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Herpetofauna of Kilis Province (Southeast Anatolia, Turkey)

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***Abstract.*—This study aims to determine the amphibian and reptile species distributed in Kilis province, southeast Anatolia, Turkey. A total of four amphibian and 33 reptile species were observed in this study, including one urodelan, three anuran, two chelonian, 16 lizard, and 15 snake species. Five species, *Hyla savignyi* (Audouin, 1829), *Pelophylax bedriagae* (Camerano, 1882), *Mauremys rivulata* (Valenciennes, 1833), *Ablepharus budaki* Göçmen, Kumlutaş, and Tosunoğlu, 1996, *Natrix tessellata* (Linnaeus, 1758), and *Chamaeleo chamaeleon* (Linnaeus, 1758) were recorded for the first time in Kilis province in the present study. The records and their locations are presented on a map, and in tabular form. In addition, the 12 chorotypes were determined for each of the 37 species.**

Keywords. Amphibia, Anura, biodiversity, Caudata, distribution, chorology, new provincial record, Reptilia, Squamata, Testudines

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Introduction

The flora and fauna of Turkey are highly diverse due to the various geographical features of the country (Ambarlı et al. 2016). Accordingly, the herpetofaunal biodiversity is also rich in Turkey (Başoğlu and Baran 1977, 1980; Baran and Atatür 1986; Başoğlu et al. 1994; Budak and Göçmen 2008). The herpetofauna of Turkey has been surveyed several times since the early 20th century (Venzmer 1922; Bird 1936; Bodenhimer 1944; Clark and Clark 1973; Başoğlu and Baran 1977, 1980; Baran and Atatür 1986; Başoğlu et al. 1994). Kilis province has the second smallest surface area of Turkey's provinces, and it was a district of Gaziantep province until 1995. Therefore, only limited research focusing on the herpetofauna of Kilis province had been carried previously (Baran 1977, 1978; Baran and Öz 1985; Mulder 1995; Franzen 2000; Göçmen at al. 2007; Akman and Göçmen 2014). Thirty-one species of herpetofauna have been reported by various studies from Kilis province so far (see references in Table 1).

The main chorotypes of the Anatolian herpetofauna are SW-Asiatic (22.5%), E-Mediterranean (17.1%), and Turano-Mediterranean (9%). The other chorotypes represented by lower percentages are: Mediterranean (4.5%), Centralasian-European and Cosmopolitan (2.7%), European, Saharo-Turano-Sindian, S-European, and introduced (1.8%), Afrotropico-Mediterranean (1%), Centralasian, Centralasiatic-Europeo-Mediterranean, Centralasiatic-Europeo-Mediterranean, Mediterraneo-Sindian, Saharo-Sahelo-Arabian, Saharo-Sahelo-Sindian, Sibero-European, Turanian, and Turano-Europeo-Mediterranean (0.9%). In addition, a relatively high percentage of the Anatolian species (25%) is endemic (Sindaco et al. 2000), underscoring the importance of understanding the herpetofaunal diversity in this region even for individual provinces.

The aim of this study is to provide a comprehensive and updated herpetofaunal inventory which reflects the full herpetological diversity of Kilis province in southeast Anatolia, Turkey.

Materials and Methods

Eight herpetological excursions (30 days in total) were conducted in Kilis province (1,444 km^2) in 2017 (February through May, and August) and 2018 (March and April) to determine the distributions of amphibian and reptile species. The project area covers 19 grid units, each about 10.8 x 13.9 km = 150.12 km^2 in size, and at least one site in each grid was investigated. The excursions were conducted in various habitats (e.g., wetlands, forests, steppes, dune, high mountains, settlements, and around agricultural areas). Observational studies were carried out in 192 localities, but the habitats within 1.5 km^2 were merged in order to show them on the map more

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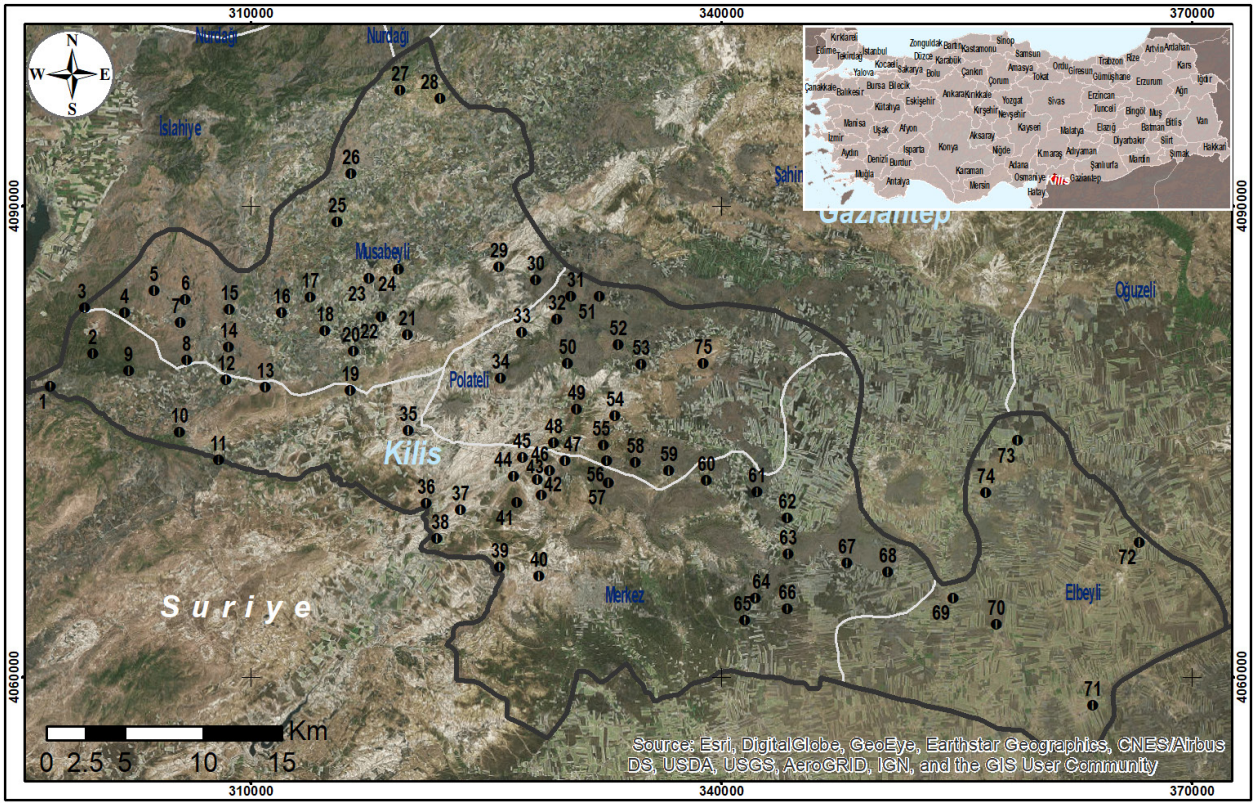

Fig. 1. Map of the sites where amphibians and reptiles were surveyed in the province of Kilis (Turkey). The numbering corresponds to the locality numbers and names in Table 1 and the Appendix. Black lines represent province borders, while white lines represent district borders.

clearly. A total of 75 localities between 371 m and 952 m asl (altitudinal range of Kilis province is 349–1,253 m) were surveyed during the eight excursions (Fig. 1). The geographical coordinates of the observed species were recorded using a geographical positioning device (Garmin Montana 650). Coordinates were recorded as latitude and longitude in decimal degrees and referenced to the World Geodetic System of 1984 (WGS84). The coordinates were deposited in the Noah's Ark Biodiversity Database (http://www.nuhungemisi.gov.tr, Republic of Turkey, Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and National Parks).

Amphibians and reptiles were identified during visual encounter surveys (VES) [Crump and Scott 1994] supplemented with turning over rocks, and some were caught by hand for a more detailed assessment. Amphibians were identified by VES, anuran calling surveys or collected using a scoop, when necessary. However, opportunistic records were also obtained (for example, while traveling on the way to the sites). Photographs of the individuals were taken in their habitats (Figs. 2–3). After examination and photographing, specimens were released at the same habitat where they had been collected.

The species were grouped into chorotype categories as proposed by Vigna Taglianti et al. (1999). In addition, the conservation status of the amphibian and reptile species was noted according to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 2018), the International Union for Conservation of Nature and Natural Resources (IUCN 2018), and the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 2018).

The results of these surveys were compared with the Jaccard Similarity Index (StatisticsHowTo, https://www.statisticshowto.com/) for the results of herpetological studies in four neighboring provincial areas (Hatay, Adana, Şanlıurfa, and Adıyaman provinces).

Results

Species are listed with their corresponding observed locality numbers, conservation status levels, and related references in Table 1. As a result of the literature search (which yielded 31 species) and the field surveys, a total of four amphibian species and 33 reptile species belonging to five orders and 18 families were recorded for Kilis province. Briefly, four species in four amphibian families; two species in two chelonian families; 16 species in five lizard families; and 15 species in seven snake families were identified. *Pelophylax bedriagae* (Camerano, 1882), *Hyla savignyi* (Audouin, 1829), *Mauremys rivulata* (Valenciennes, 1833), *Ablepharus budaki* Göçmen, Kumlutaş, and Tosunoğlu, 1996, *Chamaeleo chamaeleon* (Linnaeus, 1758), and *Natrix*

Table 1. List of amphibian and reptile species known to occur in Turkish province Kilis based on this study and bibliographic data, including conservation status, localities, and selected references for Kilis province records for each species. Abbreviations: IUCN (International Union for the Conservation of Nature and Natural Resources), Red list criteria (VU: Vulnerable, LC: Least Concern, DD: Data Deficient, NE: Not Evaluated); Bern Convention criteria (Appendix II: Strictly Protected Fauna Species; Appendix III: Protected Fauna Species); CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) criteria are limited to Appendix II, i.e., "species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled." The numbers of the record localities correspond to those in Fig. 1 and the Appendix.

Family	Species	BERN	IUCN	CITES	Record localities (in this survey)	References
Salamandridae	*Ommatotriton vittatus* (Gray, 1835)	III	LC	-	30, 49, 51, 56, 57	Franzen 2000; Franzen and Schmidtler 2000
Ranidae	*Pelophylax bedriagae* (Camerano, 1882)	III	LC	-	1, 3, 4, 7, 8, 9, 12, 15, 16, 18, 20, 22, 23, 24, 25, 29, 30, 33, 34, 35, 44, 48, 49, 50, 51, 52, 57, 58, 59, 60, 61, 62, 63, 64, 65, 69, 71	This study
Hylidae	*Hyla savignyi* (Audouin, 1829)	III	LC	-	3, 4, 7, 8, 12, 18, 24, 25, 33, 44, 48, 51, 52, 58, 59, 60, 61, 62, 64, 65, 69, 71, 73	This study
Bufonidae	*Bufotes variabilis* (Pallas, 1769)	III	DD	-	2, 3, 4, 5, 7, 8, 9, 12, 14, 16, 18, 19, 20, 22, 29, 30, 31, 36, 38, 42, 43, 44, 49, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 62, 63, 65, 69, 71	Tosunoğlu 1999
Geoemydidae	*Mauremys rivulata* (Valenciennes, 1833)	III	NE	-	4, 7, 8, 12, 18, 41, 48, 51, 52, 57, 58, 60, 61, 69, 70	This study
Testudinidae	*Testudo graeca* Linnaeus, 1758	II	VU	II	1, 2, 3, 5, 7, 8, 9, 25, 28, 30, 32, 42, 43, 47, 52, 54, 56, 57, 59, 61, 63, 65, 67, 68, 70, 71	Sindaco et al. 2000; Göçmen et al. 2007
Gekkonidae	*Hemidactylus turcicus* (Linnaeus, 1758)	III	LC	-	21, 26	Sindaco et al. 2000; Yıldız et al. 2007
	Mediodactylus heterocercus (Blanford, 1874)	III	LC	-	62	Göçmen et al. 2007; Uğurtaş et al. 2007; Sindaco et al. 2000
	Mediodactylus kotschyi (Steindachner, 1870)	II	LC	-	2, 21, 26, 51, 62, 63, 67	Sindaco et al. 2000
	Stenodactylus grandiceps Haas, 1952	III	LC	-	62, 63	Sindaco et al. 2000; Göçmen et al. 2007; Akman and Göçmen 2014
Agamidae	*Stellagama stellio* (Linnaeus, 1758)	II	LC	-	2, 3, 5, 7, 9, 13, 15, 17, 25, 29, 30, 33, 45, 47, 52, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66, 67, 68, 69, 7, 71, 75	Baran and Öz 1985; Mulder 1995; Sindaco et al. 2000; Göçmen et al. 2007
	Trapelus lessonae (De filippi, 1865)	III	LC	-	30, 35, 42, 64, 75	Sindaco et al. 2000

Table 1 (continued). List of amphibian and reptile species known to occur in Turkish province Kilis based on this study and bibliographic data, including conservation status, localities, and selected references for Kilis province records for each species. Abbreviations: IUCN (International Union for the Conservation of Nature and Natural Resources), Red list criteria (VU: Vulnerable, LC: Least Concern, DD: Data Deficient, NE: Not Evaluated); Bern Convention criteria (Appendix II: Strictly Protected Fauna Species; Appendix III: Protected Fauna Species); CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) criteria are limited to Appendix II, i.e., "species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled." The numbers of the record localities correspond to those in Fig. 1 and the Appendix.

Family	Species	BERN	IUCN	CITES	Record localities (in this survey)	References
Chamaeleonidae	*Chamaeleo chamaeleon* (Linnaeus, 1758)	II	LC	II	39	This study
Scincidae	*Ablepharus budaki* Göçmen, Kumlutaş, and Tosunoğlu, 1996	III	NE	-	7, 9	This study
	Ablepharus chernovi Darevsky, 1953	III	LC	-	47, 49	Baran 1977; Mulder 1995; Sindaco et al. 2000
	Chalcides ocellatus (Forskal, 1775)	II	NE	-	5, 45, 58, 59	Sindaco et al. 2000
	Eumeces schneideri (Daudin, 1802)	III	NE	-	8, 13, 45, 55, 71	Baran 1977; Sindaco et al. 2000; Göçmen et al. 2007; Kumlutaş et al. 2007; Ayaz et al. 2011
	Heremites auratus (Linnaeus, 1758)	III	LC	-	3, 21, 46, 52, 56, 59, 63, 67	Baran 1977; Sindaco et al. 2000; Göçmen et al. 2007
	Heremites vittatus (Olivier, 1804)	III	LC	-	1, 2, 3, 4, 5, 7, 11, 18, 19, 21, 24, 33, 37, 38, 46, 47, 49, 51, 52, 56, 57, 58, 59, 62, 63, 65, 67, 69, 70, 71, 75	Baran 1977; Sindaco et al. 2000
Lacertidae	*Apathya cappadocica* (Werner, 1902)	III	LC	-	2, 4, 5, 7, 8, 10, 12, 23, 30, 32, 33, 52, 53, 56, 57, 58, 59, 62, 63, 64, 67, 74, 75	Schmidtler and Bischoff 1995; Sindaco et al. 2000; Schmidtler 2002; Ilgaz et al. 2010; Göçmen et al. 2007
	Lacerta media Lantz and Cyrén, 1920	III	LC	-	33	Sindaco et al. 2000; Schmidtler 2002
	Ophisops elegans Ménétriés, 1832	II	NE	-	1, 2, 3, 4, 5, 7, 8, 9, 12,16, 17, 19, 20, 21, 22, 23, 24, 27, 28, 29, 32, 33, 34, 35, 35, 36, 38, 39, 40, 42, 43, 46, 47, 48, 49, 50, 52, 53, 54, 55, 56, 57, 58, 59, 62, 63, 64, 65, 67, 69, 70, 71, 72, 74, 75	Baran 1977; Sindaco et al. 2000; Schmidtler 2002
Typhlopidae	*Xerotyphlops vermicularis* (Merrem, 1820)	III	NE	-	2, 11, 33, 49, 63, 67, 70	Göçmen et al. 2007
Leptotyphlopidae	*Myriopholis macrorhyncha* (Jan, 1860)	III	NE	-	62	Göçmen et al. 2007; Göçmen et al. 2009

Table 1 (continued). List of amphibian and reptile species known to occur in Turkish province Kilis based on this study and bibliographic data, including conservation status, localities, and selected references for Kilis province records for each species. Abbreviations: IUCN (International Union for the Conservation of Nature and Natural Resources), Red list criteria (VU: Vulnerable, LC: Least Concern, DD: Data Deficient, NE: Not Evaluated); Bern Convention criteria (Appendix II: Strictly Protected Fauna Species; Appendix III: Protected Fauna Species); CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) criteria are limited to Appendix II, i.e., "species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled." The numbers of the record localities correspond to those in Fig. 1 and the Appendix.

Family	Species	BERN	IUCN	CITES	Record localities (in this survey)	References
Colubridae	*Dolichophis jugularis* (Linnaeus, 1758)	II	LC	-	3, 4, 6, 54, 62, 63, 71, 75	Sindaco et al. 2000
	Eirenis barani Schmidtler, 1988	III	LC	-	4	Avcı and Olgun 2015
	Eirenis decemlineatus (Duméril, Bibron, and Duméril, 1854)	III	LC	-	57	Sindaco et al. 2000
	Eirenis eiselti Schmidtler and Schmidtler, 1978	III	LC	-	70	Göçmen et al. 2007; Avcı and Olgun 2015; Göçmen et al. 2013; İğci et al. 2015
	Eirenis rothii Jan, 1863	III	LC	-	17, 49, 55, 57, 58, 59, 63, 70, 75	Baran 1978; Sindaco et al. 2000; Arıkan and Çiçek 2010
	Hemorrhois nummifer (Reuss, 1834)	III	NE	-	21	Sindaco et al. 2000
	Platyceps najadum (Eichwald, 1831)	II	LC	-	63, 71	Mulder 1995; Sindaco et al. 2000; Schätti et al. 2005; Göçmen et al. 2007
	Spalerosophis diadema (Schlegel, 1837)	III	NE	-	63, 71	Göçmen et al. 2009
	Telescopus nigriceps (Ahl, 1924)	III	LC	-	34, 62	Göçmen et al. 2007; Arıkan and Çiçek 2010
Natricidae	*Natrix tessellata* (Laurenti, 1768)	II	LC	-	29, 52, 58, 63	This study
Psammophiidae	*Malpolon insignitus* (Geoffroy de St-hilaire, 1809)	III	LC	-	4, 71	Sindaco et al. 2000
Elapidae	*Walterinnesia morgani* (Mocquard, 1905)	III	NE	-	62	Göçmen et al. 2009
Viperidae	*Macrovipera lebetina* (Linnaeus, 1758)	II	NE	-	21, 62, 63, 71	Kumlutaş et al. 2007

tessellata (Laurenti, 1768) were recorded for the first time in Kilis province. However, all of the species that were reported in the previous studies were also observed during the current field survey (Table 1).

The species of amphibians and reptiles determined in Kilis province were grouped into 12 chorotype categories. The SW-Asiatic chorotype (29.73%) was the dominant category that was represented by eleven species. The

Fig. 2. Some representative amphibians and reptiles from the province of Kilis. **(A)** *Pelophylax bedriagae*, **(B)** *Hyla savignyi*, **(C)** *Stenodactylus grandiceps*, **(D)** *Chamaeleo chamaeleon,* **(E)** *Mauremys rivulata,* **(F)** *Ablepharus budaki.*

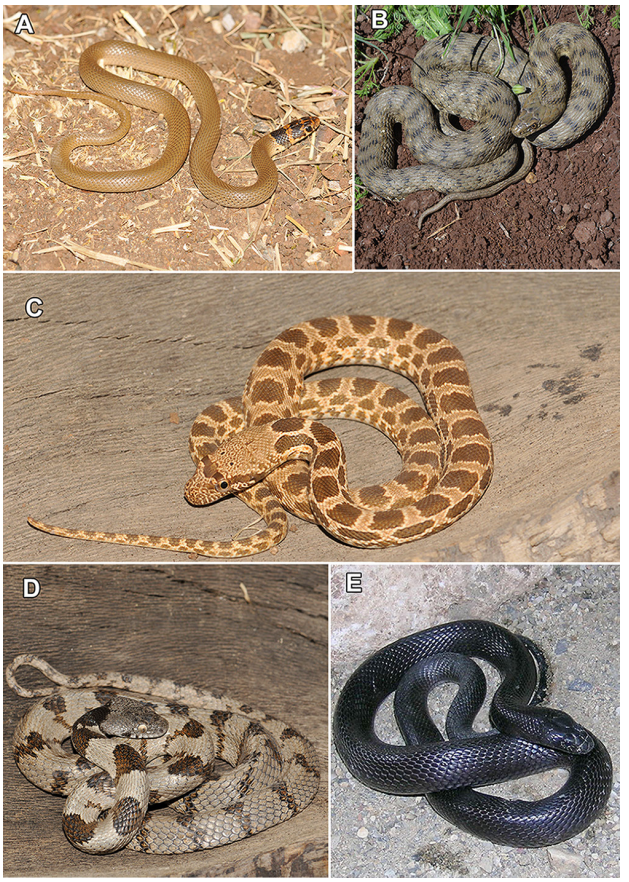

Fig. 3. Some representative snakes from the province of Kilis. **(A)** *Eirenis barani*, **(B)** *Natrix tessellata*, **(C)** *Spalerosophis diadema*, **(D)** *Telescopus nigriceps,* **(E)** *Walterinnesia morgani*.

Turano-Mediterranean (Turano-E-Mediterranean) (18.92%) chorotype was represented by seven species; E-Mediterranean chorotype (16.22%) has six species; Mediterranean chorotype (10.81%) has four species; Turano-Europeo-Mediterranean chorotype (5.41%) has two species; and the others were represented by one species each (Table 2).

There were no species endemic to Anatolia among the 37 herpetofauna species observed in Kilis province. According to the IUCN Red List data (http://www.iucnredlist.org), *Testudo graeca* Linnaeus, 1758 is categorized as Vulnerable (VU) and *Bufotes variabilis* (Pallas, 1769) is categorized as Data Deficient (DD). Of the remaining species, 24 were categorized as Least Concern (LC) and eleven were not evaluated by IUCN (Table 1). All of the 37 species are under protection according to the BERN convention appendices II (10 species) or III (27 species) [http://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/104]. However, only two species, *Chamaeleo chamaeleon* (Linnaeus, 1758) and *T. gracea*, are under protection according to CITES Appendix II (http://www.cites.org).

According to the Jaccard Similarity Index, similarity ratios between Kilis-Şanlıurfa, Kilis-Hatay, Kilis-Adıyaman, and Kilis-Adana are calculated as 0.54, 0.52, 0.51, and 0.45, respectively.

Discussion

The Republic of Turkey Ministry of Forestry and Water Affairs, General Directorate of Nature Conservation and Natural Parks had initiated an effort to determine the province-based biodiversity of Turkey in 2013. As a result of these biodiversity projects, the numbers of amphibian and reptile species reported were: 56 from the province of Adana (Sarıkaya et al. 2017), 24 from the province of Karabük (Kumlutaş et al. 2017), 23 from the provinces of Tunceli (Avcı et al. 2018) and Bartın (Çakmak et al. 2017), 35 from the province of Ağrı (Yıldız et al. 2018), and 36 from the province of Bitlis (Akman et al. 2018). From Kilis province 31 species were reported by the previous studies (for all references in Table 1). However, in this study, six additional species are recorded from Kilis province for the first time. Although Kilis is the second smallest province, based on the surface area, it has more species than many of the other larger provinces of Turkey.

Pseudopus apodus (Pallas, 1775) is common in Hatay (Yıldız et al. 2019), Adana (Sarıkaya et al. 2017) and

Table 2. The chorotype classification of the amphibian and reptile species in Kilis province, Turkey.

Chorotypes	Amphibia	Reptilia	%	Species
SW-Asiatic	1	10	29.73	*Hyla savignyi, Heremites auratus, Telescopus nigriceps, Walterinnesia morgani, Eumeces schneideri, Dolichophis jugularis, Lacerta media, Trapelus lessonae, Eirenis eiselti, Apathya cappadocica, Stenodactylus grandiceps*
E-Mediterranean		6	16.22	*Ophisops elegans, Stellagama stellio, Ablepharus budaki, Eirenis decemlineatus, E. rothii, Mediodactylus kotschyi*
Turano-Mediterranean (Turano-E-Mediterranean)	1	6	18.92	*Mauremys rivulata, Hemorrhois nummifer, Testudo graeca, Ommatotriton vittatus, Macrovipera lebetina, Platyceps najadum, Xerotyphlops vermicularis*
Mediterranean		4	10.81	*Chamaeleo chamaeleon, Heremites vittatus, Malpolon insignitus, Hemidactylus turcicus*
Turano-Europeo-Mediterranean	2		5.41	*Bufotes variabilis, Pelophylax ridibundus*
Armeno-E-Anatolian Endemic		1	2.70	*Ablepharus chernovi*
Centralasiatic-European		1	2.70	*Natrix tessellata*
Mediterraneo-Sindian		1	2.70	*Chalcides ocellatus*
N-Mesopotamian endemic		1	2.70	*Mediodactylus heterocercus*
Palearctic and Afrotropical (Saharo-Sahelo-Sindian)		1	2.70	*Myriopholis macrorhyncha*
Saharo-Turano-Sindian		1	2.70	*Spalerosophis diadema*
S-Anatolian (Taurian) endemic		1	2.70	*Eirenis barani*

Osmaniye (Sindaco et al. 2000) provinces but it was not observed during the present study. Göçmen et al. (2009) reported *Platyceps collaris* (Müller, 1878) as a sympatric species of *Myriopholis macrorhyncha* from Küplüce village. The museum specimen was re-examined and it is clear that *Platyceps najadum* was misdiagnosed. Therefore, *P. apodus* and *P. collaris* were not added to the current species list.

The research area is under the influence of the Mediterranean climate. In the chorotype analysis, the abundance of species of Mediterranean origin (51.36% as the sum of E-Mediterranean, Turano-Mediterranean, Mediterranean, and Turano-Europeo-Mediterranean) is reasonable (Table 2). Kilis province is located between Şanlıurfa in the east and Hatay in the west, so it is not surprising that the Jaccard Similarity Index shows the herpetofauna species of Kilis province as similar to Şanlıurfa (Yıldız et al. 2013) and Hatay (Yıldız et al. 2016) species inventories, at 54% and 52%, respectively. Adana province is next to Hatay province and Adıyaman province is next to Şanlıurfa province; and the species list of the survey areas in Kilis is also similar to the Adıyaman (Sami et al. 2015) and Adana (Sarıkaya et al. 2017) species inventories, at 51% and 45%, respectively. However, Adana and Hatay are in the Mediterranean region, while Şanlıurfa and Adıyaman are in the Southeast Anatolia region. As a result, the species in the Kilis inventory consists of a combination of the species in the Mediterranean and South eastern regions of Anatolia. For example, *Stenodactylus grandiceps* Haas, 1952 is distributed in Syria, Iraq, Jordan, the North of Saudi Arabia, and the Southeast of Turkey (Akman and Göçmen 2014). However, *Stenodactylus grandiceps* is a rare species only known from a small habitat between Gaziantep and Kilis provinces (Akman and Göçmen 2014), so the Kilis locality is the northernmost locality of its distribution. The southern part of Kilis province has a low elevation that increases from south to north.

Therefore, elevation may be a geographical barrier for the southern species. Similarly, *Walterinnesia morgani* and *Telescopus nigriceps* are only known in the Kilis and Şanlıurfa provinces in Anatolia (Göçmen et al. 2007, 2009). The high elevation and related ecological conditions may affect the distribution of southern species to the northern areas.

Conclusions

The present study recorded 37 species of herpetofauna, with six new provincial records for Kilis province. However, the distributions of some species are confirmed and many different localities in the province of Kilis were recorded with this study. This updated inventory provides useful information for further species conservation and monitoring studies for the diverse herpetofauna of Turkey.

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APPENDIX

Localities in Kilis province where amphibian and reptile species were observed during the surveys in this study. The numbers correspond to the those in Fig. 1 and Table 1.

Locality Number	Date	Province	District	Village	Altitude (m)
1	14 Apr 2017	Kilis	Kilis Centrum	Deliosman	456
2	12 May 2017	Kilis	Kilis Centrum	Demirciler	657
3	18 Mar 2017	Kilis	Kilis Centrum	Topallar	642
4	4 Apr 2018	Kilis	Kilis Centrum	Topallar	720
5	4 Apr 2018	Kilis	Kilis Centrum	Topallar	849
6	10 Mar 2017	Kilis	Musabeyli	Hasancalı	798
7	18 Mar 2017	Kilis	Kilis Centrum	Üçevler	716
8	12 May 2017	Kilis	Kilis Centrum	Yedigöz	600
9	12 May 2017	Kilis	Kilis Centrum	Gülbaba	749
10	14 Apr 2017	Kilis	Kilis Centrum	Bulamaçlı	904
11	14 Apr 2017	Kilis	Kilis Centrum	Mağaracık	621
12	18 Mar 2017	Kilis	Kilis Centrum	Gözkaya	554
13	12 May 2017	Kilis	Kilis Centrum	Boğazkırım	537
14	10 Mar 2017	Kilis	Kilis Centrum	Yedigöz	701
15	24 Feb 2017	Kilis	Kilis Centrum	Yedigöz	696
16	24 Feb 2017	Kilis	Musabeyli	Hacılar	546
17	25 Aug 2017	Kilis	Musabeyli	Murathüyüğü	705
18	30 Mar 2018	Kilis	Musabeyli	Fırlaklı	649
19	10 Mar 2018	Kilis	Kilis Centrum	Elberen	703
20	24 Feb 2017	Kilis	Musabeyli	Üçpınar	541
21	25 Aug 2017	Kilis	Kilis Centrum	Yuvabaşı	685
22	17 Mar 2017	Kilis	Kilis Centrum	Karbeyaz	612
23	24 Feb 2017	Kilis	Musabeyli	Kurtaran	623
24	30 Mar 2018	Kilis	Musabeyli	Kurtaran	774

Appendix (contiued). Localities in Kilis province where amphibian and reptile species were observed during the surveys in this study. The numbers correspond to the those in Fig. 1 and Table 1.

Locality Number	Date	Province	District	Village	Altitude (m)
25	2 Apr 2018	Kilis	Musabeyli	Hüseyinoğlu	882
26	25 Aug 2017	Kilis	Musabeyli	Ortaoba	952
27	17 Mar 2017	Kilis	Musabeyli	Bozkaya	918
28	17 Mar 2017	Kilis	Musabeyli	Çınarköy	834
29	30 Mar 2018	Kilis	Musabeyli	Aşağıkalecik	522
30	2 Apr 2018	Kilis	Musabeyli	Yeşiloba	732
31	2 Apr 2018	Kilis	Polateli	Yeşilpınar	881
32	30 Mar 2018	Kilis	Musabeyli	Belenözü	876
33	30 Mar 2018	Kilis	Musabeyli	Belenözü	612
34	30 Mar 2018	Kilis	Kilis Centrum	Bağarası	640
35	25 Aug 2017	Kilis	Kilis Centrum	Tekdam	416
36	14 Apr 2017	Kilis	Kilis Centrum	Aybastı	371
37	24 Feb 2017	Kilis	Kilis Centrum	Aybastı	454
38	14 Apr 2017	Kilis	Kilis Centrum	Akdilek	397
39	14 Apr 2017	Kilis	Kilis Centrum	Doğançay	582
40	13 Apr 2017	Kilis	Kilis Centrum	Tahtalı	655
41	13 Apr 2017	Kilis	Kilis Centrum	Kuzuini	583
42	16 Mar 2017	Kilis	Kilis Centrum	Kuzuini	744
43	9 Mar 2017	Kilis	Kilis Centrum	Kuzuini	602
44	2 Apr 2018	Kilis	Kilis Centrum	Yamaç Beşenli	496
45	13 Apr 2017	Kilis	Kilis Centrum	Yukarı Beşenli	556
46	13 May 2017	Kilis	Kilis Centrum	Çakkallıpınar	661
47	13 May 2017	Kilis	Kilis Centrum	Çakkallıpınar	680
48	9 Mar 2018	Kilis	Kilis Centrum	Eğlen	569
49	15 Apr 2017	Kilis	Polateli	Ürünlü	633
50	10 Mar 2017	Kilis	Polateli	Ürünlü	746
51	26 Aug 2017	Kilis	Polateli	Yeşilpınar	862
52	2 Apr 2018	Kilis	Polateli	Şehit Ali	820
53	18 Mar 2017	Kilis	Polateli	Şehit Ali	827
54	2 Apr 2018	Kilis	Polateli	Söğütlü	806
55	13 May 2017	Kilis	Polateli	Kızılgöl	792
56	1 Apr 2018	Kilis	Kilis Centrum	Yeniyurt	875
57	1 Apr 2018	Kilis	Kilis Centrum	Başmağara	935
58	1 Apr 2018	Kilis	Kilis Centrum	Karacurun	880
59	2 Apr 2018	Kilis	Kilis Centrum	Polatbey	771
60	1 Apr 2018	Kilis	Kilis Centrum	Alatepe	699
61	5 Apr 2018	Kilis	Kilis Centrum	Küçükkonak	645
62	16 Mar 2017	Kilis	Kilis Centrum	Küplüce	591
63	29 Mar 2018	Kilis	Kilis Centrum	Küplüce	622
64	31 Mar 2018	Kilis	Kilis Centrum	Kapdeğirmeni	538
65	14 May 2017	Kilis	Kilis Centrum	Kapdeğirmeni	526
66	14 May 2017	Kilis	Kilis Centrum	Karacaören	566
67	31 Mar 2018	Kilis	Kilis Centrum	Göktaş	591

Appendix (contiued). Localities in Kilis province where amphibian and reptile species were observed during the surveys in this study. The numbers correspond to the those in Fig. 1 and Table 1.

Locality Number	Date	Province	District	Village	Altitude (m)
68	14 May 2017	Kilis	Kilis Centrum	Bozcayazı	585
69	11 Mar 2018	Kilis	Elbeyli	Solak	525
70	31 Mar 2018	Kilis	Elbeyli	Taşlıbakar	532
71	14 Apr 2017	Kilis	Elbeyli	Doğan	522
72	23 Feb 2017	Kilis	Elbeyli	Selmincik	635
73	23 Feb 2017	Kilis	Elbeyli	Akçağıl	629
74	23 Feb 2017	Kilis	Elbeyli	Kılcan	625
75	13 May 2017	Kilis	Polateli	Ömeroğlu	850