Supplementary amphibian and reptilian records from European Turkey

European Turkey (or Turkish Thrace) is 23,764 km² in size and situated in the extreme east of the Balkan Peninsula, which is considered a biodiversity hotspot (Gaston & David 1994). At present, this region is separated from Anatolian Turkey by the Bosphorus Sound, the Marmara Sea and the isthmus of the Dardanelles, but the presence of a Pleistocene Balkan-Anatolian land-bridge played an important role for the migration and spreading of many species (see e.g. Szymura et al. 1996; Stöck et al. 2006; Fritz et al. 2007; Kyriazi et al. 2008; Stöck et al. 2008; Ursenbacher et al. 2008; Guicking et al. 2009; Stamatis et al. 2009; Nagy et al. 2010; Wielstra et al. 2010; Kornilios et al. 2012). European Turkey occupies the southeasternmost part of the Balkan Peninsula between the Aegean Sea and the Black Sea. The highest elevation of this region is Mahya Dağı (1031 m a.s.l.) in Yıldız Dağları (Strandja Mts.). European Turkey falls into the Mar-mara climatic region (Sindaco et al. 2000) in which the annual precipitation ranges from about 600 to 900 mm, with the maximum in winter. Temperatures in January are close to the freezing point, the summers are hot, with July temperatures above 25–30°C. The natural vegetation of this area is formed by Mediterranean woodland with Carpinus spp., Castanea sativa, Corylus spp., Fagus orientalis, Ilex spp., Laurus spp., Olea europaea, Myrtus communis, Picea orientalis, Quercus coccifera, Qu. robor prevailing. The whole region is greatly modified by human activity, mainly by agricultural practices (e.g., many paddy fields in the central and western parts of European Turkey).

General knowledge about the herpetofauna and batrachofauna of Turkey relates especially to its Asian portion, due to a long tradition of herpetological research in this area (see e.g. Werner 1902; Bodenheimer 1944; Bosoglu & OztEt 1973; Baran 1976; AndreN & Nilson 1976; Bosoglu & Baran 1977, 1980; Baran & Atatur 1998).

Studies focused on selected Thracian amphibians and reptiles were published by Bosoglu & Hellmich (1959), AndreN & Nilson (1976), Atatur & Yilmaz (1986), Ilgaz & Kumlutas (2005) and Ayaz et al. (2007), but consistent faunistic data on the distribution of amphibians and reptiles from European Turkey are still scattered and scarce. Detailed information was compiled in the comprehensive volumes of the ‘Handbuch der Reptilien und Amphibien Europas’ (not quoted here). The most recent summaries of herpetofaunal data from European Turkey were given in Gasc et al. (1997) and for reptiles in Sindaco et al. (2000). Based on our present knowledge, the fauna of European Turkey includes 11 species of amphibians and 32 of reptiles, according to the current taxonomy in Speybroeck et al. (2010).

In this article we present results of our herpetological studies made at fifteen localities of Turkish Thrace between 6-10 April 2009 and 18-22 May 2010 in four provinces of European Turkey: Edirne, Kırklareli, Istanbul and Çanakkale. Observations were made during day and night at various places including the Yıldız Dağları Mts. and the Gelibolu Peninsula. The following fifteen localities were surveyed in detail (geographical coordinates and altitudes a.s.l. in parentheses): 1 – Edirne (41°40'/26°33', 46 m), 2 – Gellipoli (40°24'/26°39', 7 m), 3 – Kilitbahir (40°08'/ 26°22', 8 m), 4 – Eceabat (40°10'/26°21', 3 m), 5 – Kabatepe (40°12'/ 26°19', 12 m), 6 – Üsküp (41° 44'/27°24', 62 m), 7 – Dupnisa Magarasi (41°50'/27°33', 343 m), 8 – Demirköy (41°49'/27°45', 320 m), 9 – Istanbul (41°00'/28°59', 8 m), 10 – Ömeroba (41°54'/26°55', 287 m), 11 – Kayali (41°46'/27°06', 257 m), 12 – İnegada (41°52'/27°54', 22 m), 13 – Sarpdere (41°52'/27°36', 561 m), 14 – İskender (41° 37'/26°41', 64 m), and 15 – Kayapa (41° 47'/26°41', 107 m). Herpetological findings were properly documented and included specimens’ identification and photography, site description and positioning (GPS). Specimens were identified at species level according to Arnold & Ovenden (2002) and Valakos et al. (2008). Nomenclature follows Speybroeck et al. (2010). The distribution data of individual species or species complexes are presented in 50 km x 50 km Universal Transverse Mercator (UTM) grid maps and compared with those of Gasc et al. (1997). Information from
Sindaco et al. (2000) was not taken into consideration due to different mapping methodology and the focus restricted to reptiles, which would have led to inconsistent comparisons in the maps presented. The region under study is fully or partly covered by 26 such UTM grids, seven of which were represented by the above fifteen locations visited.

The following list of records, arranged according to taxonomical groups, comprises the record localities (internal numbering in parentheses) and the numbers and developmental stages of specimens observed. Record localities marked by an asterisk represent new 50 km x 50 km UTM grid records for European Turkey (as compared to Gasc et al. 1997). We refrained from specific assignment of the green toads, treefrogs and waterfrogs observed since identification in the field from external morphological traits is unreliable.

**Lissotriton vulgaris** (Linnaeus, 1758) - Kaypa (15), three adult females (Fig. 1A).

*Bufo bufo* (Linnaeus, 1758) - Demirköy (8), five adult specimens and hundreds of tadpoles in the Velika stream; İğneada (12), dozens of tadpoles in the Madana stream; Sarpdere (13), one adult specimen (Figs. 1B, 2C).

*Bufo viridis* (Laurenti, 1768) complex - Edirne (1), one adult specimen; Kilidibahir (3), two specimens; Eceabat (4), one specimen (Fig. 1C). Remark: *Bufo viridis* and possibly also *Bufo variabilis* (Pallas, 1769) could occur in the region (compare Stöck et al. 2006).

*Hyla* sp. - Edirne (1), dozens of adult specimens (Fig. 1D). Remark: According to Stöck et al. (2008) the tree frog of European Turkey is *Hyla orientalis* Bedriaga, 1886, not *Hyla arborea* (Linnaeus, 1758).

*Pelophylax* sp. - Edirne (1), few adult specimens; Gellipoli (2), five adult specimens; Eceabat (4), 12 specimens in two isolated reservoirs with brackish water; Kabatepe (5), dozens of specimens; Üsküp (6), dozens of specimens in the stream flowing across the center of the village; Demirköy (8), two adult specimens; Ömeroba (10), dozens of adult specimens and tadpoles; Kaypa (15), dozens of adult specimens (Fig. 1E, 2A). Remark: In European Turkey two species of water frogs were identified, *Pelophylax ridibundus* (Pallas, 1771) and *P. bedriagae* (Camerano, 1882) (Lymberakis et al. 2007; Akin et al. 2010).

*Rana dalmatina* Fitzinger in Bonaparte, 1839 - Demirköy (8), one adult specimen; İğneada (12), two adult specimens (Fig. 1F, 2C).

*Emys orbicularis* (Linnaeus, 1758) - İğneada* (12), eight adult specimens (Figs. 1G, 2C).

*Mauremys rivulata* (Valenciennes, 1833) - Eceabat (4), ten adult and subadult specimens; Kabatepe* (5), several adult specimens (Fig. 1H, 2A).

*Testudo graeca* Linnaeus, 1758 - Eceabat (4), one adult female; Kayali (11), one juvenile specimen, Sarpdere (13), one adult female (Figs. 1I, 2D, 2E).

*Hemidactylus turcicus* (Linnaeus, 1758) - Kilidibahir (3), one adult specimen (Fig. 1J).

*Ablepharus kitaibelli* Bibron & Bory de Saint-Vincent, 1833 - Dunpisia Magarasi* (7), 12 adult and subadult specimens; Demirköy* (8), two adult specimens (Fig. 1K).

*Darevskia praticola* (Eversmann, 1834) - Demirköy* (8), two adult specimens (Fig. 1L).

*Lacerta trilineata* Bedriaga, 1886 - Kabatepe (5), three subadult specimens; Kayali* (11), six adult specimens (Figs. 1M, 2B, 2D).

*Lacerta viridis* (Laurenti, 1676) - Dunpisia Magarasi (7), five adult specimens; Demirköy* (8), one subadult specimen; İğneada* (12), several adult specimens; Sarpdere* (13), several adult specimens (Figs. 1N, 2E).

*Ophisops elegans* Ménétriers, 1832 - Kilidibahir (3), six adult specimens; Kabatepe (5), ten adult specimens (Fig. 1O, 2B).

*Podarcis muralis* (Laurenti, 1678) - Dunpisia Magarasi (7), three adult specimens; Demirköy* (8), one subadult specimen; İğneada* (12), several adult specimens; Sarpdere* (13), ten adult specimens (Figs. 1P, 2E).

*Podarcis siculus* (Rafinesque-Schmaltz, 1810) - Istanbul (9), dozens of adult and subadult specimens (Fig. 1Q). Remark: New records of this species were reported from the Marmara region by Ugurtaş et al. (2000) and Mollov (2009).

*Podarcis tauricus* (Pallas, 1814) - Kayali* (11), dozens of adult specimens (Fig. 1R, 2D).
Figs. 1A-X (this and following page): Distribution data of amphibian and reptile species observed in the study of the European Turkey. Records are represented on a 50 km x 50 km UTM grid map.

Empty circles – records published in GASC et al. (1997) (before and after 1970 not distinguished), not confirmed in this study; filled black circles – new records, as compared to data in GASC et al. (1997); half-filled circles – records in GASC et al. (1997) that are confirmed in this study.

Abb. 1A-X (diese und folgende Seite): Verbreitungsangaben zu den beobachteten Amphibien- und Reptilienarten im Untersuchungsgebiet der Europäischen Türkei.

Die Nachweise sind in UTM Rasterkarten (Rasterweite: 50 km x 50 km) dargestellt.

A - Lissotriton vulgaris; B - Bufo bufo; C - Bufo viridis complex (B. viridis and possibly also B. variabilis could occur in the region; cf. STÖCK et al. 2006); D - Hyla sp. (H. orientalis and possibly also H. arborea could occur in the region; cf. STÖCK et al. 2008); E - Pelophylax sp. (P. ridibundus and P. bedriagae probably occur in the region; cf. LYMBERAKIS et al. 2007; AKIN et al. 2010); F - Rana dalmatina;
G - Emys orbicularis; H - Mauremys rivulata; I - Testudo graeca; J - Hemidactylus turcicus;
K - Ablepharus kitaibeli; L - Darevskia praticola; M - Lacerta trilineata; N - Lacerta viridis;
O - Ophisops elegans; P - Podarcis muralis; Q - Podarcis sicula; R - Podarcis tauricus;
S - Pseudopus apodus; T - Dolichophis caspia; U - Elaphe sauromates; V - Natrix natrix;
W - Natrix tessellata; X - Vipera ammodytes.
Figs. 1A-X (continued from preceding page; for caption see there).

Abb. 1A-X (Fortsetzung der vorangehenden Seite; Bildunterschrift siehe dort).
Figs. 2A-F: Habitats of amphibians and reptiles in European Turkey (species observed in parentheses).


A – Eceabat (*Mauremys rivulata*, *Pelophylax* sp.).
B – Kabatepe (*Lacerta trilineata*, *Ophisops elegans*).
C – İğneada (*Bufo bufo*, *Rana dalmatina*, *Emys orbicularis*, *Natrix natrix*).
D – Kayali (*Testudo graeca*, *Lacerta trilineata*, *Podarcis tauricus*, *Dolichophis caspius*, *Vipera ammodytes*).
E – Demirköy (*Bufo bufo*, *Testudo graeca*, *Lacerta viridis*, *Podarcis muralis*).
F – Iskender (*Elaphe sauromates*).

*Pseudopus apodus* (Pallas, 1775) - Üsküp* (6), one adult specimen (Fig. 1S).

*Dolichophis caspius* (Gmelin, 1789) - Kilidibahir (3), 1.3 m long ecdysis of adult specimen; Kayali* (11), two adult specimens (Figs. 1T, 2D).

*Elaphe sauromates* (Pallas, 1814) - Iskender (14), one adult specimen (Figs. 1U, 2F).

*Natrix natrix* (Linnaeus, 1758) - Kilidibahir (3), one juvenile specimen; İğneada (12), one juvenile specimen (Figs. 1V, 2C).
GaSc et al. (1997) refer to records of longissimus areas of European Turkey, the grid maps in thinaula (lınnaeus, 1758), 1831, 1831, 1831, which were, however, not yet reported from European Turkey. A single record of the Anatolian species Parvilacerta parva (bouylinder, 1887) which was never observed again suggests accidental introduction (cf. VENCHI & BOLOGNA 1996). The aforementioned species were not classified members of the herpetofauna of Turkish Thrace in the present paper.

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