

Herpetofauna of the Lake District around Burdur

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Abstract: This study investigated the amphibian and reptilian fauna of the Lake District around Burdur, Turkey. A total of 21 amphibian and reptile species were identified, consisting of two anurans, two turtles, one tortoise, seven lizards, and nine snakes. A zoogeographical assessment was also carried out in which the chorotypes and the IUCN criteria of the species were added.

Key words: Burdur, Lake District, herpetofauna, Amphibia, Reptilia, chorotype, zoogeography

In the surveys compiled by Baran (1986) and Demirsoy (1997a, 1997b) of studies of the amphibians and reptiles in Turkey up to recent times, it was found that researchers had mostly either investigated species one by one or else compared samples from different regions. However, there has been an increase in the number of studies detailing all herpetofauna in a specific region. In general, collecting specimens from different localities in specific regions is more complicated. Thus, it is more important to determine and describe the entire amphibian and reptilian species of a specific region (Baran, 1980, 1984; Yılmaz, 1984, 1989; Arıkan, 1988, 1994; Tok, 1993, 1995; Kumlutaş et al., 1998, 1999, 2001, 2004a, 2004b, 2011; Özdemir, 1998; Özdemir and Baran, 2002; Ilgaz and Kumlutaş, 2005; Kaya, 2005; Hür et al., 2008; Bulut, 2010; Afsar and Tok, 2011; Bulut et al., 2011; Uysal, 2011; Afsar et al., 2012; Tok et al., 2012a, 2012b; Cihan and Tok, 2014; Özcan and Üzümlü, 2014; Tok and Çiçek, 2014). Furthermore, some regions have been granted status as legally protected areas in order to conserve their natural richness. In particular, Lake Burdur has been singled out for conservation by the Ramsar Convention on Wetlands of International Importance as a Wildlife Protection Area, as both an important area for amphibian, reptile, bird, and mammalian species and an important wetland. The lack of a comprehensive study on the herpetofauna of this area up to now enhances the importance of this study.

The aim of this study was to determine the amphibian and reptilian species of Burdur Province, part of the Turkish Lake District in southwestern Anatolia, and to

make a zoogeographical assessment by determining the distributions of those species.

The study area, the province of Burdur, covers an area of 6887 km² between 36°53'N–37°50'N and 29°24'E–30°53'E. The area is formed of tectonic and karstic sedimentary basins between the Western Taurus Mountains. Because of the six lakes (Karataş, Salda, Yarıklı, Akgöl, Gölhisar, and Burdur) within the tectonic sedimentary basins, this region is usually called the Lake District. The name “Burdur” applies to both the province and its regional capital, as well as the lake nearby. In this study, it generally denotes the province, which includes the six lakes.

In order to determine the herpetofauna of the study area, a total of 131 amphibian and reptilian specimens were collected between September 1999 and May/June 2000 from the vicinity of Burdur in field trips. The specimens were identified by the literature (Başoğlu and Baran, 1977, 1980; Özeti and Yılmaz, 1994). The preserved specimens are in the collection of the Ege University Zoology Department, İzmir (ZDEU). Turtles and tortoises were released after examination. Evaluation of the current conservation status of the species was made. Zoogeographical assessments were carried out in consideration of the species' origin by classifying them into major chorotypes according to Vigna Taglianti et al. (1999) and Sindaco et al. (2000).

Species were captured using different methods. Aquatic species were caught by hand or with a scoop, and terrestrial species by hand or by use of a net.

As a result of the research, 2 amphibian and 19 reptilian species were found inhabiting the research area.

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The localities in which specimens were collected are given in Figure 1 and the Table.

Herpetological examination of the Lake District around Burdur shows that the species in this area are arranged into eight major chorotypes, two for amphibians and seven for reptiles, according to the classification of Vigna Taglianti et al. (2000) (Table). The most common chorotype in the area is E-Mediterranean (six species, 28.6%), and then respectively Turano-Mediterranean (four species, 19%), Turano-Europeo-Mediterranean (three species, 14.4%), SW-Asiatic (three species, 14.4%), Central Asiatic-European (2 species, 9.5%), Euro-Siberian (1 species, 4.7%), SW-Anatolian Endemic (1 species, 4.7%), and Mediterranean (1 species, 4.7%) (Vigna Taglianti et al., 1999; Sindaco et al., 2000) (Figure 2).

The following species were determined in our study area: *Bufo variabilis* (Pallas, 1769), *Pelophylax caralitanus* (Arikan, 1988), *Mauremys rivulata* (Valenciennes, 1833), *Emys orbicularis* (Linnaeus, 1758), *Testudo graeca* (Linnaeus, 1758), *Mediodactylus kotschyi* (Steindachner, 1870), *Stellagama stellio* (Linnaeus, 1758), *Lacerta trilineata* (Bedriaga, 1886), *Anatololacerta danfordi* (Gunther, 1876), *Ophisops elegans* (Ménétriés, 1832), *Trachylepis aurata*

(Linnaeus, 1758), *Typhlops vermicularis* (Merrem, 1820), *Dolichophis caspius* (Gmelin, 1789), *Dolichophis jugularis* (Linnaeus, 1758), *Eirenis modestus* (Martin, 1838), *Malpolon insignitus* (Geoffroy de St-Hilaire, 1809), *Natrix natrix* (Linnaeus, 1758), *Natrix tessellata* (Laurenti, 1768), and *Telescopus fallax* (Fleischmann, 1831). We have also included a lizard species that was seen but not collected (*Blanus strauchi* Bedriaga, 1884), and a slide taken by a previous researcher (hydrologist Semih Üçüncü) was used for a snake species [*Zamenis situla* (Linnaeus, 1758)]. The most common amphibians were *Bufo variabilis* (Pallas, 1769) and *Pelophylax caralitanus* (Arikan, 1988). For reptiles, the most common were two lizard species: *Ophisops elegans* (Ménétriés, 1832) and *Anatololacerta danfordi* (Gunther, 1876).

According to IUCN Red List data, 17% of the species are LC (Least Concern), one of them is VU (Vulnerable) (*Testudo graeca* Linnaeus 1758), two of them are NT (Near Threatened) [(*Pelophylax caralitanus* Arikan, 1988 and *Emys orbicularis* (Linnaeus, 1758)], and one of the species (*Bufo variabilis* Pallas, 1769) is DD (Data Deficient), due to its taxonomical status being uncertain and a lack of information about its distribution (IUCN, 2013) (Table).

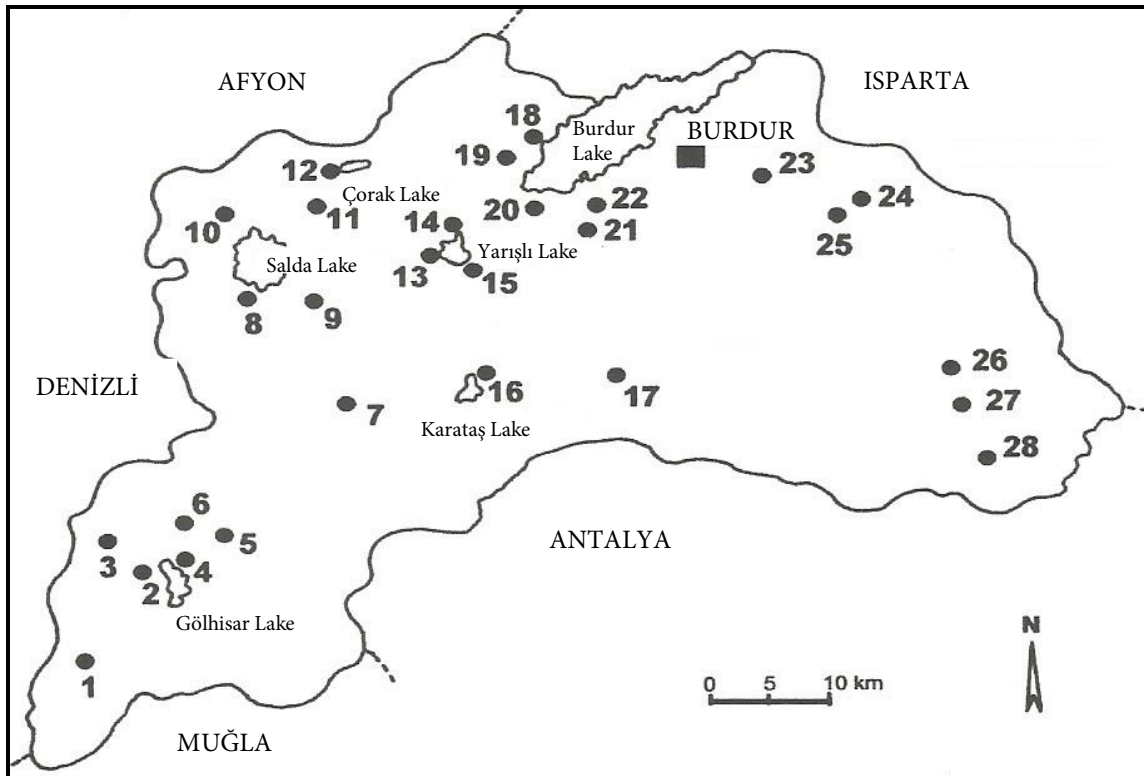


Figure 1. The localities from which specimens were collected in Burdur Province (1. İbecik, 2. Gölhisar Lake, 3. Kibyra, 4. Yapraklı Dam, 5. Yamadıburnu, 6. Gölhisar, 7. Karamanlı Dam, 8. Salda Lake, 9. Yeşilova, 10. Düden Road, 11. Taşpınar, 12. Bayındır, 13. Sazak Village, 14. Yarışlı Village, 15. Yarışlı Lake, 16. Karataş Lake, 17. Akören, 18. Karakent, 19. Örencik, 20. Yarı Village, 21. Kuruçay, 22. Suderesi, 23. İnsuyu, 24. Sagalassos, 25. Ağlasun Plain, 26. Beşkonak, 27. Kocaaliler-Beşkonak road, 28. Kocaaliler).

Table. Chorotype classification, localities, and conservation status of the IUCN criteria for amphibian and reptilian species in the study area (IUCN: International Union for the Conservation of Nature and Natural Resources, VU: Vulnerable, NT: Near Threatened, DD: Data Deficient, LC: Least Concern).

	Species	Localities	Chorotypes	IUCN
1	<i>Bufo variabilis</i> (Pallas, 1769)	8, 11, 18, 23, 17	Turano-European-Mediterranean	DD
2	<i>Pelophylax caralitanus</i> Arikan, 1988	2, 5, 7, 8, 10, 12, 13, 16, 17, 22, 25, 28	Euro-Siberian	NT
3	<i>Emys orbicularis</i> (Linnaeus, 1758)	2, 15	Turano-European-Mediterranean	NT
4	<i>Mauremys rivulata</i> (Valenciennes, 1833)	5, 28	Turano-European-Mediterranean	LC
5	<i>Testudo graeca</i> Linnaeus, 1758	2, 5, 8, 9, 10, 16, 17, 20, 27, 28	Turano-Mediterranean	VU
6	<i>Trachylepis aurata</i> (Linnaeus, 1758)	2, 13	SW-Asiatic	LC
7	<i>Anatololacerta danfordi</i> Gunther, 1876	10, 14, 24	SW-Anatolian Endemic	LC
8	<i>Lacerta trilineata</i> Bedriaga, 1886	4, 6, 9, 10, 18, 25, 28	E-Mediterranean	LC
9	<i>Ophisops elegans</i> Ménétriés, 1832	3, 8, 10, 14, 15, 16	E-Mediterranean	LC
10	<i>Mediodactylus kotschy</i> (Steindachner, 1870)	8	E-Mediterranean	LC
11	<i>Stellagama stellio</i> (Linnaeus, 1758)	2, 12, 13, 14, 18	E-Mediterranean	LC
12	<i>Blanus trauchi</i> Bedriaga, 1884	24	E-Mediterranean	LC
13	<i>Typhlops vermicularis</i> (Merrem, 1820)	17, 18	Turano-Mediterranean	LC
14	<i>Dolicophis caspius</i> (Gmelin, 1789)	5, 8, 20	Turano-Mediterranean	LC
15	<i>Dolicophis jugularis</i> Linnaeus, 1758	10	SW-Asiatic	LC
16	<i>Eirenis modestus</i> (Martin, 1838)	5, 14, 15, 18	SW-Asiatic	LC
17	<i>Malpolon insignitus</i> (Geoffroy De St-Hilaire, 1809)	26	Mediterranean	LC
18	<i>Telescopus fallax</i> Fleischmann, 1831	21	Turano-Mediterranean	LC
19	<i>Natrix natrix</i> (Linnaeus, 1758)	4, 9, 11, 17	Central Asiatic-European-Mediterranean	LC
20	<i>Natrix tessellata</i> (Laurenti, 1768)	8, 10	Central Asiatic-European	LC
21	<i>Zamenis situla</i> (Linnaeus, 1758)	1	E-Mediterranean	LC

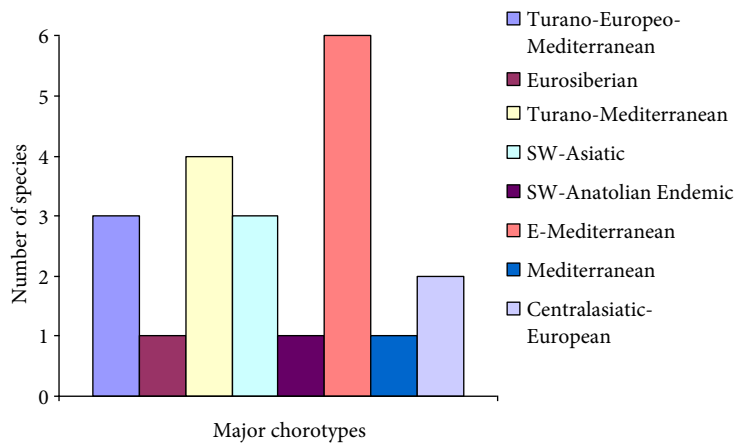


Figure 2. Distribution of major chorotypes of amphibian and reptilian species.

Threats to these species should also be mentioned here. These include dangers such as overharvesting, human disturbance, incorrect agricultural practices, disease, natural disasters, and the degradation and loss of habitat (Cox et al., 2006).

It is hoped that the herpetological information presented here concerning the herpetofauna of the lakes of Burdur, which is a part of the Lake District, an important

wetland, will encourage more comprehensive studies in the future.

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