
THE HERPETOLOGICAL COLLECTION OF ZOOLOGY MUSEUM, ISTANBUL UNIVERSITY

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ABSTRACT

Amphibia and Reptilia collections at the Zoological Museum, University of İstanbul (ZMUI) were studied and revised. The samples were collected from 1921 until today. The localities of most species are found in the different regions of Turkey. The collection have 75 species of which 21 species are amphibians and 54 species are reptiles. With this study a zoological collection belong to ZMUI was given for the first time.

Keywords: Zoology Museum, Collection, Taxonomy, Amphibians, Reptiles

İSTANBUL ÜNİVERSİTESİ ZOOLOJİ MÜZESİ HERPETOLOJİK KOLEKSİYONU

ÖZET

İstanbul Üniversitesi Zooloji Müzesi (ZMUI) Amphibia ve Reptilia koleksiyonu çalışıldı ve revize edildi. Örnekler 1921 yılından günümüze kadar toplanmıştır. Çoğu türün lokalitesi Türkiye'nin farklı bölgelerindedir. Koleksiyonda 75 tür bulunmakta olup bunların 21 türü amfibi ve 54 türü sürüngenlerdendir. Bu çalışma ile ilk defa ZMUI'a ait bir zoolojik koleksiyon verilmiştir.

Anahtar Kelimeler: Zooloji Müzesi, Koleksiyon, Taksonomi, Kurbağa, Sürüngen

1. INTRODUCTION

The Zoological museum collection is quite important for taxonomists. Because İstanbul University is the oldest university of Turkey, it became the host for first studies in the field of zoology, collections of the Zoological Museum of İstanbul University are the oldest ones in Turkey. These collections are valuable for reflecting the history of zoology in Turkey. The Zoology museum was first established to support education in the field of zoology. Between the years 1934 and 1949, as a result of the thorough taxonomic studies of Prof. Dr. Curt Kosswig a German scientist who has been working at the Zoology Institute (a name, used during that period) and his students, collections have been enriched and also the zoology museum has reached an international standard. Besides the material that has been collected for scientific studies, there are also specimens which have been obtained from abroad or sent abroad and which don't belong to Turkish fauna. There are samples in the herpetological collection which date back to the years 1921-2016. While the list of herpetological collection was being prepared, the listing of all the samples that are found at our museum was compiled by studying the samples whose taxonomic status hasn't yet been determined. This Herpetological collection is being reported from Turkey for the first time within this study. Until now, only the list of fish collections which belong to İstanbul University Hydrobiology Museum (IUSHM) has been published in our country [1]. In other countries, some of the museums were published their herpetological collection [2, 3, 4, 5, 6]. Our purpose on publishing the herpetological collection list is to inform domestic and foreign scientist whose studies require the samples we have. Various publications have been published

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about the herpetofauna in our country. In 1944 an article on Turkey's herpetofaunal studies entitled "Introduction into the knowledge of the Amphibia and Reptilia of Turkey" was published by Bodenheimer [7] and followed by other publications about the herpetofauna of Anatolia and Thracea follows by Mertens [8], Baran and Atatür [9]. Although there are several publications on the herpetofauna of Turkey, majority of these papers lack the information about the collections or the samples' status of preservation. Because of that reason any study aimed to compare specimens with these previous studies fails to find comparison material easily.

1.1. The History of İstanbul University Zoology Museum

The Zoology museum's history dates back to the 1920s when education began in the field of zoology. At this time, most of the zoological materials were collected to support education. The Zoology Museum and the Institute of Zoology continued to develop in 1933 after the establishment of the republic in Turkey following the new regulations regarding universities and the politics of education. Andre Naville (1933 – 1937) and Prof. Dr. Curt Kosswig (1937 – 1947) were directors of Zoology Institute. At that time the academic staff and the collection of zoology museum were improved. In 1957 the upper floors of the building where the zoology museum was located, were destroyed due to the government decision, after that the collections of the zoology museum were stored in Muratpaşa Madrasah until a new biology building was completed. Most of the materials were damaged during the move. Despite the completion of a new building in 1973, the zoology museum was only able to be opened between 1985 – 1989. Some samples were used in our exhibition part of the museum but with no information about where and when they were found. Also in this section some invertebrates and birds which were kept at Yıldız Palace during the time of Sultan Abdülhamit are on display. Nowadays the museum can be found on the upper floor of the biology department in Beyazıt, İstanbul [10].

2. MATERIALS AND METHODS

Amphibian and reptile collections were examined in the Zoology Museum of İstanbul University (ZMUI). Materials were nominated with the classification of Başoğlu and Baran [11], Özeti and Yılmaz [12], Baran and Atatür [9], Sindaco [13], Sindaco et al. [14]. Localities and dates of each samples were noted using the original labels. These samples were subjected to redescription and revision. After they were studied, each species was transferred to new jars. 70 % ethyl alcohol or 10 % formalin was used for renewing chemicals in jars. Keeping the original label, a new label which is resistant to alcohol and formaldehyde was also prepared. A new museum number was given to each species, followed by the abbreviation of class name, year of study and numbers of each jar, although museum numbers were given formerly for some of the materials in the section of exhibition.

3. RESULTS

The Zoology Museum of İstanbul University (ZMUI) has the oldest materials collected most of them from Turkey. In this study, a total of 75 species of which 21 of them are Amphibia and 54 are Reptilia species are listed. Fourty – three of them having locality and date information are listed in (Table 1). Photos of some Amphibia and Reptilia species are given in Figure 1., Figure 2. and Figure 3.

Table 1. List of herpetological collection of Zoology Museum, Istanbul University (* Det. Bodenheimer, ♦ Det. Bodenheimer, Leg. Kosswig, ▲ Det. Bodenheimer, Leg. Hovasse, • Leg. Bodenheimer, Det. Bodenheimer).

Species	Museum Number and Locality
Class Amphibia Linnaeus, 1758	
Order Urodela Duméril, 1805	
Family Salamandridae Goldfuss, 1820	
<i>Lissotriton vulgaris</i> (Linnaeus, 1758)	Amp-13-001 (3 spc.), April 2012, İstanbul.
<i>Ommatotriton ophryticus</i> (Berthold, 1846)	Amp-14-001(5 spc.), 23.03.2014, Düzce.
<i>Triturus ivanbureschi</i> (Strauch, 1870)	Amp-13-002 (1 spc.), 1961, Jordan.
Order Anura Fischer von Waldheim, 1813	
Family Bombinatoridae Gray, 1831	
<i>Bombina bombina</i> (Linnaeus, 1761)	Amp-13-019 (1 spc.), 16.07.1985, Kırklareli.
Family Bufonidae Gray, 1825	
<i>Bufo bufo</i> (Linnaeus, 1758)	Amp-14-002 (3 spc.), March 2014, Düzce,
<i>Bufotes viridis</i> (Laurenti, 1768)	Amp-13-003 (2 spc.), August 1999, Edirne; Amp-13-004 (1 spc.) July 1999, Edirne.
<i>Bufotes variabilis</i> (Pallas, 1769)	Amp-13-005 (1 spc.), August 2010, Sivas; Amp-13-020 (9 spc.), 02.02.1966, Antalya; Amp-13-021 (2 spc.), 03.02.1966, Antalya; Amp-13-022 (1 spc.), 08.02.1966, Alanya.
Family Hylidae Rafinesque, 1815	
<i>Hyla orientalis</i> (Bedriaga, 1890)	Amp-13-023 (1 spc.), 12.04.1965, Balıkesir.
<i>Hyla savignyi</i> (Audouin, 1827)	09 – 182 (1 spc.), July 1939, Elazığ ♦.
Family Pelobatidae Lataste 1879	
<i>Pelobates syriacus</i> Boettger, 1889	Amp-13-024 (1 spc.), February 1972, Izmir.
Family Ranidae Rafinesque, 1814	
<i>Rana dalmatina</i> Bonaparte, 1840	Amp-13-017 (2 spc.), 22.12.1960, İstanbul; Amp-13-018 (16 spc.), 01.03.1961, İstanbul; Amp-13-006 (11 spc.), 01.06.1984, İstanbul; Amp-13-007 (1 spc.), 19.07.1961, Kırklareli; Amp-13-008 (2 spc.), 22.08.2012, İstanbul; Amp-13-037 (3 spc.), 18.07.1985, Kırklareli.
<i>Rana macrocnemis</i> Boulenger, 1885	Amp-13-016 (1 spc.), August 1941, Erziyes ♦ ; Amp-14-003 (3 spc.), 27.06.2014, Düzce.
<i>Pelophylax bedriagae</i> (Camerano, 1882)	Amp-13-025 (1 spc.), 31.01.1966, Antalya; Amp-13-026 (4 spc.), 01.02.1966, Antalya; Amp-13-027 (1 spc.), 04.02.1966, Antalya; Amp-13-028 (4 spc.), 04.02.1966, Alanya; Amp-13-029 (1 spc.), 06.02.1966, Alanya; Amp-13-030 (2 spc.), 08.02.1966, Alanya; Amp-13-031 (2 spc.), 08.02.1966, Antalya; Amp-13-032 (1 spc.), 14.02.1965, İzmir.
<i>Pelophylax ridibundus</i> (Pallas, 1771)	09 – 144 (1 spc.), July 1941, Konya*; Amp-13-009 (8 spc.), 19.07.1961, Kırklareli; Amp-13-033 (1 spc.), 12.04.1965, Balıkesir; Amp-13-034 (15 spc.), 15.04.1965, Balıkesir; Amp-13-035 (13 spc.), 23.04.1965, Balıkesir; Amp-13-036 (5 spc.), 23.04.1965, Balıkesir.
Class Reptilia Linnaeus, 1758	
Order Testudines	
Family Geoemydidae	
<i>Mauremys rivulata</i> (Valenciennes, 1833)	Rept-16-001(1 spc.), 26.05.2016, İstanbul.
Order Squamata Opper, 1811	
Family Agamidae Gray, 1827	
<i>Stellagama stellio</i> (Linnaeus, 1758)	Rept-13-001 (2 spc.), 1961, Jordon; Rept-13-056 (6 spc.), 01.02.1966, Antalya; Rept-13-057 (9 spc.), 07.02.1966, Alanya.

<i>Trapelus ruderatus</i> (Olivier, 1804)	Rept-13-037 (1 spc.), July 1941, Van *
Family Anguidae Gray, 1825	
<i>Anguis fragilis</i> Linnaeus, 1758	Rept-13-002 (1 spc.), 28.08.1980, Kastamonu; Rept-13-003 (3 spc.), March 1981, İstanbul; Rept-13-004 (1 spc.), 1.06.1984, İstanbul; Rept-13-005 (1 spc.), 21.04.2012, İstanbul.
Family Chamaeleonidae Hardwicke & Gray, 1828	
<i>Chamaeleo chamaeleon</i> (Linnaeus, 1758)	Rept-13-006 (2 spc.), 29.10.1960, İzmir.
Family Gekkonidae Bonaparte, 1831	
<i>Mediodactylus kotschyi</i> (Steindachner, 1870)	Rept-13-007 (1 spc.), 18.07.1985, Kırklareli.
<i>Hemidactylus turcicus</i> (Linnaeus, 1758)	Rept-13-008 (1 spc.), 3.07.1962, Kırklareli; Rept-13-009 (1 spc.), 2003, İzmir; Rept-13- 010 (1 spc.), 26.09.2011, İstanbul; Rept-13-011 (1 spc.), 3.01.2012, İstanbul; Rept-13-058 (1 spc.), 08.04.1973, İzmir.
Family Lacertidae Bonaparte, 1831	
<i>Darevskia saxicola</i> (Eversmann, 1834)	Rept-13-039 (2 spc.), July 1940, Trabzon.*
<i>Darevskia valentini</i> (Boettger, 1892)	Rept-13-016 (2 spc.), 2010, Sivas.
<i>Darevskia praticola</i> (Eversmann, 1834)	Rept-13-015 (1 spc.), 18.07.1985, Kırklareli.
<i>Lacerta agilis</i> Linnaeus, 1758	Rept-13-012 (1 spc.), 18.09.1979, Erzurum.
<i>Lacerta viridis</i> (Laurenti, 1768)	Rept-13-013 (2 spc.), 18.07.1985, Kırklareli.
<i>Lacerta trilineata</i> Bedriaga, 1886	Rept-16-002 (1 spc.), 06.04.2016, İstanbul.
<i>Ophisops elegans</i> (Menetries, 1832)	Rept-13-018 (1 spc.), 18.07.1985, Kırklareli; Rept-13-019 (15 spc.), 28.09.1971, İmbros.
<i>Parvilacerta parva</i> (Boulenger, 1887)	Rept-13-014 (1 spc.), 18.07.1985, Kırklareli.
<i>Podarcis muralis</i> (Laurenti, 1768)	Rept-13-021 (2 spc.), 18.07.1985, Kırklareli.
<i>Podarcis taurica</i> (Pallas, 1814)	Rept-13-023 (1 spc.), 23.10.2010, İstanbul.
<i>Podarcis siculus hierophylica</i>	Rept-13-042 (1 spc.), May 1940, Hayırsız Island.*
Family Scincidae Gray, 1825	
<i>Ablepharus kitaibelii</i> (Bibron – Bory, 1833)	Rept-13-024 (1 spc.), 17.06.2011, İstanbul.
<i>Trachylepis vittata</i> (Linnaeus, 1758)	Rept-13-025 (2 spc.), 1961, Jordan.
Suborder Ophidia Linnaeus, 1758	
Family Boidae Gray, 1825	
<i>Eryx jaculus</i> (Linnaeus, 1758)	09 – 117 (1 spc.), 1926, İstanbul *.
Family Colubridae Opperl, 1811	
<i>Dolichophis jugularis</i> (Linnaeus, 1758)	Rept-13-026 (1 spc.), 2003, İzmir.
<i>Platycephalus najadum</i> (Eichwald, 1831)	Rept-13-047 (1 spc.), 1960, Ağrı.
<i>Hemorrhhois ravergieri</i> (Ménétriés, 1832)	Rept-13-048 (1 spc.), 22.05.1966, Yalova.
<i>Zamenis longissimus</i> (Laurenti, 1768)	Rept-13-049 (1 spc.), November 1940, Trabzon*.
<i>Zamenis hohenackeri</i> (Strauch, 1873)	Rept-13-027 (1 spc.), 05.08.1966, Adana.
Family Natricidae Bonaparte, 1840	
<i>Natrix natrix</i> (Linnaeus, 1758)	Rept-13-028 (1 spc.), 27.05.1980, İstanbul; Rept-13-029 (1 spc.), 7.10.1996, Iğdır.
<i>Natrix tessellata</i> (Laurenti, 1768)	Rept-13-053 (1 spc.), July 1926, İstanbul*; 09 – 132 (1 spc.), July 1941, Kayseri * ; Rept-13-030 (1 spc.), 27.05.1980, İstanbul; Rept-13-031 (1 spc.), 04.05.2012, İstanbul.
Family Lamprophiidae Fitzinger, 1843	
<i>Malpolon monspessulanus</i> (Hermann, 1804)	Rept-13-054 (1 spc.), June 1921, İstanbul ▲.
Family Typhlopidae Merrem, 1820	
<i>Xerotyphlops vermicularis</i> (Merrem, 1820)	Rept-13-032 (1 spc.), 27.05.2009, Marmara Island; Rept-13-033 (1 spc.), 20.06.1984, İstanbul.

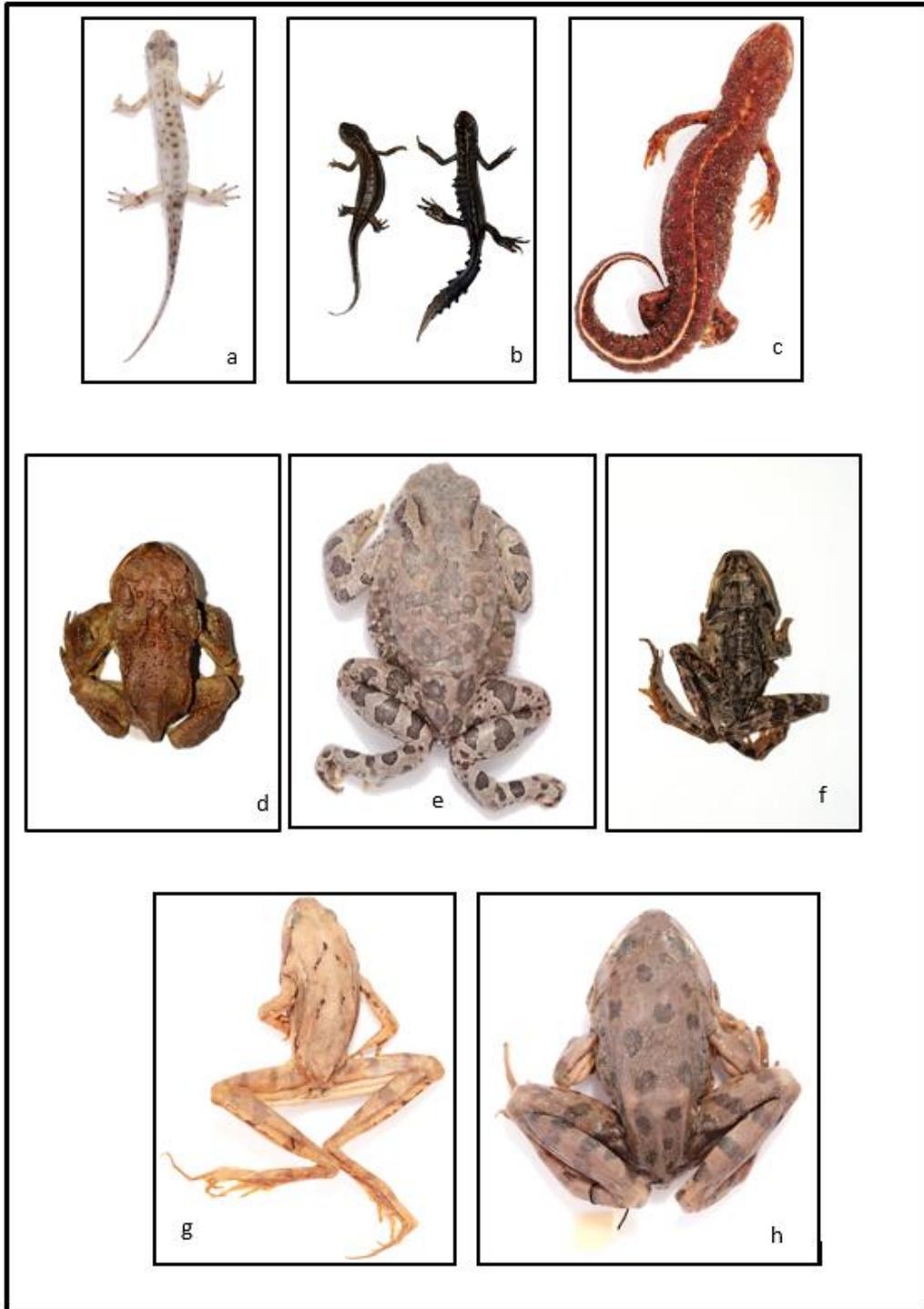


Figure 1. Photos of Amphibia species (a:*Lissotriton vulgaris*, b:*Ommatotriton ophryticus* (female,male), c:*Triturus ivanbureschi*, d:*Bufo bufo*, e:*Bufo viridis*, f:*Rana macrocnemis*, g:*Rana dalmatina*, h:*Pelophylax ridibundus*).

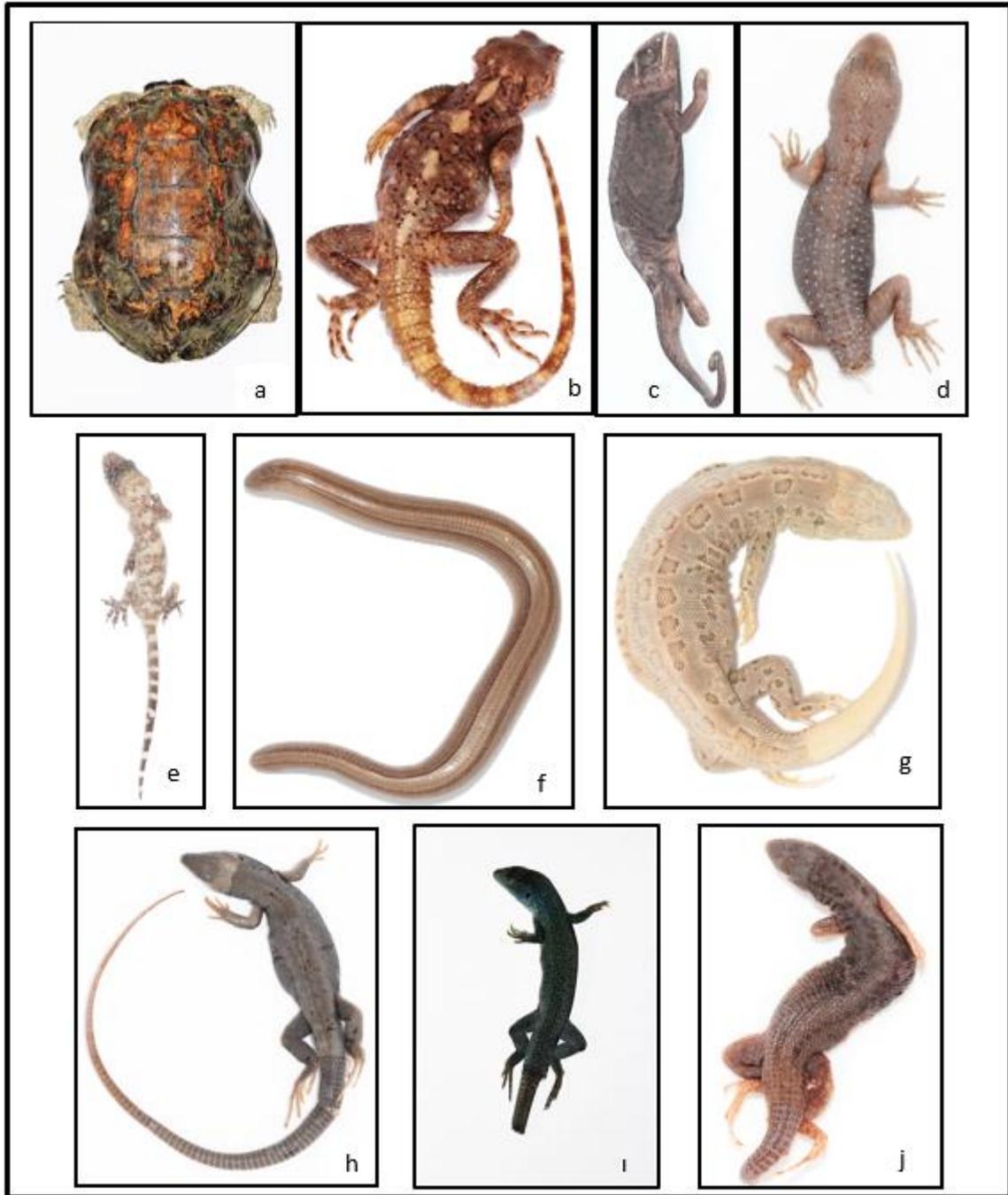


Figure 2. Photos of Reptilia species (a:*Mauremys rivulata*, b:*Stellagama stellio*, c:*Chamaeleo chamaeleon*, d:*Mediodactylus kotschy*, e:*Hemidactylus turcicus*, f:*Anguis fragilis*, g:*Lacerta agilis*, h:*Lacerta viridis*, i:*Lacerta trilineata*, i:*Parvilacerta parva*).

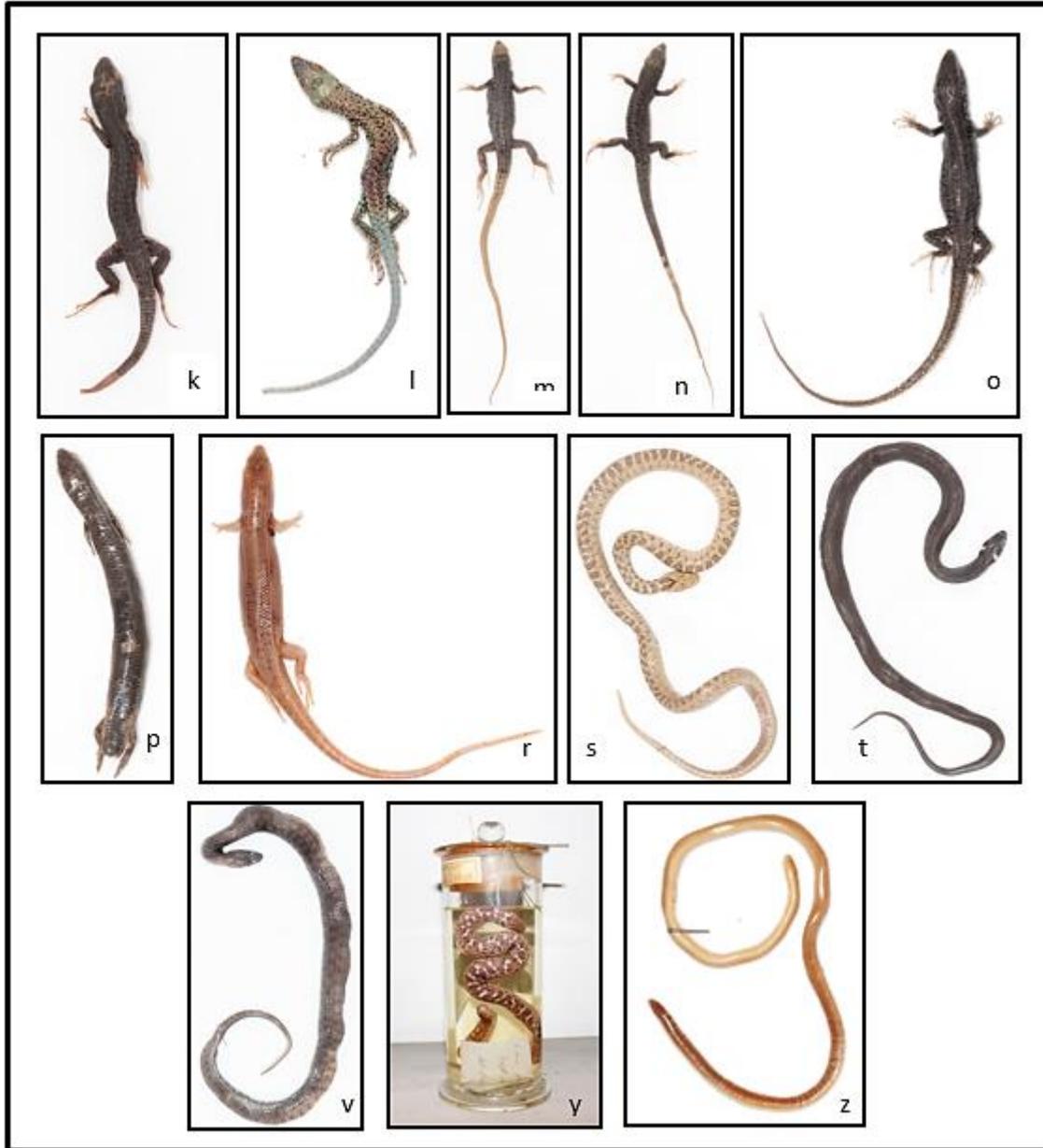


Figure 3. Photos of Reptilia species (k:*Darevskia praticola*, l:*Darevskia valentini*, m:*Ophisops elegans*, n:*Podarcis muralis*, o:*Podarcis taurica*, p:*Ablepharus kitaibelii*, r:*Trachylepis vittata*, s:*Zamenis hohenackeri*, t:*Natrix natrix*, v:*Natrix tessellata*, y:*Eryx jaculus*, z:*Xerotyphlops vermicularis*).

Samples that localities and dates are unknown are not listed in Table 1. These species include: *Eirenis modestus* (MARTIN, 1838), *Zamenis situla* (LINNAEUS, 1758), *Elaphe sauromates* (PALLAS, 1811), *Coronella austriaca* LAURENTI, 1768 which were determined and published by Bodenheimer [7]. *Mediodactylus heterocercus mardinensis* (MERTENS, 1924) (Gaziantep), *Elaphe sauromates* (PALLAS, 1814) (Diyarbakır), *Natrix tessellata vesseleri* WERNER, 1903 (Gaziantep) and *Vipera ammodytes* LINNAEUS, 1758 (İstanbul) which dates are unknown collected by Kosswig and determined by Bodenheimer. The others: *Mertensiella caucasica* (WAGA, 1876), *Chelonia mydas* (LINNAEUS, 1758), *Mauremys caspica* (GMELIN, 1774), *Emys orbicularis* (LINNAEUS, 1758),

Testudo graeca LINNAEUS, 1758, *Pseudopus apodus* (PALLAS, 1775), *Dolichophis caspius* (GMELIN, 1789), *Telescopus fallax* (FLEISCHMANN, 1831). And also the other species not from the Turkey's fauna with lacking information are not listed (*Ambystoma* sp., *Proteus anguinus* LAURENTI, 1768, *Necturus* sp., *Telmatobius culeus* (GARMAN, 1875), *Alytes obstetricans* (LAURENTI, 1768), *Pelobates fuscus* (LAURENTI, 1768), *Pelophylax esculentus* LINNAEUS, 1758, *Sphenodon punctatus* (GRAY, 1842), *Crocodylus niloticus* LAURENTI, 1768, *Crocodylus* sp., *Draco volans* LINNAEUS, 1758, *Chamaeleo africanus* LAURENTI, 1768, *Chalcides boulengeri* ANDERSON, 1892, *Scincus scincus* (LINNAEUS, 1758), *Python* sp.). With these species, the collection has reached 75 species.

Pholidosis and morphometric measurements of *Parvilacerta parva* (18.07.1985, Kırklareli) is recorded (Figure 2i.). Dorsal coloration is brown. Irregular dark spots line between parietal and hindleg. Occipital plates are present. Postnasal plates are two. Rostrale aren't connected to the nostril. Sublabial plates are eight. Four supralabial plates are in front of the subocular. The number of femoral openings are 12, transverse rows of ventralia are six. Number of subdigital lamella are 22. Body scales have pronounced longitudinal keels and number of mid trunk scales are 32. Morphometric measurements follows pileus width is 6,54 mm, pileus length is 10,01 mm, head width is 4,41 mm, head length is 10,26 mm, head and body length is 45,10 mm, foreleg length is 14,31 mm, hind leg length is 22,29 mm, distance length between foreleg and hind leg is 22,66 mm.

4. DISCUSSION

ZMUI herpetological collection contains 40 % of total known Amphibia species and 33 % of total known Reptilia species as regards the total herpetofauna of Turkey. The oldest sample of Turkey is a snake (*Malpolon monspessulanus* (HERMANN, 1804)) which was collected from Istanbul in 1921 by Prof. Dr. Raymond Hovasse. The most important sample in the collection is *Sphenodon punctatus*, which is the only survivor of a group of reptiles that died out along with the dinosaurs and native to New Zealand [15]. With this study, *Parvilacerta parva* (BOULENGER, 1887) (18.07.1985, Kırklareli, Turkey) recorded from province Kırklareli for the first time. There is no record from Kırklareli in Thrace region up the now. However, this species was recorded in province Tekirdağ (Thrace Region) previously [16].

5. CONCLUSION

Istanbul University Zoology Museum is the oldest zoology museum in Turkey, therefore it has the oldest and valuable collections. Most of the species in the museum were collected in Anatolia by the scientists and colleagues. Distribution of *Parvilacerta parva* specimen is known mainly central and eastern Anatolia [17]. This study shows that the species, which was previously recorded by Venchi ve Bologna (1996) in only Tekirdağ, have distribution in Kırklareli in Thrace. However, the species is not recorded in Thrace in recent studies.

This study is significant in that it provides the distribution data of amphibia and reptiles in Turkey from 1921 to nowadays. Also, it has constituted the basic data that enables the comparison of differences in species distribution in time.

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