

# Amphibians and reptiles in the Province of Çanakkale (Marmara Region, Turkey)

(Amphibia; Reptilia)

Amphibien und Reptilien der Provinz Çanakkale (Marmara Region, Türkei)  
(Amphibia; Reptilia)

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## KURZFASSUNG

Die vorliegende Arbeit stellt das Vorkommen von Amphibien und Reptilien der Provinz Çanakkale (Marmara Region, Türkei) in Kartenform auf Grundlage von Feldstudien der Autoren zwischen 2002 und 2013 und vorhandener Literaturangaben dar. Danach umfaßt die Herpetofauna des Gebietes insgesamt 43 Formen, und zwar neun Arten von Amphibien (drei Schwanzlurche, sechs Froschlurche) und 34 Reptilienarten (fünf Schildkröten, 14 Echsen, 15 Schlangen). Die Verteilung der Arten auf 15 Chorotypen wird dargestellt. *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) und *Elaphe sauromates* (PALLAS, 1811) stellen Erstnachweise für die Halbinseln Biga and Gelibolu dar. Die Gefährdungsfaktoren für Amphibien und Reptilien in der Provinz Çanakkale werden angesprochen.

## ABSTRACT

This study presents distribution maps of the amphibians and reptiles in the Province of Çanakkale (Marmara Region, Turkey), based on information from field studies conducted at intervals between 2002 and 2013, and the existing literature records. The herpetological inventory comprises 43 species, nine amphibians (three urodelans and six anurans) and 34 reptiles (five turtles, 14 lizards and 15 snakes). The species belong to 15 chorotypes according to the classification by VIGNA TAGLIANTI et al. (1999). *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) and *Elaphe sauromates* (PALLAS, 1811) represent first records from the Peninsulas of Biga and Gelibolu. Environmental factors that constitute threats to the herpetological species in the Province of Çanakkale are briefly addressed.

## KEY WORDS

Amphibia, Reptilia; geographic distribution, mapping the herpetofauna, chorology, Province of Çanakkale, Gelibolu Peninsula, Biga Peninsula, Gökçeada (Imbros) Island, Bozcaada (Tenedos) Island, Marmara Region, Turkey

## INTRODUCTION

The Turkish Province of Çanakkale, part of the Marmara Region, covers an area of 9,993 km<sup>2</sup> and includes two peninsulas (Gelibolu [1,285 m<sup>2</sup>] and Biga [8,318 m<sup>2</sup>]), and two islands of the Aegean Sea (Gökçeada [Imbros, 287 m<sup>2</sup>] and Bozcaada [Tenedos, 43 m<sup>2</sup>]). The Çanakkale Strait separates the Biga Peninsula in the Anatolian part of the area from the Gelibolu Peninsula in the Thracian part. The region of Çanakkale covers a variety of climatic and geographical structures. Mediterranean climate prevails in the west of the Biga Peninsula, on Bozcaada, Gökçeada and the Gelibolu Peninsula, whereas the eastern sections of the Biga Peninsula are influenced by the Marmara Transitional Zone (ATALAY 2002). As for the

whole Province of Çanakkale, the lowest mean temperature (9.6 °C) is observed in January, the highest (30.6 °C) in July; annual mean temperature is 14.7 °C, and the average rate of humidity is 72.6 % (TURKISH STATE METEOROLOGICAL SERVICE 2013).

The Province of Çanakkale is home to 65 endemic, endangered or vulnerable species of plants (36), invertebrates (5), fishes (2), reptiles (1), birds (10) and mammals (11), seven zero extinction sites (the northern coasts of Gökçeada, the fishing weir of Gökçeada, the Çanakkale Strait, the Gulf of Saros, Cape Kemikli on Gelibolu, the Kaz Mountains and the Biga Mountains) are within the provincial borders of Çanakkale (EKEN et al. 2007).

Even though there is a number of studies on the herpetofauna of Çanakkale (BARAN 1981; YILMAZ 1981; ÇEVİK 1999; KAYA 2005; HÜR et al. 2008; TOSUNOĞLU et al. 2009; BULUT 2010; UYSAL 2011; TOK 2012a,

2012b), the distributions of the species is insufficiently known. This study compiles distribution information and reports environmental factors that threaten the herpetofaunal species.

## MATERIALS AND METHODS

The study area of Çanakkale (9,933 km<sup>2</sup>, 25°40' - 27°30' E, 39°27' - 40°45' N) is covered by about 127 10 km x 10 km Universal Transverse Mercator (UTM) grids. Field studies were conducted by the authors during March-November at intervals between 2002 and 2013. Each grid was visited at least once between 2002 and 2013. Herpetological species captured or observed in these non-systematic field surveys were recorded including the GPS coordinates of the record localities, identified according to BAŞOĞLU & BARAN (1977, 1980) and BAŞOĞLU et al. (1994) with the nomenclature following SPEYBROECK et al. (2010), and classified into major chorotypes according to VIGNA TAGLIANTI et al. (1999) and SINDACO et al. (2000). The records obtained

from both field studies and the literature survey were entered into the UTM grid maps. Species diversity in the herpetofaunas of the districts of Biga, Gelibolu, Gökçeada and Bozcaada was calculated using Shannon's index (SHANNON 1948), and the degree of similarity among these regions was computed on the basis of the Bray-Curtis index (BRAY & CURTIS 1957) and the group average method. The index calculations were done with the Biodiversity Professional program (MCALEECE et al. 1997). Information on threats to species and habitats was taken from the authors' observations made during the field studies and the literature (EKEN et al. 2007; UYSAL 2011; TOK et al. 2012; YAVUZ & BAKAR 2013).

## RESULTS AND DISCUSSION

The study revealed the presence 43 amphibian and reptilian species in the region, comprising nine amphibian (3 urodelan and 6 anuran) and 34 reptilian taxa (5 turtles, 14 lizards and 15 snakes). Forty-one species were recorded from the Biga Peninsula, 30 from the Gelibolu Peninsula, 17 on Gökçeada, and 14 on Bozcaada (Table 1, Figure 1). When species diversity was evaluated according to region,

Biga, Gelibolu, Gökçeada and Bozcaada received Shannon's index values of 1.61, 1.48, 1.23, and 1.145, respectively. These values of diversity were clearly related to the land size (Biga > Gelibolu > Gökçeada > Bozcaada). When rates of faunal similarity were evaluated, the Biga and Gelibolu Peninsulas resembled each other regarding the frog species (Table 2) and both peninsulas and Gökçeada in terms of the reptile

Table 1 (opposite page): Amphibians and reptiles reported from the Province of Çanakkale (Marmara Region, Turkey) including references and chorotype classification according to VIGNA TAGLIANTI et al. (2000).

Tab. 1 (gegenüberliegende Seite): Amphibien und Reptilien der Provinz Çanakkale (Region Marmara, Türkei) einschließlich der Literaturquellen und Chorotyp-Zuordnung nach VIGNA TAGLIANTI et al. (2000).

Biga Peninsula: BARAN (1976), BAŞOĞLU & BARAN (1977, 1980), BAŞOĞLU et al. (1994), SINDACO et al. (2000), KAYA (2005), HÜR et al. (2008), TOK et al. (2012a, 2012b).

Gelibolu Peninsula: BARAN (1976), BAŞOĞLU & BARAN (1977, 1980), BAŞOĞLU et al. (1994), GASC et al. (1997), YILMAZ (1981), ÇEVİK (1982, 1999), SINDACO et al. (2000), UYSAL (2011), JABLONSKI & STLOUKAL (2012). Gökçeada (Imbros): BARAN (1981), BROGGI (1999), BULUT (2010).

Bozcaada (Tenedos): BARAN (1981), TOSUNOĞLU et al. (2009), GÜL & TOSUNOĞLU (2013).

Species	Biga Peninsula	Gelibolu Peninsula	Gökçeada (İmbros)	Bozcaada (Tenedos)	Chorotype
<b>Salamandridae (3)</b>					
<i>Lissotriton vulgaris</i> (LINNAEUS, 1758)	+	+	-	+	Mediterranean
<i>Ommatotriton ophryticus</i> BERTHOLD, 1846	+	-	-	-	Turano-European
<i>Triturus karelinii</i> (STRAUCH, 1870)	+	+	-	-	E-Mediterranean
<b>Bufoidea (2)</b>					
<i>Bufo bufo</i> (LINNAEUS, 1758)	+	+	-	-	European
<i>Bufo viridis</i> complex (LAURENTI, 1768)	+	+	+	+	Turano-Europ.-Mediterr.
<b>Hylidae (1)</b>					
<i>Hyla</i> sp.	+	+	+	-	Europeo-Mediterranean
<b>Pelobatidae (1)</b>					
<i>Pelobates syriacus</i> BOETTGER, 1889	+	-	-	-	Turano-European
<b>Ranidae (2)</b>					
<i>Pelophylax</i> sp.	+	+	+	-	Turano-Europ.-Mediterr.
<i>Rana dalmatina</i> BONAPARTE, 1840	+	+	-	-	Eurosiberian
<b>Chelonidae (1)</b>					
<i>Caretta caretta</i> (LINNAEUS, 1758)	+	-	-	-	Cosmopolitan
<b>Emydidae (1)</b>					
<i>Emys orbicularis</i> (LINNAEUS, 1758)	+	+	+	-	Turano-Europ.-Mediterr.
<b>Geoemydidae (1)</b>					
<i>Mauremys rivulata</i> (VALENCIENNES, 1833)	+	+	+	+	Turano-Mediterranean
<b>Testudinidae (2)</b>					
<i>Testudo graeca</i> LINNAEUS, 1758	+	+	+	+	Turano-Mediterranean
<i>Testudo hermanni</i> GMELIN, 1789	-	+	-	-	European
<b>Agamidae (1)</b>					
<i>Stellagama stellio</i> (LINNAEUS, 1758)	+	-	-	-	E-Mediterranean
<b>Anguidae (2)</b>					
<i>Anguis fragilis</i> LINNAEUS, 1758	+	-	-	-	European
<i>Pseudopus apodus</i> (PALLAS, 1775)	+	+	+	+	Turano-Mediterranean
<b>Gekkonidae (2)</b>					
<i>Cyrtopodion kotschy</i> (STEINDACHNER, 1870)	+	+	-	+	E-Mediterranean
<i>Hemidactylus turcicus</i> (LINNAEUS, 1758)	+	+	+	+	Mediterranean
<b>Lacertidae (7)</b>					
<i>Anatololacerta anatolica</i> (WERNER, 1900)	+	+	-	-	SW-Anatolian Endemic
<i>Lacerta trilineata</i> BEDRIAGA, 1886	+	+	-	-	E-Mediterranean
<i>Lacerta viridis</i> (LAURENTI, 1768)	+	-	-	-	E-European
<i>Ophisops elegans</i> MÉNÉTRIÉS, 1832	+	+	+	+	E-Mediterranean
<i>Podarcis muralis</i> (LAURENTI, 1768)	+	+	-	-	S-European
<i>Podarcis siculus</i> (RAFINESQUE-SCHMALTZ, 1810)	+	+	-	-	Mediterranean
<i>Podarcis tauricus</i> (PALLAS, 1814)	-	+	-	-	E-Mediterranean
<b>Scincidae (2)</b>					
<i>Ablepharus kitaibellii</i> (BIBRON & BORY DE ST-VINCENT, 1833)	+	+	-	+	E-Mediterranean
<i>Trachylepis aurata</i> (LINNAEUS, 1758)	+	-	-	-	SW-Asiatic
<b>Boidae (1)</b>					
<i>Eryx jaculus</i> (LINNAEUS, 1758)	+	+	+	+	Mediterranean
<b>Colubridae (10)</b>					
<i>Coronella austriaca</i> LAURENTI, 1768	+	-	-	-	European
<i>Dolichophis caspius</i> (GMELIN, 1789)	+	+	+	+	Turano-Mediterranean
<i>Eirenis modestus</i> (MARTIN, 1838)	+	-	-	-	SW-Asiatic
<i>Elaphe sauromates</i> (PALLAS, 1811)	+	-	-	-	Turano-Mediterranean
<i>Hemorrhois nummifer</i> (REUSS, 1834)	+	-	-	-	Turano-Mediterranean
<i>Malpolon monspessulanus</i> (HERMANN, 1804)	+	+	+	+	Mediterranean
<i>Platyceps collaris</i> (MÜLLER, 1878)	+	-	-	-	E-Mediterranean
<i>Platyceps najadum</i> (EICHWALD, 1831)	+	+	+	-	Turano-Mediterranean
<i>Telescopus fallax</i> FLEISCHMANN, 1831	+	-	-	-	Turano-Mediterranean
<i>Zamenis situla</i> (LINNAEUS, 1758)	+	-	+	-	E-Mediterranean
<b>Natricidae (2)</b>					
<i>Natrix natrix</i> (LINNAEUS, 1758)	+	+	+	+	Centralas.-Europ.-Mediterr.
<i>Natrix tessellata</i> (LAURENTI, 1768)	+	+	-	-	Centralasiatic-European
<b>Typhlopidae (1)</b>					
<i>Typhlops vermicularis</i> (MERREM, 1820)	+	+	+	+	Turano-Mediterranean
<b>Viperidae (1)</b>					
<i>Montivipera xanthina</i> (GRAY, 1849)	+	+	+	-	E-Mediterranean

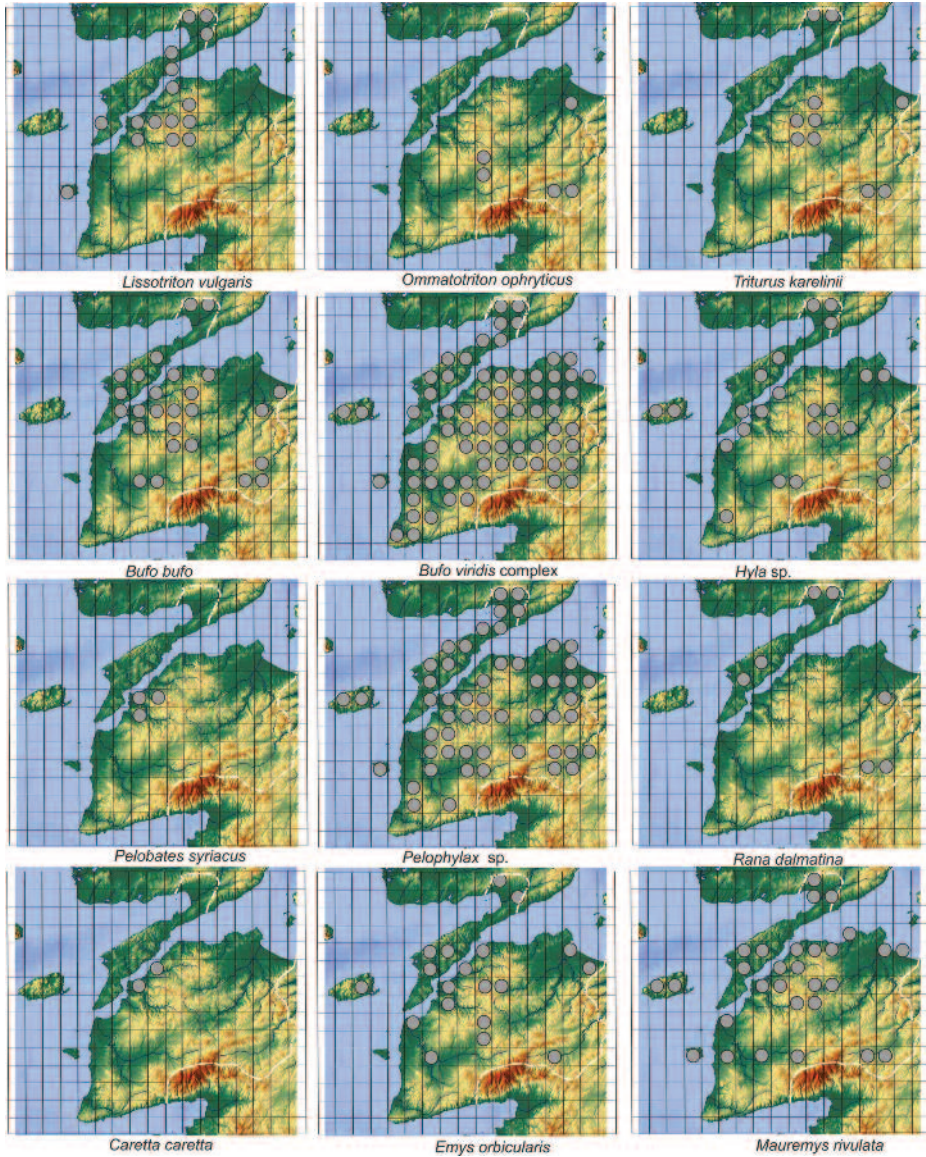


Fig. 1 (part 1 of 4): UTM grid maps representing the records of amphibians and reptiles from the Province of Çanakkale (Marmara Region, Turkey).

Abb. 1 (Teil 1 von 4): UTM Rasterkarten der Amphibien- und Reptiliennachweise aus der Provinz Çanakkale (Region Marmara, Türkei).

species (Figs. 2A, 2B). According to the theory by MACARTHUR & WILSON (1967), species diversity of an island is inversely proportional to its distance to the mainland

and directly proportional to its size and duration of isolation. Gökçeada (17 species) is much larger than Bozcaada (14 species) but more distant to the mainland,



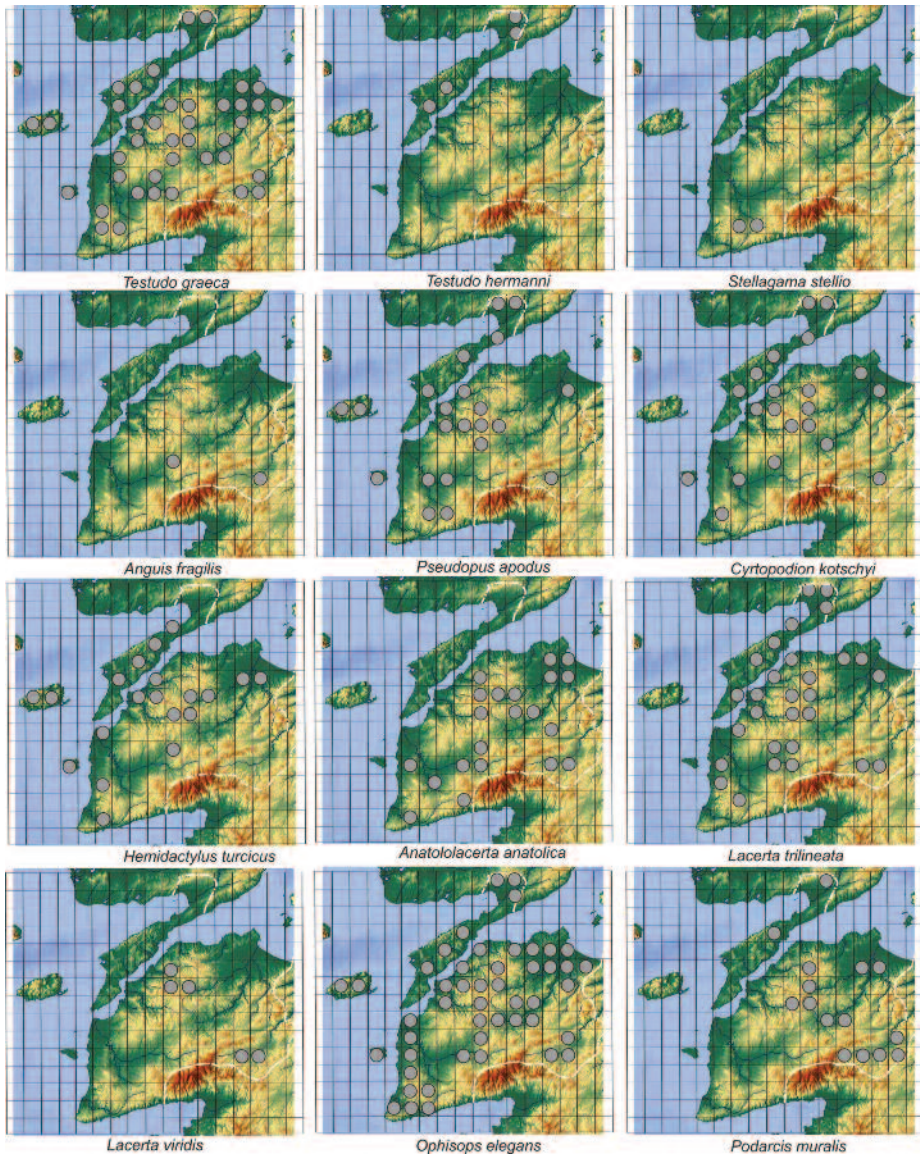


Fig. 1 (part 2 of 4): UTM grid maps representing the records of amphibians and reptiles from the Province of Çanakkale (Marmara Region, Turkey).

Abb. 1 (Teil 2 von 4): UTM Rasterkarten der Amphibien- und Reptiliennachweise aus der Provinz Çanakkale (Region Marmara, Türkei).

and durations of isolation are subequal. Thus, herpetological species diversity on these two islands is in agreement with the above theory.

The synoptical literature (YILMAZ 1981; BAŞOĞLU et al. 1994; GASC et al. 1997), reports nine amphibian species in the Marmara Region. With the exception of

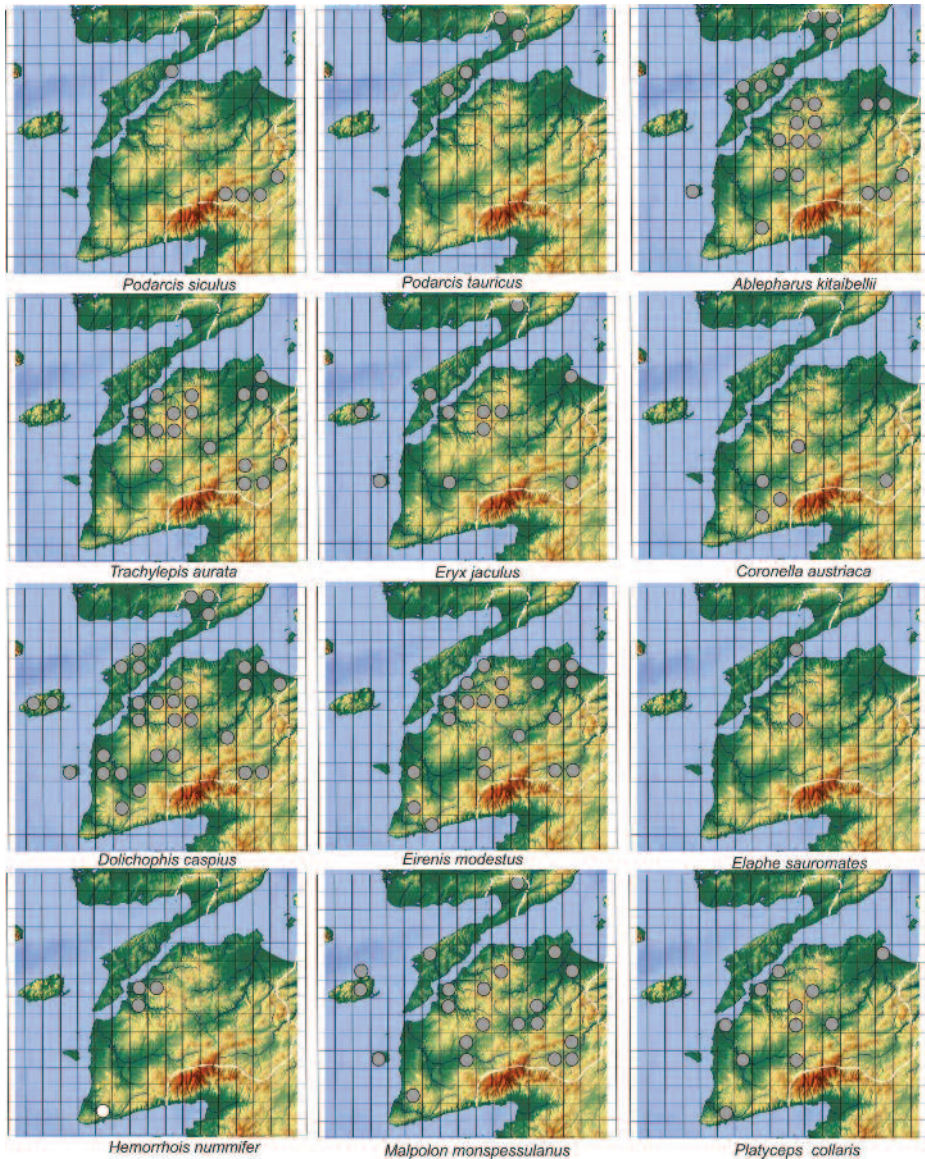


Fig. 1 (part 3 of 4): UTM grid maps representing the records of amphibians and reptiles from the Province of Çanakkale (Marmara Region, Turkey).

The white dot in the map of *Hemorrhhois nummifer* refers to a photo record by an amateur natural photographer of 'The Amphibians and Reptiles Monitoring & Photography Society in Turkey' [<http://turkherptil.org/>].

Abb. 1 (Teil 3 von 4): UTM Rasterkarten der Amphibien- und Reptiliennachweise aus der Provinz Çanakkale (Region Marmara, Türkei).

Der weiße Punkt in der Karte von *Hemorrhhois nummifer* bezieht sich auf einen Fotonachweis eines Naturfotografen der Gesellschaft "The Amphibians and Reptiles Monitoring & Photography Society in Turkey" [<http://turkherptil.org/>].



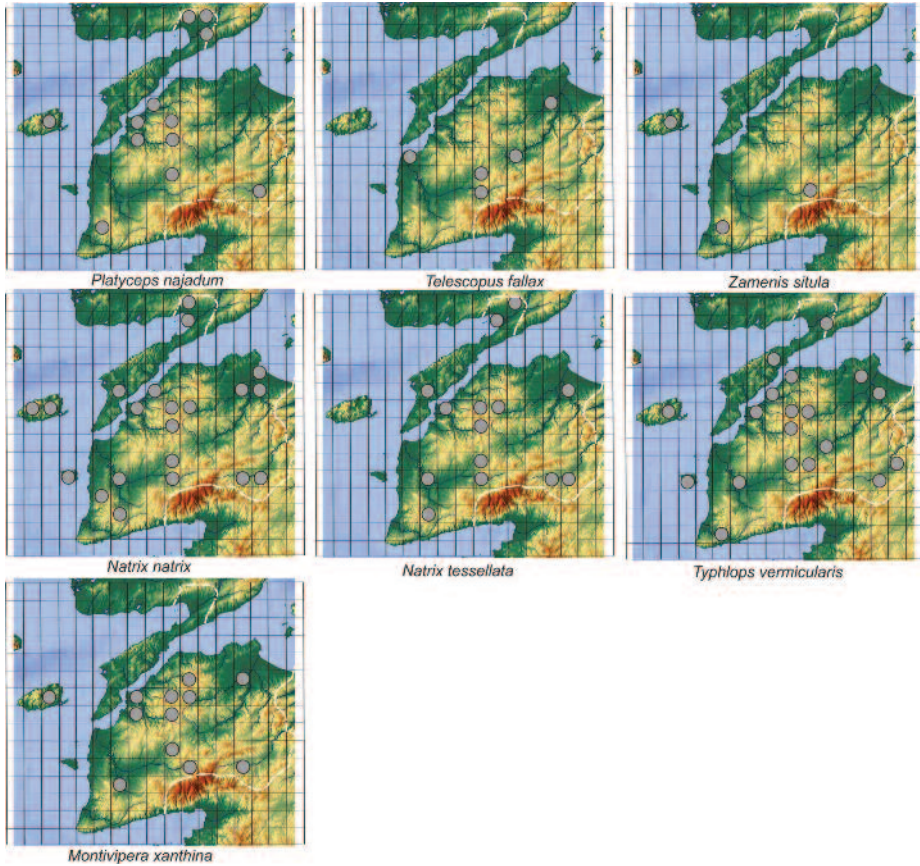


Fig. 1 (part 4 of 4): UTM grid maps representing the records of amphibians and reptiles from the Province of Çanakkale (Marmara Region, Turkey).

Abb. 1 (Teil 4 von 4): UTM Rasterkarten der Amphibien- und Reptiliennachweise aus der Provinz Çanakkale (Region Marmara, Türkei).

*Bombina bombina* (LINNAEUS, 1761), eight of these species are observed on the Biga Peninsula, and except for *B. bombina*, *Ommatotriton ophryticus* (BERTHOLD, 1846) and *Pelobates syriacus* BOETTGER, 1889, six are observed on the Gelibolu Peninsula. The systematic position of some amphibian species is, however, still under debate. The former *Bufo viridis* was split into *viridis* (LAURENTI, 1768) and *variabilis* (PALLAS, 1769) by STÖCK et al. (2006) who indicated *variabilis* for the study area but registered the presence of both taxa in sympatric populations in other places. Without indicating

definite distributions, STÖCK et al. (2008) separated *Hyla orientalis* BEDRIAGA, 1890 from *Hyla arborea* s. str. (LINNAEUS, 1758), which may both be present in the study area. LYMBERAKIS et al. (2007) examined the phylogeography of the East Mediterranean water frog populations and confirmed *Pelophylax bedriagae* (CAMERANO, 1882) to be the species living in Thrace. Nevertheless, AKIN et al. (2010) reported that *Pelophylax ridibundus* (PALLAS, 1771) lives in the region. The morphological characters are inadequate to distinguish among the taxa within the three problematic groups of

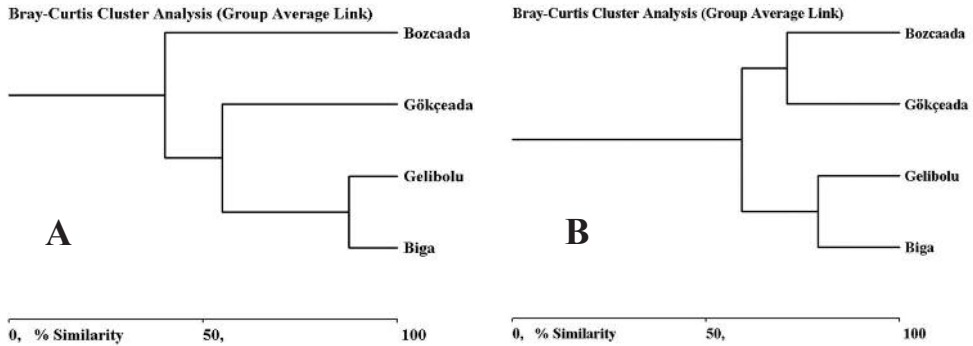


Fig. 2: Classification of the study regions (Districts of Biga, Gelibolu, Gökçeada and Bozcaada; Marmara Region, Turkey) based on presence/absence values of herpetological taxa (similarity/dissimilarity according to BRAY & CURTIS 1957). Although these similarity/dissimilarity values do not represent distances in a mathematical sense, cluster analysis based dendrograms computed from amphibian (A) and reptilian (B) inventory similarity values among regions (comp. Table 2) may roughly visualize the situation.

Abb. 2: Gliederung der Untersuchungsgebiete (die Bezirke Biga, Gelibolu, Gökçeada und Bozcaada; Region Marmara, Türkei) aufgrund der Anwesenheit/Abwesenheit herpetologischer Taxa (Ähnlichkeits- und Verschiedenheitswerte nach BRAY & CURTIS 1957). Obwohl diese Ähnlichkeits- und Verschiedenheitswerte keine Distanzen im mathematischen Sinn darstellen, sollen Dendrogramme aus einer Clusteranalyse der Ähnlichkeitswerte der Amphibien- (A) und Reptilieninventare (B) der Untersuchungsgebiete (vergl. Tab. 2) die Situation einigermaßen veranschaulichen.

species mentioned. Thus, in the present paper, these species were referred to as *Bufo viridis* s. lat., *Hyla* sp. and *Pelophylax* sp.

Five species of turtles were observed in the area (BAŞOĞLU & BARAN 1980; ÇEVİK 1982; GASC et al. 1997), *Testudo hermanni* GMELIN, 1789 however, only in the Thracian Region (BAŞOĞLU & BARAN 1980). Although *Caretta caretta* (LINNAEUS, 1758) is known from the Aegean and Marmara

Seas, there are no records from the Thracian coasts.

Regarding lizards, there are records of 17 species in the Marmara Region (15 in Anatolia and 14 in Thrace) (BAŞOĞLU & BARAN 1980; ÇEVİK 1982, 1999; VENCHI & BOLOGNA 1996; GASC et al. 1997). The Biga Peninsula is not within the known distribution range of *Chamaeleo chamaeleon* (LINNAEUS, 1758), *Darevskia bithynica tristis*

Table 2: Degree of similarity in herpetofaunal composition of the districts of the study region based on the presence/absence of species (BRAY & CURTIS 1957).

Tab. 2: Das Ausmaß der Ähnlichkeit in der Zusammensetzung der Herpetofaunen der Verwaltungsbezirke des Untersuchungsraumes auf Basis der An- und Abwesenheit von Arten (BRAY & CURTIS 1957).

	Biga Peninsula	Gelibolu Peninsula	Gökçeada (Imbros)	Bozcaada (Tenedos)
<b>Amphibians</b>				
Biga Peninsula	*	88	50	36
Gelibolu Peninsula	88	*	60	44
Gökçeada (Imbros)	50	60	*	40
Bozcaada (Tenedos)	36	44	40	*
<b>Reptiles</b>				
Biga Peninsula	*	76	59	51
Gelibolu Peninsula	76	*	68	64
Gökçeada (Imbros)	59	68	*	71
Bozcaada (Tenedos)	51	64	71	*



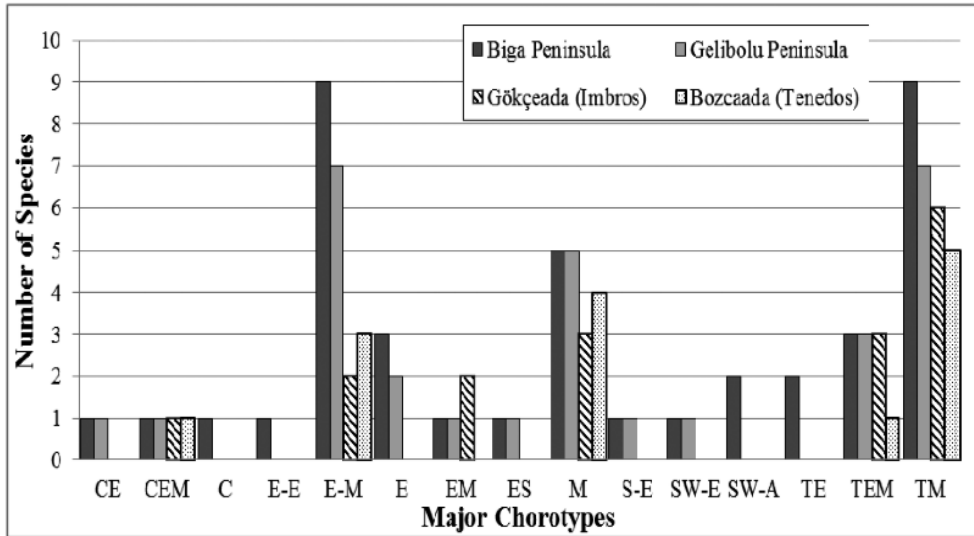


Fig. 3: Distribution to major chorotypes (*sensu* VIGNA TAGLIANTI et al. 2000) of the amphibians and reptiles in the study region (Districts of Biga, Gelibolu, Gökçeada and Bozcaada; Province of Çanakkale, Marmara Region, Turkey).

Abb. 3: Verteilung der Amphibien und Reptilien im Untersuchungsgebiet (Bezirke Biga, Gelibolu, Gökçeada und Bozcaada, Provinz Çanakkale, Region Marmara, Türkei) auf Haupt-Chorotypen *sensu* VIGNA TAGLIANTI et al. (2000). Artenzahlen auf der y-Achse.

CE - Centralasiatic-European, CEM - Centralasiatic-European-Mediterranean, C - Cosmopolitan, E-E - E-European, E-M - E-Mediterranean, E - European, EM - Europeo-Mediterranean, ES - Eurosiberian, M - Mediterranean, S-E - S-European, SW-E - SW-Anatolian Endemic, SW-A - SW-Asiatic, TE - Turano-European, TEM - Turano-European-Mediterranean, TM - Turano-Mediterranean.

(LANTZ & CYRÉN, 1936) and *Podarcis tauricus* (PALLAS, 1814) (comp. BARAN et al. 2012). No record is available for *Anguis fragilis* LINNAEUS, 1758 and *Lacerta viridis* (LAURENTI, 1768) from the Gelibolu Peninsula although its territory is within the distributional range of these species. Moreover, this peninsula is outside the known contiguous distributional ranges of *Darevskia praticola* (EVERSMANN, 1834) and *Parvilacerta parva* (BOULENGER 1887) (comp. BARAN et al. 2012).

In total, 18 snake species (18 in Anatolia and 14 in Thrace) are known from the Marmara Region (BARAN 1976; BAŞOĞLU & BARAN 1980; UĞURTAŞ 1989; GASC et al. 1997). So far, there are no records of *Vipera ammodytes* (LINNAEUS, 1758), *V. barani* BÖHME & JOGER, 1983 or *Zamenis longissimus* (LAURENTI, 1768) from the Biga Peninsula and from *Coronella austriaca* LAU-

RENTI, 1768, *Telescopus fallax* FLEISCHMANN, 1831, *V. ammodytes*, *Zamenis situla* (LINNAEUS, 1758) or *Z. longissimus* from the Gelibolu Peninsula.

Regarding new records, *Podarcis siculus* (RAFINESQUE-SCHMALTZ, 1810) and *Elaphe sauromates* (PALLAS, 1811) were observed on the Gelibolu Peninsula for the first time. The lizard was known from the Thracian Region (GASC et al. 1997; JABLONSKI & STILOUKAL 2012) and a record of the snake species was available from nearby Bandırma (Balıkesir) (GASC et al. 1997; SINDACO et al. 2000).

The herpetological species observed in the Province of Çanakkale were arranged into 15 major chorotypes (amphibians in seven, reptiles in 15) according to VIGNA TAGLIANTI et al. (1999) (Table 1, Fig. 3). The most diverse region was the Biga Peninsula (15 chorotypes), the least diverse

the Island of Bozcaada (5) (Table 1, Fig.3). The predominant species were East-Mediterranean (10 species, 23.3%), Turano-European-Mediterranean (9 species, 20.9%) and Mediterranean (5 species, 11.6%) elements. Mediterranean and the Turano-European-Mediterranean elements accounted for 26.5% for reptile species.

According to the evaluations of the IUCN Red List (IUCN 2013) and the Mediterranean Red List (COX et al. 2006), eight amphibian species living in the Province of Çanakkale are placed in the category Least Concern (LC), one [*Ommatotriton ophryticus* (BERTHOLD, 1846)] is categorized Near Threatened (NT). Of the reptile species, one species [*Caretta caretta* (LINNAEUS, 1758)] is listed under Endangered (EN), two species [*Emys orbicularis* (LINNAEUS, 1758) and *Testudo hermanni* GME-LIN, 1789] under NT and all the others under LC. Habitat loss and degradation, overharvesting, human disturbance, invasive species and pollution, disasters and disease are the primary factors which threaten the species in the Mediterranean basin (COX et al. 2006).

Among the primary factors which threaten the amphibians and reptiles distributed in the Province of Çanakkale are vast fires in the forestland prevailing in a significant part of the area (the fires of Gelibolu: July 1994, August 2012, May 2013, etc.; the fires of the Biga Peninsula: July 2008, July 2012, May 2013, etc.) and destruction of the forestland for various reasons such as the

extension of agricultural land on the Biga Peninsula in particular. Chemical pollution factors comprise thoughtless use and overuse of agricultural pesticides, acid rain resulting from exhaust fumes of thermal power stations and other factories, increase of mining activities (gold in particular) on the Biga Peninsula where coal and ceramics were previously produced. The well founded common opinion is that this will negatively affect the endemic, endangered and vulnerable species (EKEN et al. 2007; YAVUZ & BAKAR 2013). Increasingly, it is thought that amphibian and reptile species are, and will be, seriously affected, along with the other species, particularly as a result of the failure to implement good agricultural practices in the coastal sections of the Gulf of Saros and on the Gelibolu and Biga Peninsulas, the rapid transformation of agricultural lands into second homes, unmindful animal husbandry activities, and constructional activities such as pipeline laying (EKEN et al. 2007; UYSAL 2011; TOK et al. 2012; YAVUZ & BAKAR 2013). Furthermore, amphibians and reptiles are deliberately killed by the local people in all places where they are seen due to fear and negative traditional opinions based in ignorance (TOK et al. 2011). For all these reasons, the monitoring of the existing populations of the species concerned and the development of urgent conservation action plans are of great importance to the survival of the resident herpetological species in the vicinity of Çanakkale.

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