

## Herpetofaunal inventory of the Sarikum Nature Reserve (Sinop, Turkey)

Lake Sarikum and its environment constitute the biodiversity center of the Sinop Peninsula, located at the southern Black Sea coast of Turkey. The Sarikum Nature Reserve is an International Wetland Ecosystem, owing to its plant and animal species richness and function as a migratory bird stop-over (KARAER 2007). Lake Sarikum is a lagoon lake that was formed as a result of coastal sand dunes blocking the flow of the streams once running into a gulf. Its area is located 21 km to the west of the city center of Sinop, at 42°00'00"-42°02'42"N and 34°54'46"-34°58'22"E. The ecosystem types comprise sea, coast, sand dune, lake and swampy wetland as well as terrestrial and forest habitats, in close vicinity to each other. The Sarikum Nature Reserve covers a total surface area of 785 ha, 102 ha which represent lake surface, 82 ha swampy areas, 385 ha forests and 216 ha open land. The territory was declared Nature Reserve on July 30, 1987, by the Ministry of Forestry and the location of the lake was declared a "1st Degree Natural Site" by decision of the Board of Conservation of Cultural and Natural Assets in Trabzon on November 21, 1991.

This wetland is separated from the Anatolian Plateau by the Küre Mountains extending in parallel to the Black Sea coast, and influencing the climate of the coastal strip and adjacent north facing slopes towards more temperate and humid conditions, compared to the center and south of the country. It is not well understood how the isolated northern outpost populations of *Laudakia stellio* (see Gül et al. 2010), *Ophisops elegans* (see Dinçaslan et al. 2010) and *Ablepharus kitaibelii* (see Dinçaslan et al. 2012) which occur around Sarikum, are linked to their Anatolian range areas since most amphibian and reptile species of the region originate from Transcaucasia and colonized the coastal territory from the east. Contributions to the herpetofauna of north Anatolia are rare (BARAN et al. 1992; KUM-LUTAŞ et al. 1998). In particular, there are no specific herpetological publications on

Sinop and its environs. The most elaborate study covering the flora and fauna of Sarikum Nature Reserve (KARAER 2007) enumerates six species of tailless amphibians, eight of lizards, three of snakes, one land and one water turtle species.

In the present study, 89 amphibian and reptile specimens were collected during the excursions to the region between April, 2007 and September, 2009. Most of them were measured, photographed and then released into their habitats. The individuals were representative of 21 herpetological species: seven of Amphibia (two Urodela and five Anura) and 14 of Reptilia (two Testudines, nine Sauria and three Serpentes). Including four species found in a previous study (KARAER 2007) but not in the present survey, a total of 25 species is known from the Sarikum Nature Reserve at Sinop (Table 1).

Three otherwise extralimital species occurring in the Sinop region (*L. stellio*, *O. elegans* and *A. kitaibelii*) were also found at Kastamonu (488 m a.s.l.), 70 km from the

Table 1: The herpetological species observed at Sarikum Nature Reserve, near Sinop, Turkey. \*\* - this study only; \* - KARAER (2007) only.

Amphibia - Caudata	<i>Triturus karelinii</i> (STRAUCH, 1870) **
	<i>Ommatotriton vittatus</i> (BERTHOLD, 1846) **
Amphibia - Anura	<i>Bufo bufo</i> (LINNAEUS, 1758)
	<i>Bufo viridis</i> LAURENTI, 1768
	<i>Hyla orientalis</i> BEDRIAGA, 1890
	<i>Rana dalmatina</i> BONAPARTE, 1840
	<i>Pelophylax ridibundus</i> (PALLAS, 1771)
	<i>Pelobates syriacus</i> BOETTGER, 1889 *
Reptilia - Testudines	<i>Emys orbicularis</i> (LINNAEUS, 1758)
	<i>Testudo graeca</i> LINNAEUS, 1758
Reptilia - Squamata - Sauria	<i>Laudakia stellio</i> (LINNAEUS, 1758)
	<i>Anguis fragilis</i> (LINNAEUS, 1758)
	<i>Pseudopus apodus</i> (PALLAS, 1775)
	<i>Hemidactylus turcicus</i> (LINNAEUS, 1758)
	<i>Mediodactylus kotschy</i> (STEINDACHNER, 1870) *
	<i>Lacerta viridis</i> (LAURENTI, 1768)
	<i>Lacerta trilineata</i> BEDRIAGA, 1886 **
	<i>Podarcis muralis</i> (LAURENTI, 1768)
	<i>Darevskia rudis</i> (BEDRIAGA, 1886) *
	<i>Ophisops elegans</i> MENÉTRIÉS, 1832
	<i>Ablepharus kitaibelii</i> (BIBRON & BORY, 1883) **
Reptilia - Squamata - Serpentes	<i>Platyceps najadum</i> (EICHWALD, 1831) *
	<i>Dolichophis caspius</i> (GMELIN, 1789)
	<i>Natrix natrix</i> (LINNAEUS, 1758)
	<i>Natrix tessellata</i> (LAURENTI, 1768)

Table 2: Geographic, climatic and environmental variables of the observed localities along the south coast of the Black Sea and the more inland location of Kastamonu (Turkey). Climate parameters and classification follow RIVAS-MARTINEZ et al. (2003).

Locality	Latitude/ Longitude	Altitude (m a.s.l.)	Annual precipitation (mm)	Mean daily temperature of coldest-warmest month (°C)	Thermic type	Bioclimatic type	Continentality index
Zonguldak	41°27' N/ 31°48' E	42	1179	2.2-25.0	Temperate (Mesotemperate)	Temperate oceanic (Submediterranean)	Oceanic (Euoeanic)
Samsun	41°17' N/ 36°20' E	44	739	3.3-26.7	Temperate (Mesomediterranean)	Mediterranean (Pluviseasonal-oceanic)	Oceanic (Euoeanic)
Trabzon	41°00' N/ 39°46' E	34	799	5.6-26.7	Warm (Thermotemperate)	Temperate oceanic (Submediterranean)	Oceanic (Euoeanic)
Sinop	42°03' N/ 35°15' E	32	679	-7.5-34.4	Warm (Thermotemperate)	Temperate oceanic (Submediterranean)	Oceanic (Euoeanic)
Kastamonu	41°22' N/ 33°46' E	488	799	-5.0-35.0	Temperate (Mesotemperate)	Temperate Xeric (Steppic)	Continental (Subcontinental)

coast in the south of the Küre Mountains, an area where the climate is classified 'Temperate' (Mesotemperate) and 'Xeric' (Steppic) (RIVAS-MARTINEZ et al. 2003) (Table 2). There are however, no records of these species on the Black Sea coastal strip both at Zonguldak, 250 km west and Trabzon, 400 km east of Sinop. The high annual precipitation (1,179 mm) at Zonguldak is likely to explain the absence of these species there, which are not found in the Samsun region either, located only about 120 km east of Sinop and with similar climatic characteristics (Table 2).

From its species richness, the area of the Sarıkum Nature Reserve at Sinop is among the most important herpetological sites in this section of the Black Sea coast.

REFERENCES: BARAN, İ. & YILMAZ, İ. & KETE, R. & KUMLUTAŞ, Y. & DURMUŞ, H. (1992): Batı ve orta Karadeniz Bölgesinin herpetofaunası.- Doğa Türk Zooloji Dergisi [Turkish Journal of Zoology], Ankara; 16: 275-288. DİNÇASLAN, Y. E. & GÜL, Ç. & TOSUNOĞLU, M. (2012): A new locality of snake-eyed skink *Ablepharus kitaibelii* (BIBRON & BORY, 1833), at Sinop, north Anatolia.- Herpetozoa, Wien; 25 (1/2): 74-75. DİNÇASLAN, Y. E. & TOSUNOĞLU, M. & GÜL, Ç. & ERDEM, D. & KARAHAN, F. (2010): Sarıkum tabiatı Koruma alanı ve çevresinin (Sinop) herpetofaunası. 20. Ulusal Biyoloji Kongresi, Denizli, 21-25 June 2010. GÜL, Ç. & DİNÇASLAN, Y. E. & TOSUNOĞLU, M. (2010): A new locality of Starred Agama, *Laudakia stellio* (LINNAEUS, 1758), from Sinop north Anatolia.- Herpetozoa, Wien; 23 (1/2): 98-100. KARAER, F. (2007): Sarıkum Tabiatı Koruma ve Yaygınlaştırma Alanı ekolojik çalışmaları sonuç raporu, Çevre ve Orman Bakanlığı DKMPGM (27 Ekim 2007), pp. 155. KUMLUTAŞ, Y. & TOK, C. V. & TÜRKÖZAN, O. (1998): The herpetofauna of Ordu-Giresun region.- Turkish Journal of Zoology, Ankara; 22: 199-201. RIVAS-MARTINEZ, S. & PENAS, A. & LUENGO, M. A. & RIVAS-SÁENZ, S. (2003): Worldwide bioclimatic classification system. In: LIETH, H. (Ed.): CD-Series II - Climate and Biosphere: CD-ROM ISBN 90-5782-139-7. (Data available at <http://www.ucm.es/info/cif/plot/diagram.htm> - last accessed: January 30, 2013). YILDIZ, M. Z. & AKMAN, B. & GÖÇMEN, B. (2012): New locality records of the Snake-eyed lizard, *Ophisops elegans* MÉNÉTRIÉS, 1832 (Squamata: Lacertidae), in the western Black Sea region of Anatolia.- Turkish Journal of Zoology, Ankara; 36 (2): 259-265.

KEY WORDS: Amphibia, Reptilia; herpetofauna, biodiversity, Sarıkum Nature Reserve, Sinop, Turkey

SUBMITTED: August 7, 2012

AUTHORS: Yunus Emre DİNÇASLAN <yedin-caslan@gmail.com >, Natural Heritage Protection Directorate-General Directorate of Izmir, 35010 Izmir, Turkey; Murat TOSUNOĞLU <mtosun@comu.edu.tr >, Çiğdem GÜL (corresponding author <gulcigdem17@hotmail.com.tr > <gulcigdem@comu.edu.tr >) Çanak-kale Onsekiz Mart University, Faculty of Arts and Sciences, Department of Biology, 17100 Çanak-kale, Turkey.