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Results of the Herpetological Trips to Northern Cyprus

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Abstract. During the three trips conducted to Northern Cyprus in 2007, we found that three frog and toad species (Anura), 11 lizards (Lacertilia), 3 turtles (Testudinata) and 9 snakes (Ophidia) inhabit the northern part of the Cyprus Island. The distributions of a total of 26 reptile and amphibian species were observed and some ecological information on their biotopes was summarized, and the taxonomic states of some of the species determined discussed.

Key Words: Northern Cyprus, herpetofauna, snakes, lizards

Cyprus, with 9251 km² area, is the third largest island after Sicily and Sardinia in the Mediterranean Sea. It is located in 34°33′-35°42′ northern latitudes and 32°16′-34°36′ eastern longitudes. Distance between the east point Cape Andreas and the west point Paphos harbour is 225 km. Karpaz peninsula; starting from east of Iskele becomes narrower towards to north-east, ends with Zafer Burnu (the Cape Andreas), which is the narrowest point of the island. The neighbours of Cyprus are Turkey, 70 kilometres away from north, Syria and Lebanon, 102 kilometres and kilometres away from respectively, Egypt, 232 kilometres away south-east and Greece, kilometres away from north-west. North

part of the island has a mountain chain which is called Pentadactylos, made of mesozoic calcareous rocks, runs in eastwest direction and has the highest point at 1023 meters. South part of the island has another complex mountain chain, Troodos Mountains, mostly made of magmatic rocks, with a maximum height of 1998 meters. Mesaoria plain and some small lowlands which are between the two mountain chains run from Güzelyurt (Morphou) Bay in the west to Famagusta bay in the east and mostly made of Neogenic calcareous rocks, have a height of 210 meters. The locations of mountains cause considerable temperature differrences between the coasts and inner regions of the island.

Cyprus has the Mediterranean climate which is warm and rainy in winter and hot and dry in summer. Rain falls are rare and only occur in winter in plain areas (İlseven et al. 2006). Cyprus has three different vegetation zones due to its topography. These are Pentadactylos Mountains vegetation (that zone includes; Pinus brutia, Cupressus sempervirens and Juniperus sp. forests), Inner zone vegetation (that includes; maquis: which comprise of Pistacia lentiscus, Laurus nobilis, Myrtus communis, Arbutus andrachne and Ceratonia siliqua. Garique: Calycotome villosa) and Troodos Mountains Vegetation Zone (that includes; Pinus brutia, P. nigra forests and this zone also has some endemic tree species: Quercus alnifolia and Cedrus brevifolia).

Earlier attempts on the herpetofauna of Cyprus were done by Boettger (1880), and Boulenger (1887), the latter with a list which concerned the following species; Ophisops schlueteri, Eumeces schneiderii, Chalcides ocellatus, Chamaeleo vulgaris, Typhlops vermicularis, Tropidonotus natrix, Zamenis atrovirens, Zamenis ravergieri, Caelopeltis lacertina, Vipera euphratica, Rana esculenta var. ridibunda and Hyla arborea var. savignyi. After that he published another list in 1888, which include some species not mentioned in his first list (Clemmys caspica var. rivulata, Gymnodactylus kotschyi, Hemidactylus turcicus, Mabuya vittata, Ablepharus pannonicus and Bufo viridis). After Boulenger (1887 & 1888), many authors (Cecconi 1899, Werner 1936, Daan 1967, Zinner 1972, Schmidtler 1984, Schätti 1985, Demetropoulos & Lambert 1986, Lambert 1987, Osenegg 1989, Schätti &

Sigg 1989, Schätti & Sigg 1989, Tosunoglu et al. 1999, Böhme & Wiedl 1994, Budak & Göçmen 1995, Göçmen & Böhme 2002, Göçmen et al. 1996a, b, 2002, 2008, Ziegler 1997, Atatür & Göçmen 2001) studied the Cyprus herpetofauna in detail and established the present status of the Cyprus herpetofauna. According to Atatür and Göcmen (2001),herpetofauna of Cyprus is represented by three amphibian and twenty four reptile species. One of the lizards (Phoenicolacerta troodica) and one of the snake species (Hierophis cypriensis) are endemic to the island. The biodiversity of island fauna isn't rich as much as the mainland's but endemism shows a great variability because of the isolation, gene frequency loses its stability so genetic differentiation occurs at the end. In addition to the two endemic species, there are also some endemic subspecies [Cyrtopodion (Mediodactylus) kotschyi fitzingeri, **Ophisops** elegans schlueteri, Eumeces schneiderii ssp., Laudakia stellio cypriaca, Macrovipera Dolichophis jugularis lebetina lebetina, cypriacus, Telescopus fallax cyprianus and cypriaca]. Natrix natrix Geological formation of the island depends on three geologic time periods. Firstly, Troodos Mountains started to originate in Palaeozoic as a single island, and then Pentadactylos Mountains started to take shape as another island in the Mesosoic, then during Cenozoic, by means of sea level changes, Mesaoria plain took its last shape and formed the island as it is today. Cyprus is considered to have been isolated from the surrounding Anatolian mainland for around 5 Mya Bp. This isolation had a crucial role in forming the present day herpetofauna of Cyprus and may be the major factor for endemic reptile races. All those taxa stated before are peripherally isolated from their mainland ancestors as long as 5 Mya. Because no anthropogenic arrival of these races to Cyprus is evident and before conducting a phylogenetic analysis of present surrounding mainland and island lineages of these fauna, we tentatively proposed that these Cypriot lineages could be taken as separate species (Göçmen et al. 2008). The twoisland origin of Cyprus mentioned by Böhme & Wiedl (1992) and Göçmen et al. (2008) may help to explain the presence of the only endemic species, Hierophis cypriensis, in only Southern Cyprus (i.e. Troodos island) while Platyceps najadum (Göçmen et al. 1996) and Natrix tessellata (Göçmen and Böhme, 2002) are found only in Northern Cyprus (i.e. Kyrenia island) and also on the mainland. The obtained data during our trips conducted in 2007 support the findings of Göçmen et al. (2008).

In 2007, We conducted three trips to Northern Cyprus during the dates between the 30th March-8th April, the April 22nd-May 7th and the September 15th-28th. Amongst the intensively surveyed exact localities were Yeşilırmak [1], Yeşilyurt [2], Taşpınar [3], Gönyeli [4], Kambyli [5], Kornos (Selvili Tepe)-Lapithos [6], Güzelyalı [7], Kormacit [8], Alagadi Turtle Beach [9], Esentepe [10], Tatlısu [11], Asidere stream (Nicosia) [12], Çayırova (Famagusta) [13], Golden Beach (Altınkum)- Karpaz peninsula [14] and Zafer Burnu-Karpaz peninsula [15] (Fig.1, Tab.1).

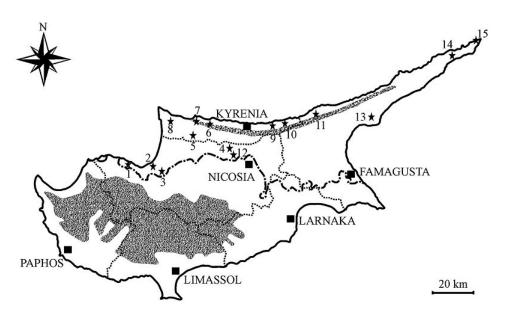


Figure 1. Map showing the localities which were surveyed during our trips in 2007 (The interpretations of used numbers are given in the text).

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Table 1. The taxa observed during the trips in 2007 according to the intensively surveyed localities (The explanations of the locality numbers are given in the text).

Taxa known from Cyprus	Localities of the observed taxa														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1) Bufo viridis ssp. Laurenti, 1768	+			+	+	+	+	+		+		+	+		
2) Hyla savignyi Audoin, 1827	+	+	+	+	+	+	+	+		+		+	+		
3) Rana bedriagae Pallas, 1771		+	+	+	+	+	+	+		+		+			
4) Mauremys rivulata Valenciennes, 1833				+								+			
5) Caretta caretta Linnaeus, 1758							+		+					+	
6) Chelonia mydas Linnaeus, 1758									+					+	
7) Cyrtopodion kotschyi fitzingeri (Stepanek, 1837)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
8) Hemidactylus turcicus turcicus L., 1758	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
9) Laudakia stellio cypriaca (Daan, 1967)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
10) Chamaeleo chamaeleon recticrista Boettger, 1880	+	+		+		+	+			+				+	
11) Acanthodactylus schreiberi schreiberi Boulenger, 1879		+		+	+		+	+	+	+				+	+
12) Phoenicolacerta troodica (Werner, 1936)	+	+		+		+	+			+	+				+
13) Ophisops elegans schlueteri Boettger, 1880	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14) Ablepharus budaki budaki Göçmen et al., 1996	+	+	+	+		+	+			+	+		+		
15) Chalcides ocellatus ocellatus (Forsskal, 1775)	+	+	+	+	+		+	+	+	+	+		+	+	+
16) Eumesces schneiderii ssp. Daudin, 1802				+									+		
17) Trachylepis vittata (Olivier, 1804)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
18) Typhlops vermicularis Merrem, 1820				+									+		
19) Dolicophis jugularis cypriacus (Zinner, 1972)	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
20) Hierophis cypriensis (Schätti, 1985)															
21) Platyceps najadum (Eichwald, 1831)						+									
22) Hemorrhois nummifer (Reuss, 1834)			+	+		+								+	
23) Eirenis levantinus Schmidtler, 1993 (=E. modestus)						+									
24) Natrix natrix cypriaca (Hecht, 1930)															
25) Natrix tessellata (Laurenti, 1768)				+											
26) Telescopus fallax cyprianus (Barbour-Amaral, 1927)				+	+								+	+	+
27) Malpolon monspessulanus insignitus (Geoffroy Saint-Hilaire, 1827)	+			+	+								+	+	+
28) Macrovipera lebetina lebetina L., 1758		+	+	+	+	+	+	+				+		+	+

A river bed with a rocky habitat was the research area in Yeşilırmak (Fig.2). Most conspicuous plants were

Dittrichia viscosa, Pistacia lentiscus and Ceratonia siliqua. The weather was sunny and warm. We observed Hemidactylus

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turcicus turcicus, and C. k. fitzingeri under stones and P. troodica, O. e. schlueteri, Ablepharus budaki budaki, Chamaeleo chameleon, D. j. cypriacus, and a Malpolon monspessulanus insignitus sloughs were observed in the area.

In Taşpınar, a hill with sparse vegetation that included mainly *Sarcopoterium spinosum*, *Thymus capitatus*, *Asphodelus aestivus* and *Asparagus stipularis* was studied. The weather was cloudy and warm. We observed *H. t. turcicus*, and *C. k. fitzingeri* under stones and *L. s. cypriaca*, *A. b. budaki* and *O. e. schlueteri* were the other species that had been seen.

Ateştepe is a hill having a very low elevation of about 205 m near the Gönyeli Lakelet. Top of the hill had sparse vegetation which consisted of only T. capitatus, S. spinosum and A. stipularis but the sides near to the wetland had a denser plant population with Arundo donax, Typha domingensis and Dittrichia viscosa. The weather was sunny and hot (Fig.3). We observed Telescopus fallax cyprianus, H. t. turcicus, and C. k. fitzingeri under the stones and B. viridis ssp., Rana bedriagae, Hyla savignyi, Chalcides ocellatus Acanthodactylus ocellatus, schreiberi schreiberi, Trachylepis vittata, E. schneiderii ssp., O. e. schlueteri, A. b. budaki, L. s. cypriaca, T. vermicularis, D. j. cypriacus, Hemorhois nummifer, Natrix tessellata, T. f. cyprianus, M. m. insignitus were also observed. Hidden B. viridis specimens were seen under most of D. viscosa plants.

On the occurrence of the Dice Snake, *Natrix tessellata* in Cyprus, up to date there were only two juveniles collected in 1960 in Northern Cyprus and

herpetological recovered in the collection of the Zoological Department of Ege University, Izmir (Göçmen & Böhme 2002). These two specimens were labeled as being from "Gönyeli Lakelet" near Nicosia. The rediscovery of a living adult specimen at this locality by us during our intensive surveying reconfirm the presence of a relict N. population tessellata in Cyprus (Göçmen, Kaşot & Böhme, in prep).

Asidere stream is located in Nicosia, capital of Cyprus, running along the city and connects with Kanlıdere near Hamitköy and forms the Pedios stream system (Fig.4). Only a small part of the stream was searched at night time. Typha domingensis, Asphodelus aestivus, Asparagus stipularis and Prosopis farcta were the mostly seen plants in the habitat. B. viridis ssp., R. bedriagae, H. savignyi, D. j. cypriacus and Mauremys rivulata were observed.

The area between the Kambyli and Asomatos villages is a rocky hillside with sparse vegetation (Fig.5), mostly consisting of *Sarcopoterium spinosum*, *Thymus capitatus*, *Daucus aureus*, and *Pistacia lentiscus*. Our surveying in this area was conducted at midday and weather was sunny and warm. We observed *B. viridis* ssp., *H. t. turcicus*, *C. k. fitzingeri*, and *T. f. cyprianus* under stones and *O. e. schlueteri*, and a juvenile *D. j. cypriacus*. An endemic scorpion species, *Mesobuthus cyprius* Gantenbein et al. 2000, also was observed under the stones.

Çayırova is largely a farmland area. Especially hilly areas were searched. Weather was sunny and warm. Although natural vegetation wasn't

dense, some pine trees were artificially planted. Mostly *Pistacia lentiscus* and *Calycotome villosa* and a rare orchid *Orchis italica* were seen. *B. viridis* ssp., *C. k. fitzingeri*, *H. t. turcicus*, *A. b. budaki* and *T. f. cyprianus* were observed. Although the habitat was suitable for *E. schneiderii* ssp., only an elder male specimen was seen but we could not

catch it. The big-sized specimen seemed to hide itself under the Lotus tree ("Gonnoro" shrub), *Ziziphus lotus* (Fig.6). This species was recorded as a "very rare" skink in Cyprus by Göçmen *et al.* (2002). Our double observation on this species during our trip confirmed this situation.



Figures 2.-6.



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Fig.2: A general view of a biotope from Yeşilırmak (Nicosia district).
Fig.3: A general aspect of the biotope from the Gönyeli lakelet and its vicinity.
Fig.4: A view of the Asidere stream (Nicosia) where we detected the hydrophilic herptiles of Northern Cyprus.
Fig5: A general view from the area between the Kambyli and Asomatos villages showing the general structure of the Mesaoria plain.
Fig.6: A habitat of E. schneiderii ssp. from Çayırova.

The first report on the presence of *E. schneiderii* ssp. in northern Cyprus and the second actual report from Cyprus were made by Göçmen et al. (2002). As indicated by the Authors, the Cypriot population of *E. schneiderii* ssp. looks quite homogeneous (Fig.7): it has a dorsal pattern without orange dots in both juveniles collected from Gönyeli and adult specimens as in the new

specimen and also, the darkened flanks, the two dorsolateral light bands and the presence of the few scattered small orange spots on the hind legs lead us to conclude that the Cypriot population is not identifiable with the known subspecies from the Levant countries. Thus, we accept that the subspecific status is *E. schneiderii* ssp.



Figure 7. A male (below) and a female *E. schneiderii* ssp. from Gönyeli (Nicosia District, Northern Cyprus)

The south costal part of the Karpaz peninsula, called Golden Beach (Fig.8), was searched from morning to midday in a sunny, hot day. Vegetation consisted of *Pancratium maritimum*, *Cakile maritima*, *Limonium albidum* and *Pistacia lentiscus*.

After 9 o'clock the reptiles were started to become active. A juvenile *M. l. lebetina* was observed under a plastic signboard. *M. m. insignitus, C. o. ocellatus, A. s. schreiberi, C. k. fitzingeri, L. s. cypriaca, D. j. cyprianus, O. e. schlueteri, Chelonia mydas*

and *Caretta caretta* were also observed on the beach. Most abundant reptile species in this area was *A. s. schreiberi*.

Although Telescopus fallax widespread in Cyprus (Böhme & Wiedl, 1994; Göçmen et al. 1996), in both Karpaz peninsula and in the vicinity of Gönyeli Lakelet one of the most frequently encountered snake species and represented with an endemic subspecies was *T. f. cyprianus* (Fig.9). It has typically 21 dorsal scales at midbody and there are no regular blotches on the tail apart from the other known races of the *T. fallax* (Göçmen et al. 2007). Therefore, it is quite different and according to us (Nagy & Göçmen

in prep.) it should be recognized as a full species as *T. cyprianus*.



Figure 8. A general view of the Golden Beach (Karpaz peninsula) on which we observed the sea turtles and many other herptile species.



Figure 9. A juvenile T. f. cyprianus from the area between Kambyli and Asomotos villages.

An additional herpetological surveying was conducted to Kornos (Selvili Tepe, about 1200 ms asl) and its

vicinity. Here is the western part of the Kyrenia range near Lapethos and it is a mediterranean mountaineous forest. In this biotope, we collected or observed the following herptile taxa; H. savignyi, R. bedriagae, O. e. schlueteri, L. s. cypriaca, T. vittata, A. b. budaki, Platyceps najadum, Eirenis levantinus [formerly called as E. modestus by Atatür & Göçmen (2001)], M. m. insignitus and M. l. lebetina. The first report on the presence of *P. najadum* in northern Cyprus was based on a museum specimen (ZDEU) and one observation made by Göçmen (Göçmen et al. 1996). Our observation in this study is the second actual report from Northern Cyprus. Only a specimen had been seen but we could not able to catch it since the habitat consisting of very rocky structures was not suitable (Fig.10).

In Selvili Tepe biotope, three dwarf snake specimens, Eirenis (Pediophis) levantinus, were collected during our trip in April 2007. It is about the first sample since Kotschy's collections 150 years ago (Unger & Kotschy, 1865). Like most of the new detections or rediscoveries of snakes on the island of Cyprus (Hierophis cypriensis; Natrix natrix cypriaca, Platyceps najadum), this species must also be designated as rare, with a small distribution area. These collections are in discussion in two separate studies (Schmidtler, Göçmen, Yıldız, Akman, Yalçınkaya, & Nagy, in publ.; Nagy, Schmidtler & Göçmen, in prep.), therefore they are not discussed further here.



Figure 10. A view of the biotope from Kornos (Selvili Tepe) where we observed three snake species, *P. najadum, M. m. insignitus* and *M. lebetina*.

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