30 specimens belonging to 2 amphibian and 8 reptilian species were collected from research area.

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The coloration of the alive specimens were recorded by eye and slide pictures of specimens were taken and then fixed with the traditional processes. The specimens were marked with ZDEU (Zoology Department Ege University) collection number and have been kept in the zoology laboratory of department of Biology at Buca Education Faculty. Each specimens has an ID card where the ZDEU number, sex of specimen, locality of collection and the date together with surnames (Baran and Kumlutaş) of the collector were written in this order. Since the surnames of the collector were the same for each species, therefore it is not repeated for each species in this paper.

Morphometric measurements, pholidosis features, coloration and pattern were recorded for each specimen. Body and tail lengths were measured with a dial calipper, with an accuracy range of 0.05 mm. The body measurements for each species were given under its own heading.

Coloration and Pattern: All the features related to coloration and pattern for each specimen were included in this group.

Pholidosis Features: This group contains all the features about the number, structure and range of plates

and scales which cover the bodies of species of lizard and snake species. The detailed information on these features were given elsewhere (Baran and Atatür, 1998).

In this study, 30 specimens belonging to amphibian and reptilian species were examined and taxonomic evaluation were given as follows.

### 3. RESULTS

#### *Bufo bufo* (LINNAEUS, 1758)

##### Sample: 1♀

50/1999. ♀, between Yığılca-Bolu 20 km., 12.06.1999.

One female specimen shows similarity to subspecies *Bufo bufo spinosus* according to coloration and pattern features. The total body length of specimen was 104.70 mm. The length and width of parotoid gland were 20.88 mm. and 9 mm. respectively. This specimen was caught under stones in a meadow place with infrequent trees situated near the stream. Also the large amount of fit tree (*Abies sp.*) were common in the area where specimen was caught.

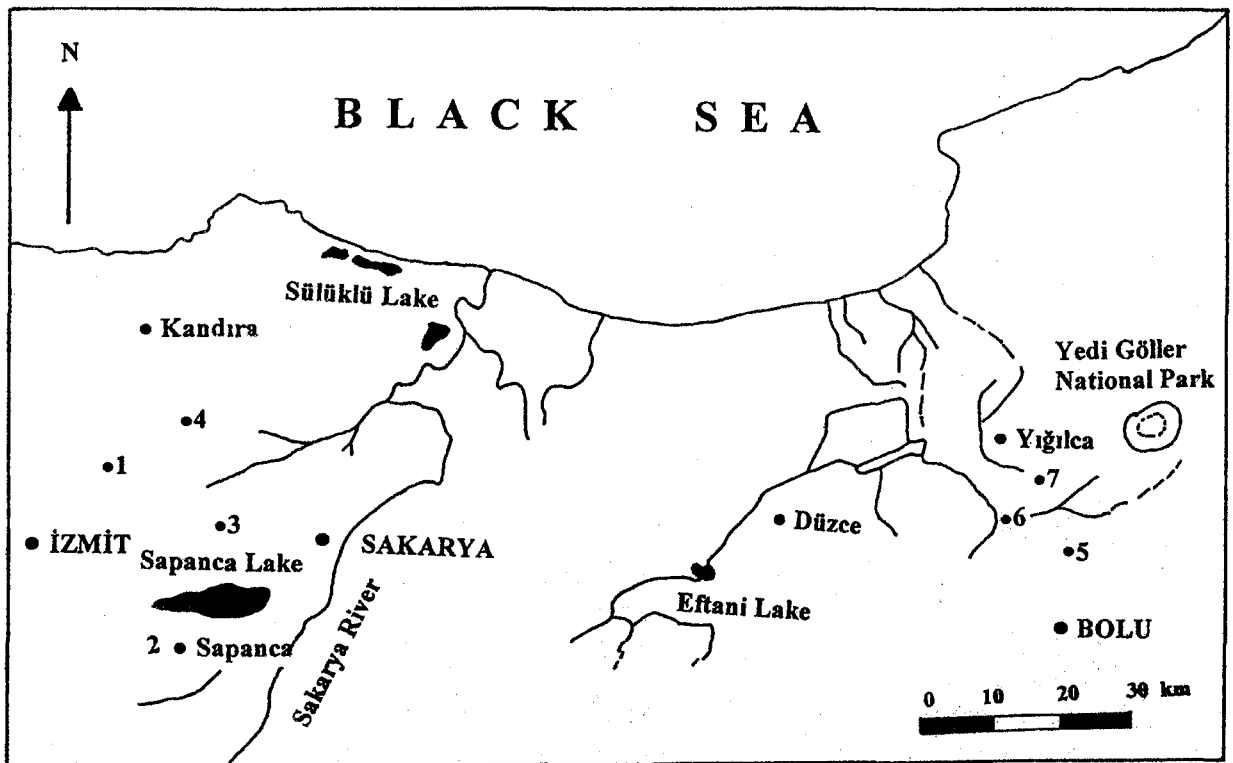


Figure 1: The Map Showing the Localities In Which Specimens Were Collected (1: Akçakese Village Between Kandıra-İzmit, 2: Sapanca, 3: Soğucak Valley/Sapanca, 4: Between Kandıra-İzmit, 5: Between Yığılca-Bolu 30 Km., 6: Between Yığılca-Bolu 20 Km., 7: Between Yığılca-Bolu 10-20 Km.).

***Hyla arborea* (LINNAEUS, 1758)****Sample:** 1♂

51/1999. ♂, Sapanca, 12.06.1999.

The total body length of one male specimen was 42.76 mm. Specimen examined in this study do not show any difference from *Hyla arborea* according to general taxonomic criteria. This specimen belonging to *Hyla arborea* species, called 'Common Tree Frog' was found early in the morning on the bracken near the large stream that flows through the narrow valley.

***Anguis fragilis* (LINNAEUS, 1758)****Sample:** 1

52/1999. Akçakese Village, between Kandıra and İzmit, 11.06.1999.

The head and body length of specimen was 148 mm. and its tail was damaged. Specimen examined in this study was similar to subspecies *Anguis fragilis colchicus* according to coloration, pattern and pholidosis features, since this species is common at the coast of Black Sea Region. Specimen was caught in a sunny and stony area that infrequent bush and tree were spread. Specimens belonging to *Elaphe longissima* and *Vipera ammodytes* species were also collected from this area. This habitat was so suitable for hiding for a reptilian species, because stones that have limestone property shaped as a pile.

***Lacerta rudis* (BEDRIAGA, 1886)****Sample:** 9♂♂, 5♀♀, 3♂♂ sem.ad.

47/1999. 1, 3-7, 9-11♂♂, 2, 8, 12-14♀♀, 15-17♂♂ sem. ad., between Yığılca-Bolu 10- 20 km., 12.06.1999.

The head + body lengths of specimens were ranged between 52.46 and 67.78 mm. The number of subraciliar granules varied between 7.00-17.00 with a mean of 11.65; the mean number of dorsal scales at mid-trunk was 52.88 (min. 48.00, max. 57.00). The mean number of femoral pores was 19.29 (min. 17.00, max. 22.00). The number of ventral plates at mid-trunk were ranged between 24 and 30.

Specimens were usually similar to subspecies *Lacerta rudis bithynica* from the viewpoint of coloration and pattern features. The presentation of this specimen from this area has proved the previous publication (Baran and Atatür, 1998) which reports the possible distribution of this species in this region.

Specimens were caught from stony and rocky area between the stream and road. Although there were dense forestry structure in other areas, the area which specimens were caught was sunny because of the infrequ-

ent vegetation. Typical rocky structure is the most common habitat for this lizard species to hide easily.

***Lacerta viridis* (LAURENTI, 1768)****Sample:** 1♂, 1♂ sem. ad.

48/1999. 1♂, 2♂ sem. ad., between Yığılca-Bolu 30 km., 12.06.1999.

The head + body length of one male specimen was 99.62 mm. The number of supraciliar granule was single in one specimen and 5 in other specimen. The number of dorsal scales were ranged between 45-50; the number of ventral plates at mid-trunk were ranged 26-27 and the number of femoral pores were either 18 or 17.

The dorsum of the head and body and the lateral side of body were green whereas the head, except the neck, was dark blue in one male specimen. The other sides of the body were yellowish light greenish. In semi-adult specimen, the dorsal of head and body and the lateral side of body was brownish with black spots were recorded. There were two longitudinal stripes that were clear extend the lateral of the mid-body. The colour of the chin is clearly blue whereas it was not certain at sides of the head.

Specimens were caught rocky zone situated in forest area where the dominant plant was fir tree (*Abies sp.*). This species does not prefer to the rocky area in contrast to the species mentioned previously, but prefers more moist area because of the vegetation.

***Podarcis muralis* (LAURENTI, 1768)****Sample:** 2♂♂, 1♀

58/1999. 1♂, 2♀, Mahmudiye Village, Sapanca, 12.06.1999., 49/1999. ♂, between Yığılca-Bolu 30 km., 12.06.1999.

The head and body length of bigger female specimen was 64.10 mm. and was 61.78 mm. in male. The number of supraciliar granules was found 10 and 7; the number of dorsal scales at mid-trunk were 56, 62 and 60; the number of femoral pores were 20 and 21.

The dorsum were light gray brown in contrast to flanks. There were light small spots between the dark brown lines starting from temporal region and extending through the neck and flanks. The chin and throat were brick red in colour with scattered whitish spots. The colour of venter was lighter orange.

Specimens were usually similar to subspecies *Podarcis muralis muralis* from the viewpoint of coloration and pattern features. The presentation of this speci-

men from this part of Anatolia has proved the previous publication (Baran and Atatür, 1998) which reports the possible distribution of this species in this region.

Specimens were collected from stony habitats with infrequent forest where sun can diffuse to the ground. A total of 3 specimens were caught. Two of them were seen on rocks with infrequent vegetation, isolated by stream going over the valley, in the morning time. Other specimen was found at noon time, under the stones among the bushes in Yiğilca Forest.

### *Coronella austriaca* (LAURENTI, 1768)

**Sample:** 1♂, 1♀

55/1999. Soğucak Valley, Sapanca, 11.06.1999, 56/1999. Between Yiğilca-Bolu 30. km., 12.06.1999.

The head + body length of male specimen was 538 mm which was longer than female specimen. The tail length of male specimen could not determined because the tail was damaged. The number of dorsal scales between the number of ventral plates at mid-trunk varied 80-100 were 19; the numbers of supralabials were 7 and 7; the numbers of ventral plates were 2+170 and 1+179. The other pholidosis features that is not presented here show similarity to *Coronella austriaca*.

Specimen was collected from 3-4 km. near of Soğucak Valley, was found under stones in the bushy area that was formed after cutting trees. The other specimen was caught. The other specimen caught under stones in an area with infrequent vegetation.

### *Elaphe longissima* (LAURENTI, 1768)

**Sample:** 1♀

57/1999. ♀, Akçakese Village, between Kandıra-İzmit, 11.06.1999.

The head and body length of male specimen was 750 mm. and the tail length was 180 mm. The numbers of dorsal scales between the number of ventral plates at mid-trunk varied 85-100 were 23; the numbers of supralabials on both sides 8-8; the numbers of ventral plates were 2+220; the numbers of subcaudals were 75.

This specimen did not show any difference from *Elaphe longissima* from the viewpoint of coloration and pattern characteristics.

Specimen was found under a big flat stone added as a pile in the shrubby area with large amount of calcareous stones. A specimen belonging to *Vipera ammodytes* was also found in the same habitat.

### *Natrix natrix* (LINNAEUS, 1758)

**Sample:** 1♀

54/1999. ♀, between Yiğilca-Bolu 30. km., 12.06.1999.

The head and body length of our single specimen was 835 mm. but the tail length of specimen was not determined because its tail was damaged. The numbers of dorsal scales between the number of ventral plates at mid-trunk varied 80-100 were 19; the numbers of supralabials on both sides 7-7; the numbers of ventral plates were 2+167.

The general coloration of specimen was black with small light blotches on it. There were yellow half-moon blotches at the posterolaterals of head. This specimen that has melanistic feature showed similarity to subspecies *Natrix natrix persa* according to pholidosis, coloration and pattern features which were not presented here. Specimen was found under isolated stone piles in infrequent forest area under the sunny weather.

### *Vipera ammodytes* (LINNAEUS, 1758)

**Sample:** 1♂ juv.

53/1999. ♂ juv., Akçakese Village, between Kandıra-İzmit, 11.06.1999.

The head and body length of semi-adult specimen was recorded as 220 mm. but the tail length of specimen was not measured. The numbers of plates were recorded as 1 apikal plate, 7 scales anterior of the horn, 14 scales on the horn, 3-4 central plates, 7 scales between supraocular plates, 13-14 scales in the circle surrounded the eye. It was found that the numbers of supralabials on both sides 9-9; the numbers of dorsal scales between the number of ventral plates at mid trunk varied 65-75 were 21; the numbers of ventralia were 1+146.

The top of the head was gray-brown without maculation. Dorsum was light gray-brown with dark longitudinal zigzag band on it. The tip of tail was damaged. The colour at the end of the tail was yellowish greenish gray.

Specimen did not show any difference from subspecies *Vipera ammodytes meridionalis* from the viewpoint of pholidosis, coloration pater features that were mentioned briefly here.

Specimen was found under a stone pile in the shrubby area with small calcareous stones. Although the calcareous stones were common, we were able to catch one specimen regardless of checking nearly every stone in this region.

#### 4. EVALUATION

The taxonomic situations of the samples belonging to the two amphibians and 8 reptilian species from 4 localities in the vicinity of İzmit and 3 localities between Bolu and Yığılca were evaluated and some ecological features of these samples were described in order to introduce the herpetofauna of this region. The new amphibian and reptilian specimens from 7 localities were collected, and this region were better introduced on the aspect of herpetofauna, since all the specimens were to be known as common in this area.

*Bufo bufo* specimen, collected at the 20 km on the way to Yığılca from Bolu, was more similar to the *B. b. spinosus* that were already reported to be common in this region (Baran and Atatür, 1998). The specimen of *Hyla arborea*, collected in the vicinity of Sapanca, was also within the distribution borders of this species (Başoğlu and Özeti, 1973; Baran and Atatür, 1998).

One specimen of *Anguis fragilis*, collected from northern Anatolia, were also known to be distributed (Başoğlu and Baran, 1977; Baran and Atatür, 1998) were found to be similar to the subspecies of *A. f. colchicus*.

The specimens of *Lacerta rudis* were regarded as subspecies of *L. r. bithynica* which is known to live at the north-west Anatolia, the region from Bursa to Amasya (Baran and Atatür, 1998).

Two specimens of *Lacerta viridis*, collected near the road at the 30 km on the way to Yığılca from Bolu, were found more similar to the *L. v. meridionalis*, which were explained why this subspecies were not different from *L. v. nigropunctata* by Kumlutaş, 1996 and Çevik and Kumlutaş, 1999, rather than *L. v. nigropunctata* which were described earlier as different subspecies by Schmidtler, 1986.

The specimens of *Podarcis muralis*, collected in the vicinity of Sapanca and Yığılca, were regarded as subspecies of *P. m. muralis* which is known to distribute at the north-west Anatolia (Başoğlu and Baran, 1977; Baran and Atatür, 1998).

Two specimens of *Coronella austriaca* were collected within the distribution zone of Turkey and a female specimen of *Elaphe longissima* were also collected at the northern parts of the distribution zone as also described by Başoğlu and Baran, 1980 and Baran and Atatür, 1998. *Natrix natrix* specimen, collected near the road at the 30 km on the way to Yığılca from Bolu, was regarded as *N. n. persa* subspecies which is common all around Turkey (Başoğlu and Baran, 1980; Baran and Atatür, 1998).

The specimen of *Vipera ammodytes* was included in the *V. a. meridionalis* subspecies which are very rare

at the northwest Anatolia compare to European countries as explained by the earlier researchers (Başoğlu and Baran, 1980; Baran and Atatür, 1998).

In addition to the taxonomic situations of the amphibian and reptilian specimens, habitats of these specimens at the collection sites were also described briefly in this research, since no other literature was exist on any of these species collected from our research localities. Therefore this work extends the information about the distribution and the habitats of some amphibian and reptilian species of Turkey.

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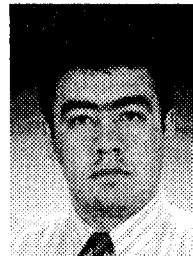
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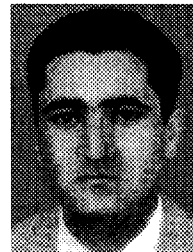
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