

The Herpetofauna of Tenedos (Bozcaada, Turkey)

Herpetological studies of different regions in Turkey have been reported by various researchers (BODENHEIMER 1944; MERTENS 1952; EISELT 1965; CLARK & CLARK 1973; ATATÜR & YILMAZ 1986; UĞURTAŞ 1989; BARAN et al. 1992, 1997; KUMLUTAŞ et al. 1999, 2001; ÖZDEMİR & BARAN 2002; KUMLUTAŞ et al. 2004). However, knowledge of the amphibian and reptile species of the Turkish offshore islands in the Aegean is rather limited (BARAN 1981, 1984, 1990). The aforementioned author reported the presence of eight herpetological taxa on the island of Tenedos: *Bufo viridis* LAURENTI, 1768, *Testudo graeca* LINNAEUS, 1758, *Cyrtopodion kotschyi* (STEINDACHNER 1870), *Hemidactylus turcicus* (LINNAEUS, 1758), *Ophisops elegans* MÉNÉTRIÉS, 1832, *Ablepharus kitaibelii* (BIBRON-BORY, 1833), *Dolichophis caspius* (GMELIN, 1789), *Malpolon monspessulanus* (GEOFFROY SAINT-HILAIRE, 1827). Our objective in this study was to complete the list of amphibian and reptile species occurring on Tenedos through fieldwork, and determine the degree of herpetofaunal similarity to adjacent islands and mainland areas of Anatolia.

Tenedos (Bozcaada) is located in the northeast of the Aegean Sea, southwest of the Çanakkale Strait (the Dardanelles) (Fig. 1). The island covers an area of 39 square kilometers, its coastline is 34.5 kilometers long. Göztepe (192 m a.s.l.) and Yenikale Hill (115 m a.s.l.) constitute the highest points on the island which has a human population of about 2,500. The main industries are fishing, viticulture, red poppy cultivations and tourism.

Animal specimens were collected on the island in April and May 2006 through 2008. The island was studied in seven different stations (Yenikale, Göztepe, Fakitepe, Çayır, Batıburnu, Ayazma and İğdelik, Fig. 1). Fieldwork was performed during about 20 days in 10 excursions by three to 20 people on various dates. One to two specimens per species were caught by hand during the day and photographed alive. After euthanization and preservation in 70% alcohol they were transferred to the Museum of Zo-

ology Section at the Department of Biology at Çanakkale Onsekiz Mart University. Cluster analysis and dendrogram of the herpetofaunal similarities were computed using the software package PAST (HAMMER et al. 2001). The Jaccard index was calculated following REAL et al. (1992). This measure of similarity is defined as the size of the intersection divided by the size of the union of two sample sets (A, B) according to the formula $J(A, B) = |A \cap B| / |A \cup B|$.

Identification of the amphibian and reptile species collected was based on pertinent literature (BAŞOĞLU & BARAN 1977, 1980; BAŞOĞLU et al. 1998; BARAN & ATATÜR 1998).

It was detected that the reptile specimens were mainly distributed around Göztepe, Yenikale and Fakitepe Hills on the island. The prevailing type of soil on these hills was noncalcareous brown forest soil represented by a poor, stony and shallow soil cover (HOCALIOĞLU 2003). The dominant plants on these three hills were: *Papaver virchowii*, *Alyssum umbellatum*, *Sedum caespitosum*, *Chenopodium album*, *Aegilops triaristata*, *Teucrium polium*, *Coridothymus capitatus*, *Sagina maritima*, *Cerastium brachypetalum*, *Eryngium campestra*, *Marrubium vulgare*, *Beta maritima*, *Amaranthus deflexus*, *Dianthus corymbosus*, *Ballota acetabulosa*, *Cardopatum corymbosum*, *Centaurea solstitialis*, *Notobasis syriaca*, *Onopordum illyricum*, *Centaurea solstitialis*, *Hordeum marinum*, *Hordeum murinum*, and *Cynodon dactylon* (SEÇMEN & LEBLEBİCİ 1978).

One amphibian and 11 reptile species (2 turtles, 5 lizards, 4 snakes) were found on the island during our visits. The below list specifies museum number, location, date, and collector's name each (for the position of the record localities in parentheses see map figure 1):

Bufo viridis – 11/2006, Yenikale, 01.04.2006, M. Tosunoğlu, Ç. Gül (1)

Mauremys rivulata (VALENCIENNES, 1833) – 43/2008, Çayır, 04.05.2008, M. Tosunoğlu, İ. Uysal (4)

Testudo graeca – 15/2006, Yenikale, 01.04.2006, M. Tosunoğlu, Ç. Gül (1)

Cyrtopodion kotschyi – 33/2008, Göztepe, 27.04.2008, M. Tosunoğlu, Ç. Gül, İ. Uysal (2)

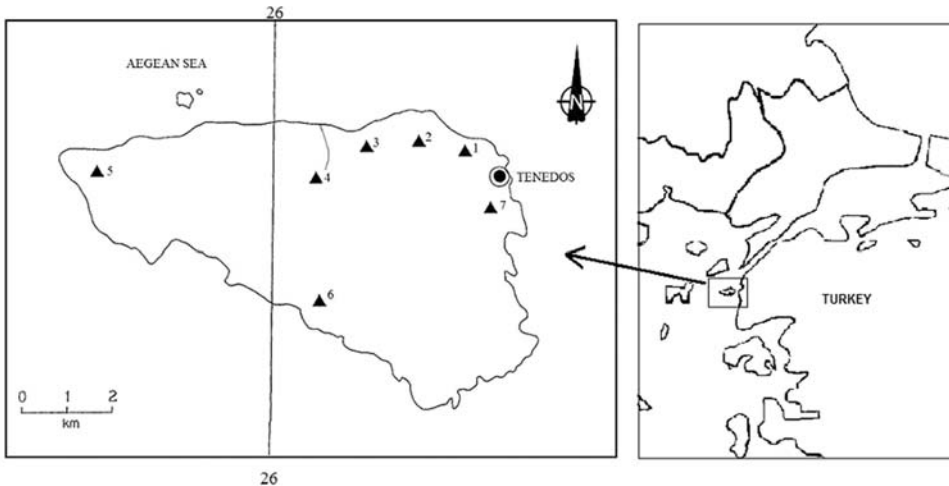


Fig. 1: The research areas on the Island of Tenedos in which specimens were studied.
1 - Yenikale; 2 - Göztepe; 3 - Fakitepe; 4 - Çayır; 5 - Batıburnu; 6 - Ayazma; 7 - İğdelik.

Hemidactylus turcicus – 32/2007, Göztepe, 22.04.2007, excursion; 19/2008, Fakitepe, 19.04.2008, M. Tosunoğlu, Ç. Gül; 31/2008, İğdelik, 27.04.2008, M. Tosunoğlu, Ç. Gül, İ. Uysal (2, 3, 7)

Pseudopus apodus (PALLAS, 1775) – 16/2006, Ayazma, 01.04.2006, M. Tosunoğlu, Ç. Gül (6)

Ophisops elegans – 12/2006, Batıburnu, 01.04.2006, M. Tosunoğlu, Ç. Gül; 30/2007, Göztepe, 22.04.2008, excursion; 18/2008, İğdelik, 19.04.2008, M. Tosunoğlu, Ç. Gül (2, 5, 7)

Ablepharus kitaibellii – 13/2006, Göztepe, 01.04.2006, M. Tosunoğlu, Ç. Gül; 31/2007, Fakitepe, 22.04.2007, Excursion; 32/2008, Yenikale, 27.04.2008, M. Tosunoğlu, Ç. Gül, İ. Uysal (1, 2, 3)

Typhlops vermicularis MERREM, 1820 – 22/2008, Yenikale, 19.04.2008, M. Tosunoğlu, Ç. Gül; 34/2008, Göztepe, 27.04.2008, M. Tosunoğlu, Ç. Gül, İ. Uysal, (1, 2)

Eryx jaculus (LINNAEUS, 1758) – 21/2008, Yenikale, 19.04.2008, M. Tosunoğlu, Ç. Gül (1)

Dolichophis caspius – 14/2006, Göztepe, 01.04.2006, M. Tosunoğlu, Ç. Gül; 20/2008, Fakitepe, 19.04.2008, M. Tosunoğlu, Ç. Gül (2, 3)

Malpolon monspessulanus – 30/2008, Göztepe, 27.04.2008, M. Tosunoğlu, Ç. Gül, İ. Uysal (2)

The species *M. rivulata*, *P. apodus*, *T. vermicularis* and *E. jaculus* were first records for the island.

All species were encountered particularly on hills (Yenikale, Göztepe and Fakitepe) located in the northern part of the island. These are not used as agricultural land, which covers most other parts of Tenedos. Interestingly, amphibian or reptile specimens were not observed in these farmland areas, which do not provide favorable conditions for the herpetofauna due to the paucity of suited habitats and the windy conditions. Since there is no natural spring on the island and the brooks desiccate in summer, the herpetofauna is rather poor in terms of aquatic species. Nevertheless, a population of *M. rivulata* (15 specimens) was encountered in the Çayır region.

The known herpetofaunas of some northeast Aegean Islands and the adjacent mainland are summarized in Table 1. According to the Jaccard index (Table 2) the herpetofaunal similarities of Tenedos to Imbros, Lesbos and Limnos – islands close to Tenedos – were found to be 0.533, 0.523 and 0.562, respectively, to Samothraki 0.421 and to Ag. Efstratios and the adjacent mainland 0.333 and 0.314, respectively. The dendrogram visualizes that the herpetofaunal affinity of Tenedos is greatest to the neighboring islands of Lesbos, Limnos and Imbros, less

Table 1: Non-marine amphibian and reptile species of Tenedos, other northeast Aegean Islands and the adjacent mainland region (based on own and bibliographical data).

Species Source	Mainland (HÜR et al. 2008)	Tenedos (this study)	Imbros (BARAN 1981)	Lesbos	Limnos (KASAPIDIS 1996)	Samothraki	Ag.Efstratios
<i>Lissotriton vulgaris</i>	+	-	-	-	-	-	-
<i>Triturus karelinii</i>	+	-	-	-	-	-	-
<i>Triturus vittatus</i>	+	-	-	-	-	-	-
<i>Hyla arborea</i>	+	-	-	-	-	-	-
<i>Bufo bufo</i>	+	-	-	-	-	-	-
<i>Bufo viridis</i>	+	+	+	-	-	-	-
<i>Rana dalmatina</i>	+	-	-	-	-	-	-
<i>Pelophylax ridibundus</i>	+	-	+	-	-	-	-
<i>Emys orbicularis</i>	+	-	-	+	+	+	-
<i>Mauremys rivulata</i>	+	+	+	+	+	+	-
<i>Testudo graeca</i>	+	+	-	+	+	+	-
<i>Hemidactylus turcicus</i>	+	+	-	+	+	+	-
<i>Cyrtopodion kotschy</i>	+	+	-	+	+	+	+
<i>Laudakia stellio</i>	+	-	-	+	-	-	-
<i>Ophisops elegans</i>	+	+	+	+	+	+	+
<i>Podarcis siculus</i>	+	-	-	-	-	-	-
<i>Podarcis muralis</i>	+	-	-	-	-	+	-
<i>Lacerta trilineata</i>	+	-	-	+	+	+	-
<i>Lacerta viridis</i>	+	-	-	-	-	+	-
<i>Anatololacerta danfordi</i>	+	-	-	-	-	-	-
<i>Ablepharus kitaibelii</i>	+	+	-	+	-	+	-
<i>Anguis fragilis</i>	+	-	-	-	-	-	-
<i>Pseudopus apodus</i>	+	+	+	+	+	-	+
<i>Eryx jaculus</i>	-	+	+	+	+	-	-
<i>Typhlops vermicularis</i>	+	+	+	+	+	-	-
<i>Malpolon monspessulanus</i>	+	+	+	+	-	-	-
<i>Telescopus fallax</i>	+	-	-	-	-	-	-
<i>Dolichophis caspius</i>	+	+	+	+	+	+	+
<i>Platyceps najadum</i>	+	-	+	+	+	-	-
<i>Zamenis situla</i>	+	-	-	+	-	-	-
<i>Elaphe quatuorlineata</i>	-	-	-	-	-	+	-
<i>Coronella austriaca</i>	+	-	-	-	-	+	-
<i>Eirenis modestus</i>	+	-	-	+	-	-	-
<i>Natrix natrix</i>	+	-	+	+	+	+	-
<i>Natrix tessellata</i>	+	-	-	+	-	-	-
<i>Montivipera xanthina</i>	+	-	-	+	-	-	-
Number of species (36)	34	12	11	20	13	15	4

to the more northerly Samothraki and the speciose adjacent mainland, and smallest to the remote and depauperated Island of Ag. Efstratios (Fig. 2).

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Table 2: Hepetofaunal similarity (Jaccard index) among the northeast Aegean Islands and the adjacent mainland region.

Island Source	Mainland (HÜR et al. 2008)	Tenedos (this study)	Imbros (BARAN 1981)	Lesbos	Limnos	Samothraki	Ag. Efratros (KASAPIDIS 1996)
Mainland	1.000						
Tenedos	0.314	1.000					
Imbros	0.285	0.533	1.000				
Lesbos	0.542	0.523	0.409	1.000			
Limnos	0.342	0.562	0.500	0.650	1.000		
Samothraki	0.400	0.421	0.238	0.458	0.473	1.000	
Ag. Efratros	0.117	0.333	0.250	0.200	0.307	0.187	1.000

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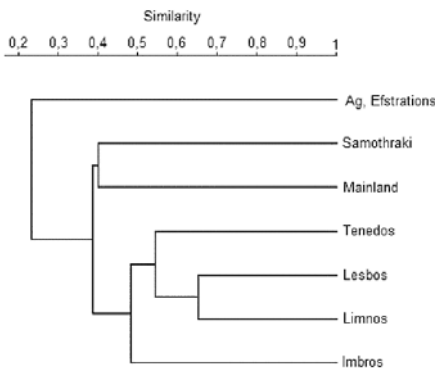


Fig. 2: Dendrogram of the herpetofaunal similarity among the islands of Tenedos, Imbros, Lesbos, Limnos, Samothraki, Ag. Efratros and the mainland of the northeast Aegean.

KEY WORDS: Amphibia, Reptilia, herpetofauna, new island records of *Mauremys rivulata*, *Pseudopus apodus*, *Typhlops vermicularis* and *Eryx jaculus*, Tenedos Island, Turkey

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