



Ege Üniversitesi Fen Fakültesi Kitaplar Serisi No. 170



Kuzey Kıbrıs'ın Kurbağa ve Sürüngenleri Amphibians and Reptiles of Northern Cyprus

(I. Baskı, 1st Edition)



Prof. Dr. Mehmet K. ATATÜR

Yrd. Doç. Dr. Bayram GÖÇMEN

Ege Üniversitesi Fen Fakültesi Biyoloji Bölümü
Zooloji - Hidrobiyoloji Anabilim Dalları 35100 Bornova-İzmir

**EGE ÜNİVERSİTESİ BASIMEVİ
BORNOVA-İZMİR
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*Bu eseri herpetolojiye bize sevdiren ve yıllarca hocalığını yapan, anabilim
dalımızın Kurucusu, Türkiye'nin ilk Herpetoloğu
Saygıdeğer Hocamız Prof. Dr. Muhtar BAŞOĞLU'na (1913-1981)
ithaf ediyoruz.*

*This publication is dedicated to the memory of our beloved teacher,
Prof. Dr. Muhtar BAŞOĞLU (1913-1981), the founder of
modern herpetology in Turkey.*

FOREWORD

“Environment”, which is one of the major issues on the top of the agenda of today's world, is an integrated concept that should be protected along with the other existing values of our world. Protecting an important part of the environment, our fauna and flora, and providing the means for the natural propagation of these species are some of our most important missions. In this respect, we congratulate everyone who have contributed to the conservation of the environment and we extend our regards with the hope to live in a healthy and clean world together with its entire living organisms.

The aim of this booklet is to introduce the amphibian and reptilian fauna of a nature heaven, Cyprus Island (a transition zone between three continents: Asia, Europe and Africa), to the native and foreign nature lovers, and also to help scientists studying on this field.

3 frog and toad species (Anura), 11 lizards (Lacertilia), 3 turtles (Testudinata) and 10 snakes (Ophidia) inhabit the island. All of the 27 reptile and amphibian species are represented with colour photos and short descriptions. The information within is mainly based on the work of Göçmen *et al.* (1996), conducted in the years 1989-95, Böhme & Wiedl (1994), Baran & Atatür (1998) and also other recent studies on the herpetofauna of Cyprus. The scientific names are given in bold italic, followed by the name of the author of the species together with the date of naming (the last two are given in parentheses if the original genus name is changed); the following words give the name in English, with the local name in parentheses (if any), followed in the next lines with identification, habitat and other biological features, and its distribution.

We acknowledge with gratitude everyone who took some of the photos used in our text, also those persons who took part in the publication of this booklet.

Bornova - October 18th, 2000

M.K.A.-B.G.

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1. INTRODUCTION

A new snake species *Coluber cypriensis* (Schätti, 1985) which is endemic for Cyprus and a new lizard species, *Ablepharus budaki* (Göçmen *et al.*, 1996b) were recently described, stemming from progressively increasing works on the herpetofauna of Cyprus (Schmidtler, 1984; Schätti, 1985; Osenegg, 1989; Schätti & Sigg, 1989; Wiedl & Böhme, 1992; Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a). It was also reported that the taxonomical states of *Telescopus fallax*, *Vipera lebetina* and *Natrix natrix* were still problematical and the subspecific status of *Bufo viridis* uncertain. The former *Rana ridibunda* of Cyprus is now a synonym of *R. levantina*, a new species from Israel (Schneider *et al.*, 1992; Böhme & Wiedl, 1994). Basoglu & Baran (1977) included the *Chamaeleo chamaeleon* populations of Cyprus to the nominate race, but Böhme & Wiedl (1994) were of the opinion that they belong to *C. c. recticrista*, an eastern Mediterranean race. The same authors pointed to the similarity of *Ophisops elegans* from Cyprus to those from Hatay (SE Anatolia).

Budak & Göçmen (1995) found some significant morphological differences between the *L. laevis* from Northern Cyprus and the nominate race (*L. laevis laevis*) from Adana & Mersin (Budak, 1976), however it was not possible to differentiate the two populations by using Werner's (1936) diagnostic characteristics. Thus, they strengthen the doubts of Osenegg (1989) and Schätti & Sigg (1989) on this topic. According to Budak & Göçmen (1995), the established differences may be at species level, raising the Cyprus form to *L. troodica*. A serological study of Tosunoğlu *et al.* (1999) provided a significant degree of certainty to the difference of the two populations, suggesting the name *L. troodica* for the Island form. So now, it is one of the endemic species of the Island.

For a long time the *Ablepharus* populations of the Island were accepted as *Ablepharus kitaibelii kitaibelii*, the race of adjacent mainland, until Göçmen *et al.* (1996b) pointed to the similarities of this form to *A. k. chernovi* from Turkey & Armenia, and named it as *A. k. budaki*. Later Schmidtler (1997) revised the genus *Ablepharus* within its distribution area and concluded that the form from Cyprus is a distinct species, its relatives inhabiting Israel, Syria and Turkey, and raised it to species level as *A. budaki*.

On the other hand, *Natrix natrix*, which was thought to be extinct in Cyprus (Schmidtler, 1984; Schätti, 1985; Osenegg, 1989; Schätti & Sigg, 1989), was again found as a breeding population in S Cyprus (Wiedl & Böhme, 1992); and after quite a long time, *Coluber*

najadum was reported once more from N Cyprus (Göçmen *et al*, 1996a) after its initial report from the Island by Boulenger (1910)

Amphibians and reptiles are considered together in books on the herpetofauna. That is the way we tried to introduce and describe the amphibians and reptiles of Cyprus in this booklet. Short explanations on their descriptive general characteristics and relations with the environment are given below.

2. GENERAL CHARACTERISTICS OF AMPHIBIANS

Amphibians are a class of vertebrates between fishes and reptiles, resembling in some aspects the fishes and in some others the higher groups; i.e., amphibian embryos resemble those of fishes and their usual four limbs are similar to those of terrestrial vertebrates. Amphibia (Greek *Amphibios*) means “living a double life”. They live in water during an early stage of development and on land during the adult stage, but always dependent on water. They are thought to be originated from fish-like ancestors but then adapted to a living on land; for example, the adults have legs instead of paired fins, the gills of larvae disappear and the adults develop lungs.

The skin of an amphibian is naked; i.e., it does not contain scales, feathers or hairs; it is always kept moist by secretions of a lot of skin glands, some of which are poison glands (Figure 1).

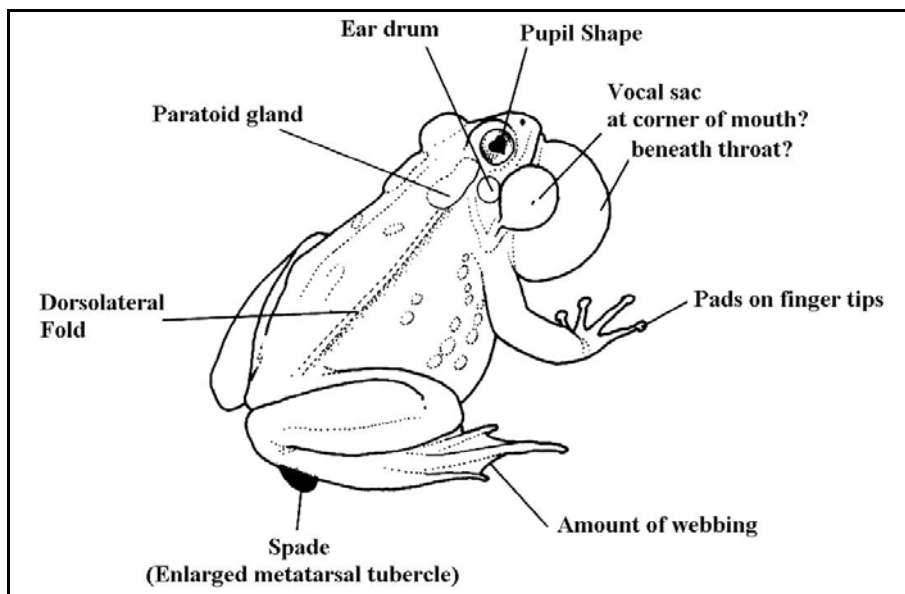


Figure 1. A generalized male frog in dorsolateral view (slightly modified from Arnold & Burton, 1978).

Adult amphibians are carnivorous; insects, earthworms and some land snails being their main diet. While in their larval stages urodeles are carnivorous but anurans are herbivorous. They usually metamorphose during their development; i.e., after the embryo they experience a larval stage, the duration of which is dependent on species, also on temperature and some other extrinsic conditions.

The urodeles exhibit various lively colours, while in anurans the colouration is in accordance with the environment. For example, *Bufo viridis* (Green Toad) is so well camouflaged in its environment, one notices it only when it jumps away. Amphibians can not tolerate aridness and salinity in their environments. That is why they do not live in the seas and would not survive if their skins become dry.

3. RELATIONS OF AMPHIBIANS WITH THE ENVIRONMENT

Amphibians have some natural enemies; some birds, aquatic turtles, snakes, several mammals, even some large freshwater fish predate on amphibians, also their aquatic larvae are seriously harmed by some insects. But of course, the greatest adversary of amphibians is man. On the other hand, amphibians are beneficial to man, consuming large quantities of harmful insects, thus keeping under control some agricultural pests and some pathogenic vectors. Being usually ignorant of the benefits of amphibians in maintaining a natural equilibrium, we greatly harm them intentionally or unintentionally; i.e., we destroy or obliterate wetlands, their natural habitats, or seriously pollute some freshwater systems (rivers and lakes). Thus, irreversibly deplete the natural stocks of the amphibian populations.

4. GENERAL CHARECTERISTICS OF REPTILES

Reptiles are a class of vertebrates between amphibians and birds, adapted to a terrestrial life style. Their skins are dry, almost without any skin glands. Over their skins a keratinous layer is present, which forms scales and plates at different parts of the body (Figures 2-6). From time to time, this layer is completely renewed.

Reptiles usually have four limbs, but some of them are limbless. Even those with limbs have very low bodies so that they are in contact with the ground. The majority of them live on land, but some are aquatic, however even those have lungs.

Reptiles usually have copulation organs so they have internal fertilization. They are usually oviparous, i.e., the females lay their eggs to suitable places in their environment. The

eggs are either covered with deformable elastic skins or with hard, brittle shells. Some reptiles give birth to live young. They never have a larval stage during their development, the young emerging from the eggs are like miniature copies of the adults. Reptiles are mainly carnivorous, however some turtles and some lizards feed mainly on plant material.

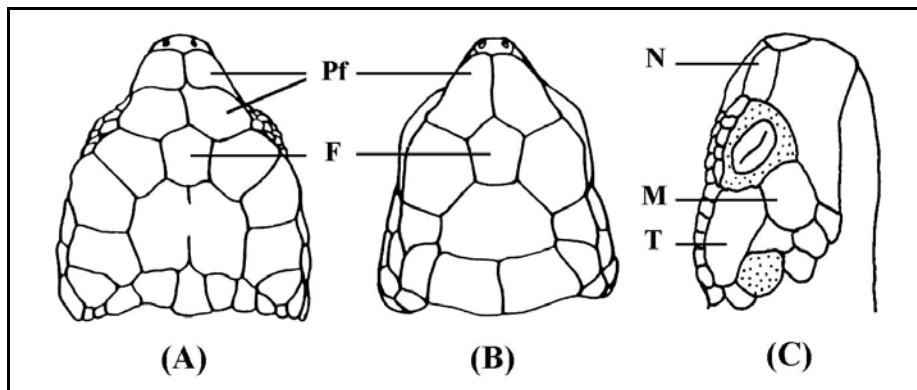


Figure 2: Head plates in a turtle: A, B-Dorsal, C-Lateral views. Pf: Praefrontale, F: Frontale, N: Nasale, M: Massetericum, T: Tympanicum (slightly modified from Basoglu & Baran, 1977).

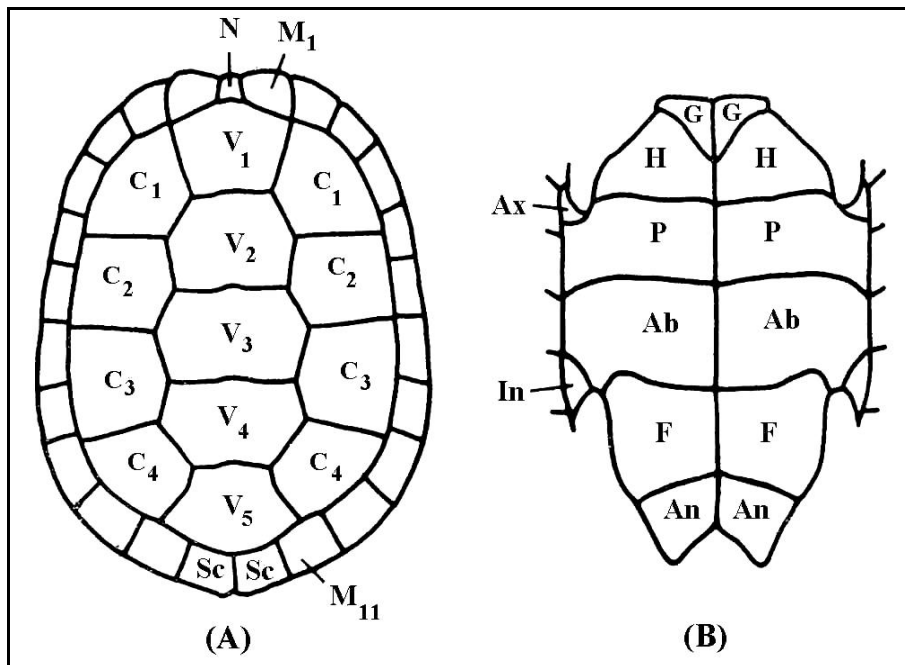


Figure 3: Keratin plates in a generalized turtle shell: A- Carapace, B- Plastron. N: Nuchale, V₁-V₅: Vertebralia, C₁-C₄: Costalia, M₁-M₁₁: Marginalia, Sc: Supracaudalia, G: Gulare, H: Humerale, P: Pectorale, Ab: Abdominale, F: Femorale, An: Anale, Ax: Axillare, In: Inguinale (slightly modified from Basoglu & Baran, 1977).

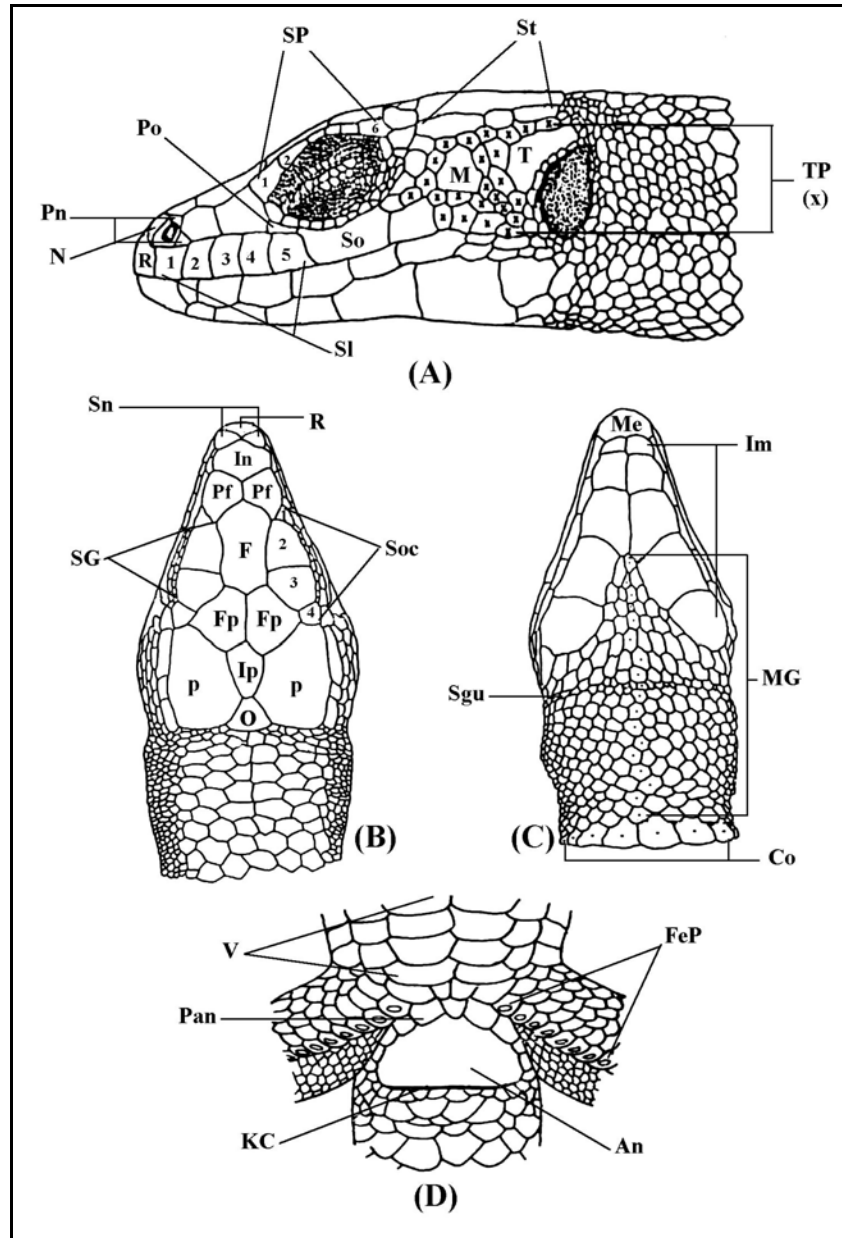


Figure 4. Head and abdominal plates in a lizard: A-Lateral, B-Dorsal, C-Ventral views, D-Ventral view of hind leg region.
 An: Anale, Co: Collaria, F: Frontale, Fp: Frontoparietalia, Im: Inframaxillaria, In: Internasale, Ip: Interparietale, FeP: Femoral Pores, KC: Cloacal Cleft, L: Loreal Plates, M: Massetericum, Me: Mentale, MG: Median Gularia, N: Nasale, O: Occipitale, P: Parietalia, Pan: Preanale, Pf: Praefrontalia, Pn: Postnasalia, Po: Preocular, R: Rostrale, SG: Supraciliary Granules, Su: Sulcus Gularis, Si: Supralabialia, Sn: Supranasalia, So: Subocular, Soc: Supraocularia, SP: Supraciliary Plates, St: Supratemporalia, T: Tympanicum, TP: Temporal Scales, V: Ventralia (slightly modified from Basoglu & Baran, 1977 and Baran & Atatür, 1998).

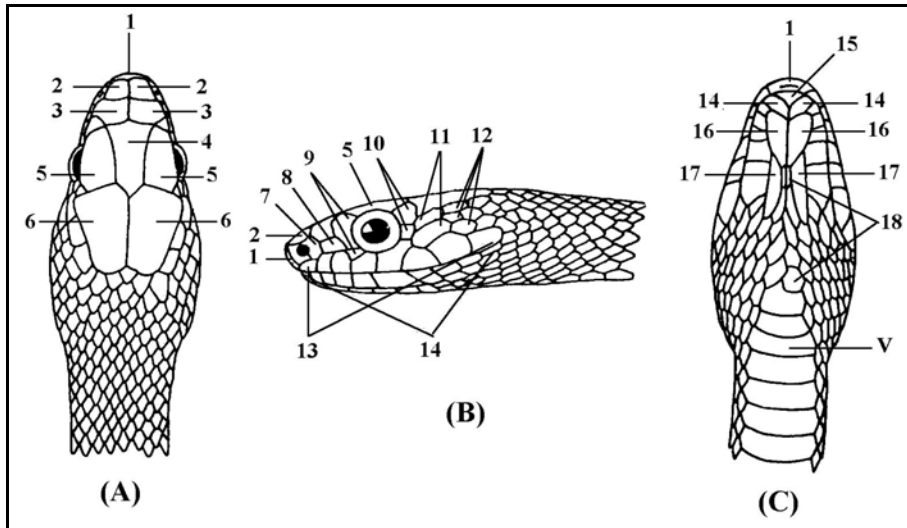


Figure 5: Head plates in a typical snake: A- Dorsal, B- Lateral, C- Ventral views. 1: Rostrale, 2: Internasalia, 3: Praefrontalia, 4: Frontale, 5: Supraocularia, 6: Parietalia, 7: Nasale, 8: Frenale, 9: Praeocularia, 10: Postocularia, 11: Temporalia, 12: Posttemporalia, 13: Supralabialia, 14: Sublabialia, 15: Mentale, 16: Anterior Inframaxillaria, 17: Posterior Inframaxillaria, 18: Gularia, V: Ventrale (slightly modified from Basoglu & Baran, 1978).

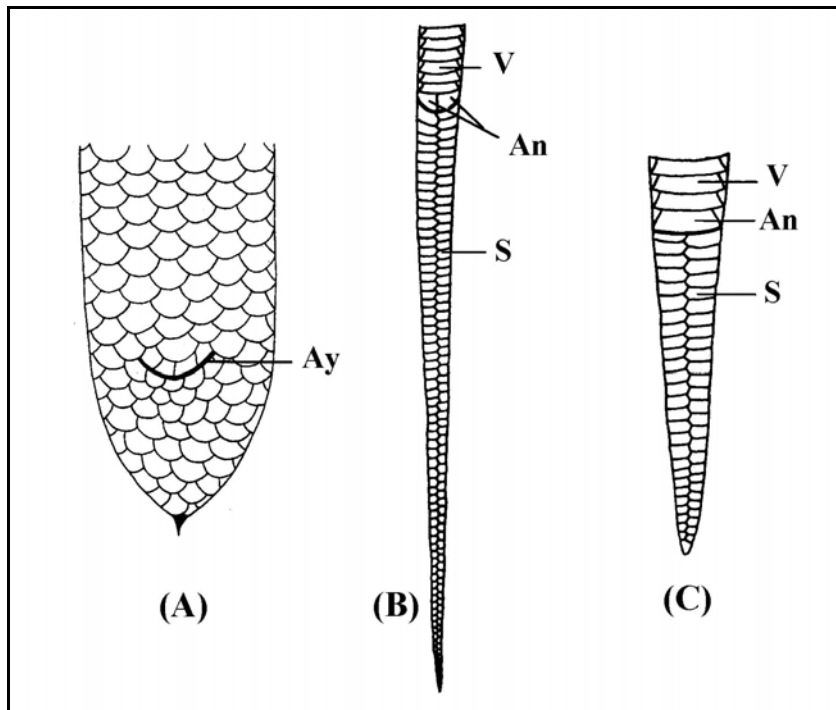


Figure 6: Ventral views of tails in snake families found in Cyprus Island. A-Typhlopidae (*Typhlops vermicularis*), B-Colubridae (*Coluber jugularis*), C-Viperidae (*Vipera lebetina*). Ay: Anal cleft, An: Anale, S: Subcaudale (slightly modified from Basoglu & Baran, 1978).

5. RELATIONS OF REPTILES WITH THE ENVIRONMENT

Some birds of prey and some mammals are the natural enemies of reptiles. But again, their most dangerous enemy is man. Some of the snake and lizard species are poisonous. Poisonous lizards belonging to the genus *Heloderma* live in Middle America, i.e., no lizard living in Cyprus Island is poisonous. But approximately 30% of the Cyprus snake species are venomous. However, almost everybody is afraid of the snakes and they are usually indiscriminately killed whenever seen. Some limbless lizards inhabiting the adjacent mainland, but which do not exist in Cyprus, (for example *European Glass Lizard*, *Ophisaurus apodus*) are also usually get killed, being mistaken with snakes.

Reptiles prefer warm to hot regions, their species and numbers diminish towards colder areas. A lessening in abundance is also observed with increasing altitude. Some specially adapted reptiles live on trees or in water.

The relations of reptiles with man are a little different from those of other animal groups. As mentioned before, some of the snakes are venomous, so the majority of the human population is afraid of snakes and tries to kill them if possible, without discriminating the venomous from the harmless ones. In so harming the general snake populations, we also destroy the equilibrium of nature. Some people are also using various snakes as pet trade material, which also depletes natural snake populations, and as a result, mice and rats in nature get out of control, causing much harm to our various agricultural crops.

Some human activities pollute, reduce or completely destroy habitats suitable for snakes. Also, the skins of some snakes are used in the manufacture of shoes, belts, etc., resulting in uncontrolled hunting of these species, seriously endangering their survival.

Reptiles developed and evolved into many diverse groups up to and during Mesozoic, thus becoming the masters of our planet; but in later geological ages a lot of reptile groups became extinct, so today only a small percentage of those diverse groups survive. Compared with other vertebrates, reptile species are significantly fewer both qualitatively and quantitatively.

6. HUMANS VERSUS AMPHIBIANS & REPTILES

The great majority of the amphibian and reptilian fauna of Cyprus Island is without poison or venom. Two species of the Island's snakes; *Telescopus fallax* (*Cat Snake*) and *Malpolon monspessulanus* (*Montpellier Snake*) are usually harmless unless they bite thin regions (like fingers) because their paired poison teeth are way back in their upper jaws. They

usually feed on small rodents like mice, thus they are effective in saving some agricultural crops and help in keeping the general hygienic properties of the environment. Some of the other reptilian and amphibian species are potential biological pest controllers, feeding on various insect and rodent pests. Decreases in the populations of amphibians and some aquatic reptiles caused by chemical pollution in their wetland habitats result in a proportional increase in various insect pests sharing the same environment, eradication of which is an expensive process. Similarly, fear of snakes resulting from ignorance causes the local people to kill any snake on sight, removing important rodent controllers from the environment. One should always keep in mind that these amphibian and reptilian species do not share common food sources with man, and various lizard and snake species never harm us, unless provoked or stepped-on accidentally, etc. However, the *Blunt-nosed Viper*, ***Vipera lebetina***, which may be encountered especially during the night time in open grasslands, rocky-stony areas in Cyprus, may be dangerous to small and large mammals, even to man, being venomous and having a large pair of poison fangs in front of its upper jaw.

Taking into consideration the presence of both poisonous and non-poisonous snakes on the Island, and the probability of being bitten by any one of them, at least some basic information and first-aid procedures should be given.

A bitten person should not try to catch the culprit, which may lead to further bitings. Any snake can bite a man and usually the majority of snake bites are done by non-poisonous species, even the bite of a poisonous snake does not always inject an effective amount of venom into the wound. With the proper and timely precautions, death from snake bites on the island would be very rare indeed. Even in untreated viper bite cases, death in the first 24 hours is almost never seen. However such bites should be considered seriously and treated accordingly.

There may appear some observable symptoms at the bite area within half an hour and they may indicate the possibility of poisoning. Then no time should be lost in getting treatment, bearing in mind that over-excitement and panic can also be harmful.

In case of poisoning the first symptoms are:

The first and sometimes the only symptom may be shock, which can also result from the bite of a non-poisonous snake. The victim usually feels weak but in extreme cases can become semi-conscious with cold, damp skin, weak pulse and rapid, shallow breathing. In case of a real poisoning, the bite area swells within several minutes. Later; sweating, vomiting, abdominal pains and diarrhea may appear.

The first-aid procedure should be:

- ❖ Victim should be reassured and calmed.
- ❖ The bite area should be immobilized, movement may spread the venom.
- ❖ Prompt medical attention should be sought, preferably at a hospital with viper antivenin facilities.
- ❖ If medical attention is likely to be delayed for over an hour, a firm (but not tight) ligature can be applied above the bite area to retard the spreading of venom. Cutting with a sterile razor or sucking of the wound is not recommended since the former may lead to shock and the latter to secondary poisoning. Washing the wound with strong disinfectants or with *potassium permanganate* solution should also be avoided.

In some highly sensitive people (to snake venom) the bite is immediately followed by a collapse. Medical attention should be given to them as soon as possible.

7. AMPHIBIANS IN CYPRUS

7.1. Family: Bufonidae

***Bufo viridis* Laurenti, 1768 (Green Toad)**

Identification: SVL (Snout-Vent Length) up to 9 cm; i.e., smaller than the other species of the genus in Turkey, *B. bufo*. Parotoid glands are distinct; the iris green or greenish with mixed black lines. Tympani are distinct; the skin rough. The male has a vocal sac. A single row of tubercles under fingers. The dorsum generally gray, greenish or whitish with large green maculations usually rimmed in black. The lateral body warts, and sometimes the dorsal warts are red. The venter is dirty white, with or without maculations.

Habitat & Biology: This nocturnal species shelters in the daytime under stones or within subterranean burrows in gardens or open fields. Is more tolerant to dessication. Predating on insects, earthworms and some molluscs. Vocalisation of the males resembles a loud police whistle. Goes to water only for breeding. A female spawns 10.000-12.000 eggs in two gelatinous strings in suitable places of lakes, lakelets, pools or slowly flowing streams.

Distribution: The range of the species extends from N Africa, Mediterranean countries including Northern Cyprus, Middle and S Europe, Turkey to W Asia and Mongolia. Its vertical distribution is up to 4600 m. Northern Cyprus, is, according to some authors (Osenegg, 1989: Schätti & Sigg, 1989), inhabited by *B. v. arabicus* Heyden, 1827; however, the taxonomical status of this

population group is not clear yet (Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a). This species is abundantly distributed especially around the vicinity of the lakelets of Gönyeli (Nicosia, Lefkoşa) and Geçitköy (Kyrenia, Girne) in northern Cyprus.

7.2. Family: Hylidae

Hyla savignyi Audoin, 1827 (Green Frog)

Identification: SVL up to 5 cm; skin smooth dorsally, granulated ventrally. Tympanic membranes distinct. Typically, fingers and toes end in wide, disc shaped adhesive pads. Males have a large vocal sac beneath the chin. The dorsum is usually a bright green, sometimes changing to gray, yellowish or blackish, sometimes with dark coloured small spots. This species is usually quite similar to *H. arborea* (Linnaeus, 1758) (**Common Tree Frog**), but differs from that species in having relatively longer hind legs and no spur-like branch of the dark lateral stripe in the inguinal region. Also, the stripe is not continuous (In *Hyla arborea*, a dark stripe, which begins in front of the eye, extends through the tympanic membrane, and laterally along flanks to the inguinal area, and there forms a spur-like branch anterodorsally). The venter is whitish or slightly yellowish.

Habitat & Biology: An arboreal species; frequenting trees, shrubs, bushes or reeds. Nocturnal in habit, shelters under leaves in the daytime. Not easy to detect because of its colour changing ability. Goes to water only in the breeding season. Feeds on various flying insects and spiders. Has potent poisonous skin secretions. Prefers clean and deep waters with much vegetation for breeding. The vocalisation of the males is quite strong during the breeding period. The walnut sized egg masses are sometimes attached to the vegetation in water, containing 800-1,000 eggs.

Distribution: Is known from Cyprus, Turkey, Israel, Syria, Iran and Transcaucasica. It is widely distributed in the vicinity Lefke (Nicosia), Geçitköy and Lapta (Kyrenia) in Northern Cyprus.

7.3. Family: Ranidae

Rana ridibunda Pallas, 1771 (Marsh Frog)

Identification: SVL up to 15 cm. Tympanal membrane distinct, a temporal stripe is not present. Dorsolateral skin folds well developed. The skin is usually rough to warty; the males with two vocal sacs. The dorsum is greenish-gray, may also be light to dark brown. Darker patches of marbling or maculations also present. In some specimens, a lighter coloured vertebral stripe is evident. Venter usually dirty white or yellowish, frequently with small, dark markings; in some, the

venter is reddish. Recently, some authors believe that the Cyprus population belongs to ***Rana levantina*** Schneider, Sinch & Nevo, 1992 (**Levantine Frog**) (*Presently known from the Nile Delta, Israel and Turkey*), a frog species recently distinguished from ***Rana ridibunda*** with its characteristic vocalization. SVL up to 85 mm. The dorsum is green and brown; with dark green, dark brown or black maculations; hind limbs with large dark blotches. But this status is not confirmed yet, since the morphological characteristics, habitats and biology are overlapping those of ***Rana ridibunda***.

Habitat & Biology: Strongly aquatic, inhabits lakes, pools or slowly flowing streams with much vegetation. Stays in close proximity of water bodies and prefers low plains or marshes. Sometimes seen in strong currents. A gregarious and diurnal species, but can forage also in the nighttime. Main diet is insects. A female lays 5,000-10,000 eggs as several masses either between aquatic plants or directly into open water.

Distribution: The species is widespread in N Africa, Middle and S Europe, Turkey, W Asia and Cyprus with a vertical distribution up to 2500 m. In Northern Cyprus, this species is abundantly encountered in the lakelets Geçitköy (Kyrenia) and Gönyeli (Nicosia) and also around Lefke (near the boundary of Greek Cypriote in the western of the country, Nicosia).

8. TURTLES IN CYPRUS

8.1. Family: Bataguridae

***Mauremys caspica* (Gmelin, 1774) (Caspian Turtle, Stripe-necked Turtle)**

Identification: Carapace length up to 25 cm, or slightly longer; carapace ankylosed to plastron; axillar and inguinal plates present. Carapace low-domed; vertebral and costal plates with distinct central keels in young, gradually become indistinct in older specimens. The suture between the anals is shorter than that of femorals. Carapace is gray to grayish-green with reddish or yellowish markings, the plastron with large dark or black patches. The head, neck and limbs with yellowish stripes.

Habitat & Biology: Inhabits lakes, rivers, ditches, etc. Feeds on fish and other suitable aquatic animals. Hibernates under water. A female lays 9-20 eggs in terrestrial nests.

Distribution: Its range extends from NW Africa, S Europe to Turkey, Transcaucasica, Iran, Iraq, Syria, Israel, Northern Cyprus and some Aegean islands. In Northern Cyprus, ***M. c. rivulata*** (Valenciennes, 1833) is present being only in Küçük Kaymaklı District, Kanlı Dere River (Nicosia).

8.2. Family:Cheloniidae

***Caretta caretta* (Linnaeus, 1758) (Loggerhead Turtle)**

Identification: Marine, carapace up to around 100 cm in adults. Two pairs of prefrontal plates on the head; 5 pairs of costal plates on the carapace; nuchal plate in contact with the first costals. On the outer edges of the flipper-like limbs two claws at most. Usually 3 pairs of inframarginal plates, without pores. The dorsum is usually reddish-brown; the venter whitish to light yellow.

Habitat & Biology: Feeds on fish, molluscs and coelenterates. A female deposits around a hundred eggs to nests dug into beach sands. Nest building is, as in *C. mydas*, nocturnal. The hatchlings emerge during the night after an incubation period of approximately two months and enter the sea. Because of the touristic, urban and industrial usage of suitable nesting beaches, the Mediterranean populations are gravely endangered. To prevent their extinction, they are now protected under "Mediterranean Action Plan" (MAP).

Distribution: Widespread in warm and temperate oceans, also in the Mediterranean; sometimes seen in the Sea of Marmara and the Black Sea. The nests of the Mediterranean populations are usually built on the southern sandy shores of Anatolia and the northeastern shores of Northern Cyprus between Kyrenia and Dipkarpaz.

***Chelonia mydas* (Linnaeus, 1758) (Green Turtle)**

Identification: One of the bigger marine turtles with a carapace length up to 140 cm. Only one pair of prefrontals on head; nuchal plate does not contact the first costals; 4 pairs of costals on carapace. Each of the flipper-like limbs contain at most only one claw. Usually 4 pairs of inframarginal plates. The dorsum is grayish-brown, usually with yellowish or brownish markings. The venter is light yellow to white.

Habitat & Biology: The adult usually feeds on turtle grass and other seaweed, the young is carnivorous. A female deposits around 200 eggs to its nest dug in the beach, usually laying more than one batch (in one breeding season, up to 5 batches with a total 468 eggs have been observed). For a long time the species had an economical importance because of its edible meat and fat, so its populations dangerously decreased. The usage of its nesting sites with various aims further endangered the survival of the species in the Mediterranean basin, so now, like the loggerhead, the green turtle is also protected under MAP.

Distribution: Warm oceans, also present in the Mediterranean, rarely seen in Black Sea. Nesting sites in Turkey and Northern Cyprus exclusively in the eastern Mediterranean coasts. In Northern

Cyprus, they especially nest in the sandy shores of Yayla (=Kumköy) (Güzelyurt, Nicosia), Acapulco Village (Kyrenia) and Yeni Erenköy (Karpaz Region).

9. LIZARDS IN CYPRUS

9.1. Family: Gekkonidae

***Cyrtopodion kotschy* (Steindachner, 1870) (Kotschy's Gecko)**

Identification: Total length to 9-10 cm. Pupils vertical. 8-12 longitudinal rows of keeled tubercles on dorsum, continuing on tail, tubercles are longer than wide; toes lack adhesive pads and slender, subdigital scales smooth. The dorsum is light to dark gray with dark zigzagging transverse stripes or maculations. The venter is whitish.

Habitat & Biology: Inhabits rocky-stony places with scanty vegetation, also seen on stone walls and buildings. Partly nocturnal, but also forages in daytime. Feeds on insects and spiders. Can change colour in accordance with the illumination state of the environment. A female lays 1-2 eggs between crevices and cracks of rocks.

Distribution: Its range extends from S Italy and Greece to Aegean islands, Cyprus, Turkey, Syria, Israel, NW Iran and the Transcaucasus region; with a vertical distribution to 2500 m. It is represented with *Cyrtopodion kotschy fitzingeri* (Baran & Gruber, 1982), endemic for Cyprus.

***Hemidactylus turcicus* (Linnaeus, 1758) (Turkish Gecko, "Mischaro")**

Identification: Total length up to 9-10 cm. Pupils vertical. On dorsal side, 14-16 longitudinal rows of tubercles present; also above tail, 6-8 rows of tubercles. 7-10 supralabials; preanal pores 4-10, rarely 2. Ventral scales are smooth, those of the medial row, bigger. The dorsum is grayish or light brown, overlaid by irregular, darker blotches. the venter is dirty white.

Habitat & Biology: Lives under stones, in crevices of rocks, in houses and ruins. Feeds on insects and spiders. Largely nocturnal, but may be active by day. A female lays 2 eggs.

Distribution: Known from Mediterranean and Red Sea coastal regions to India, including Turkey and Cyprus; with a vertical distribution to 1000 m. Found in all coastal zones of Northern Cyprus. It is represented with *Hemidactylus turcicus turcicus* (Baran & Gruber, 1982; Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a; Baran & Atatür, 1998).

9.2. Family: Agamidae

***Laudakia stellio* (Linnaeus, 1758) (Spiny Lizard)**

Identification: Total length up to 35 cm, or slightly longer. The flat and triangular head is covered with asymmetrically distributed small scales and plates; pupils round; spiny scales on the neck and sides of the head. The dorsum is covered with small and large scales; the tail with rings of spiny scales, two rings forming a segment. Tail does not break easily. The scales under the chin are keeled, those of abdomen smooth. The dorsum is blackish-brown with large yellow blotches. The venter is dirty yellow or yellowish-brown. In males, the throat is gray with a reticulated pattern; some of the dorsal scales may be bright blue.

Habitat & Biology: Frequents stone walls, rocky areas and olive groves, can easily climb both on trees and rocks. Feeds mainly on insects, but can also ingest some plant material. Typically bobs head vertically. A female lays 8-14 eggs.

Distribution: Known from N Africa, SE Europe, Turkey and SW Asia; with a vertical distribution to 1500 m. Encountered everywhere in Cyprus. It is represented with the subspecies *L. stellio cypriaca* (Daan, 1967), endemic for Cyprus. The status of the Cyprus population has been doubted by Shätti & Sigg (1989). However, Osenegg (1989) and Göçmen *et al.* (1996a) re-investigated material from Cyprus, Turkey and Syria and concluded that *cypriaca* is distinct and valid.

9.3. Family: Chamaeleontidae

***Chamaeleo chamaeleon* (Linnaeus, 1758) (Mediterranean Chameleon, “Hamolyo”)**

Identification: Total length up to 24-30 cm. Quite a different and unmistakable species with a laterally flattened body and characteristic slow movements. The head narrow and high, in adults in the form of a bony helmet. A vertebral ridge formed by enlarged scales. The toes are arranged as two opposed to three (reversing in front and hind feet) so that feet are modified to gripping rather than walking. The eyes fairly big and bulbous, with fused eyelids leaving a small opening for pupil. The eyes can move independently, or together for stereo vision. Tail strongly prehensile. Can change colour rather quickly, the ground colouration may be overlaid by darker or lighter maculations, spots and/or lateral stripes. A medial abdominal yellowish line, extending posteriorly to anus, does not change colour.

Habitat & Biology: Strongly arboreal, moves slowly but easily among twigs and branches by means of its grasping feet and prehensile tail; catching various insect preys with a sticky extensible tongue. A female deposits 20 or more eggs into burrows dug in soil.

Distribution: Known range extends from N Africa and Spain to W Asia; including Turkey and Cyprus with a vertical distribution to 700 m. It is stated that the Cyprus race of this species belongs to *C. chamaeleon recticrista* (Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a). In spite of Hillenius (1978) who considered it to be a synonym of *C. chamaeleon chamaeleon*, these authors maintain this trinomial nomenclature. Material from Turkey (Göçmen *et al.*, 1996a) and Greece (Böhme, 1989; Böhme & Wiedl, 1994), suggest that eastern Mediterranean specimens attain larger dimensions than western ones (Portugal, Spain). Furthermore, there seem to be slight hemipenial differences between the two groups (Böhme & Wiedl, 1994). Thus, the population of Cyprus belongs to the eastern Mediterranean form, i.e., *C. chamaeleon recticrista*.

9.4. Family: Lacertidae

Acanthodactylus schreiberi Boulenger, 1918 (Fringe-toed Lizard)

Identification: Total length up to 15-20 cm. The occipital plate on top of head absent or rudimentary; a longitudinal depression on the anterior part of head. Subocular usually extends down to the edge of the mouth. 71-108 rows of scales around mid-trunk; femoral pores between 19-29. The lateral edges of the toes with fringe-like short spines, especially obvious at the outer borders of the 4th toes. The dorsum with 6-7 longitudinal white lines in young, with dark longitudinal stripes in-between, may be overlaid with round spots. The lined pattern more or less disappears on mature specimens, replaced by dark brownish and yellowish gray maculations. The venter is whitish. In breeding season, the venter of the males and females become brilliant reddish and greenish, respectively.

Habitat & Biology: Inhabits sandy areas with sparse vegetation. Very agile and quick moving, difficult to catch in open places. Feeds on insects. A female lays 3-5 eggs.

Distribution: This species is distributed in Cyprus, Eastern Mediterranean region of Turkey, Lebanon and Israel; with a vertical distribution to 1000 m (Troodos Mountain, Southern Cyprus). One of its subspecies, *A. s. syriacus* Boettger, 1878 inhabits the sandy banks of Lebanon and Israel. In Cyprus and Turkey, the nominate subspecies, *A. s. schreiberi* Boulenger, 1879 is present (Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a; Franzen, 1998).

***Lacerta troodica* Werner, 1936 (Troodos Lizard)**

Identification: Total length around 12-20 cm. Rostral in contact with external nares; 2 postnasals; 5 supralabials in front of subocular; supraciliary granules usually in a complete row (97%); a large masseteric scale in temporal region; 51-68 rows of indistinct keeled dorsal scales at mid-trunk; ventrals in 6 longitudinal rows; femoral pores between 19-24. In median gular region, scale numbers are 25 in average. The dorsum is gray, greenish-brown with dark spots or maculations. Flanks with a longitudinal dark stripe (Temporal Band), above which greenish-white round spots are present. Parallel subtemporal bands extend below the temporal bands down to the base of hind legs at least, or to the mid level of the tail. The venter is yellowish-white or light green, lateral parts with blue spots. Chin, throat and venter brick red in breeding season.

Habitat & Biology: Inhabits sandy slopes, arid and vegetated areas, cultivated fields, loose garden walls, rocky and stony damp places; sometimes arboreal. Feeds on insects. A female lays 2-6 eggs.

Distribution: Known only from Cyprus Island as an endemic species with a vertical distribution to 1200 m. (Troodos Mountain, Southern Cyprus). However, it is a coastal species in Northern Cyprus. Closely related species, *Lacerta laevis* Gray, 1838 is distributed in Turkey, Syria, Lebanon and Israel. In both the lateral colour pattern of the body and the fairly dark-coloured window of large scales in the lower eyelid, the Cyprus specimens closely resemble *L. I. kulzeri* (Budak & Göçmen 1995, Göçmen *et al.* 1996a). However, they are also similar to Anatolian *L. I. laevis* specimens in general colouration, for example a strong orange-red colour on the ventral side during breeding season. The Cyprus specimens also differ from *L. I. kulzeri* in ventral colouration and in some pholidosis characteristics, e.g., absent or small-sized massetericum (Hoofien *et al.* 1990). Habitats described by Bischoff & Schmidtler (1994) for *L. I. kulzeri* and by Budak & Göçmen (1995) for the Cyprus populations are different from each other. While *L. I. kulzeri* is an arid region form, the Cyprus form likes a relatively moist habitat, which is similar to the habitat of *L. I. laevis* (Budak, 1976). *Lacerta troodica* differs from *L. laevis* in the following morphological characteristics: in *L. laevis*, median gularia number is less (average 20), gular scales larger; the subtemporal "lines" below the temporal bands extend down to the mid-trunk level and also, supraciliary granules usually not in a complete row. Regarding serum proteins, Tosunoğlu *et al.* (1999) found qualitative differences in both albumin and globulin regions between the two forms, which suggests that the northern Cyprus and Turkey populations are clearly distinct. Accordingly, the authors concluded that these populations are taxonomically

distinct at the species level. Thus, the Cyprus population should be considered as *L. troodica* rather than *L. l. troodica* as previously suggested by Budak & Göçmen (1995).

***Ophisops elegans* Ménétriés, 1832 (Snake-eyed Lizard, Field Lizard)**

Identification: A small lizard with a total length up to 15-16 cm. Snout-vent length usually 5.5 cm; tail about twice body length. A distinct depression is present at the anterior dorsal side of head. The two eyelids are fused, forming a transparent capsule over the eye, similar to that of a snake. Rostral does not contact external nares; 2 postnasals; no collars; 28-43 rows of keeled dorsal scales at mid-trunk; ventrals in 6 longitudinal rows; femoral pores between 8-12. The dorsum is usually gray or brown with a few or more abundant and variously sized black markings, rarely no markings on dorsum; usually two dorsolateral light lines present. In Cyprus, chin, throat and the body venter of males become yellowish green, while this colouration is seen only in chin and throat in females during the breeding season.

Habitat & Biology: A ground-dwelling species usually inhabiting open arid plains with sparse vegetation and rocky, soily substrates; prefers steppes. Diurnally feeds on insects. A female lays 2-6 eggs.

Distribution: Its range extends from southern Balkan countries, Turkey, Aegean and Mediterranean islands, including Cyprus to SW Asia and Punjab in N India; with a vertical distribution to 2000 m. In Cyprus, this species is represented with an endemic subspecies, *O. e. schlueteri* which is abundantly encountered everywhere of the island (Darevsky & Beutler, 1981; Osenegg, 1989; Böhme & Wiedl, 1994; Göçmen *et al*, 1996a).

9.5. Family: Scincidae

***Ablepharus budaki* Göçmen, Kumlutaş & Tosunoğlu, 1996 (Budak's Snake-eyed Skink)**

Identification: A slim, glossy skink with a total length up to 6-12 cm. Rostral does not contact external nares. Nasal plate complete, not split; the ear opening is so evidently big (0.4-0.5 mm diameter) that, it can be seen with the naked eye and it is situated partially at the neck. The number of vertical rows of scales between the masseteric and the ear opening changes (3-4, usually 3); Fused eyelids form a transparent capsule over the eye. no row of small scales forming a ring around the eye. 18-21 (average 20) rows of smooth, similar body scales around mid-trunk.

The dorsum is bronze, dark brown or grayish green; the scales may be rimmed in golden and overlaid with black lines. The flanks usually with a wide dark brown band (Temporal Band): below this, a dirty white subtemporal band extends up to the ear opening (in *Cyprus specimens*) or beyond the ear opening towards the flanks (in *Turkey specimens*) from the rostral plate. The ventral side of the body is blackish-bluish gray. During the breeding period, particularly in males and juveniles the venter is coloured from light orange to dark red: usually only the trunk venter or all of the ventral side, except the gular region, or only under the tail is coloured. In juveniles this colouration gradually increases and becomes brighter under and over the tail from the vent through its tip.

Habitat & Biology: Lives in open spaces with short bushy plants and maquis or sparse trees; hides under stones and leaves. Feeds on small insects and molluscs. Not a swift skink with very short limbs, but can quickly disappear in undergrowth with its slim and slippery body. A female lays 2-5 eggs

Distribution: Its range includes Cyprus, Turkey, Lebanon and Israel; with a vertical distribution to 2000 m. In Cyprus, the eastern Mediterranean region of Turkey, Lebanon and Israel, it is represented with the nominate subspecies, *A. budaki budaki* (Göçmen *et al.*, 1996b; Schmidtler, 1997).

***Chalcides ocellatus* (Forskal, 1775) (Ocellated Skink, “Bizaska”)**

Identification: A rather stout, thick necked glossy skink with a total length up to 20 cm. Rostral in contact with external nares; a transparent disc in lower eyelid; ear opening more or less distinct. 28-32 rows of smooth or slightly ridged scales around mid-trunk. The dorsum is light brown or gray, overlaid by blackish dark spots with white centers arranged in irregular cross-bands. The venter is immaculate, dirty white.

Habitat & Biology: Typically found in sandy-pebbly places near beaches, grassy-scrubby slopes in lowlands and hides in crevices of stone walls or in holes in the ground; may also burrow swiftly in sand. Utilizes short and relatively weak limbs during slow motion, but also uses the agile, snake like movements of its body during more speedy locomotion. Easy to find near bush roots in loose sand, feeding on spiders, insects and their larvae. An ovoviparous species, females give birth to 2-10 young.

Distribution: Its range includes N Africa, some Mediterranean islands, including Cyprus and W Asia with a vertical distribution to 1200 m. It is represented with the nominate subspecies,

Chalcides ocellatus ocellatus in Cyprus and adjacent mainland (Pasteur, 1981; Mermer, 1997; Mermer *et al.*, 1997; Baran & Atatür, 1998) and encountered in Messoaria frequently in Northern Cyprus (Göçmen *et al.*, 1996a; Mermer *et al.*, 1997).

***Eumeces schneideri* (Daudin, 1802) (Schneider's Skink)**

Identification: A large, stout skink with a total length up to 42 cm. Rostral does not contact external nares; the lower eyelid with scales; ear opening big and oval shaped with 3-6 triangular shaped scales at anterior edge. Usually 24 or 26, rarely 22 or 28 rows of smooth body scales around mid-trunk. In adults, the dorsum changes from brown to gray or yellowish-brown with reddish or yellowish spots. A striking longitudinal yellow band usually present on the flanks. The venter is light yellow.

Habitat & Biology: Inhabits bushy open places with rocky substrates, and gardens. Hides under stones, in holes and burrows dug by itself or other burrowing animals. Feeds on insects, other invertebrates and lizards. A female lays 6-20 eggs.

Distribution: Its range extends from N Africa, Anatolia, Cyprus Island to W and Middle Asia with a vertical distribution to 1800 m. In Cyprus, the nominate race, ***E. schneideri schneideri*** (Doudin, 1802), an endemic subspecies, lives. This species faces a serious threat of extinction in the island. A specimen from Northern Cyprus was caught by Mr. Asaf SENOL (*The Ministry of Environment of Northern Cyprus*) in 1999 (Göçmen & Senol, Unpubl. results).

***Mabuya vittata* (Olivier, 1804) (Banded Skink)**

Identification: Total length up to 20 cm, or slightly longer. More slender bodied than the closely related ***M. aurata***. Nostril within a single plate; nuchal scales keeled; usually 32, rarely 31, 33 or 34 rows of keeled body scales around mid-trunk. The dorsum changes from olive green to brown, with three longitudinal lighter coloured bands, the vertebral band wider than the laterals. Also a light coloured longitudinal stripe on each flank. There may be dark rough maculations between the bands. Some or all of the bands and stripes may be lacking, dorsum homogenously coloured without a pattern. The venter is yellowish-white or light green, without maculations.

Habitat & Biology: Lives in bushy-scrubby and rocky places of open areas or forests, hiding among the roots of bushes or under stones. Feeds on insects. Ovoviviparous, a female gives birth to 1-4 young.

Distribution: Known from N Africa, Turkey and E Mediterranean countries, including Northern and Southern Cyprus; with a vertical distribution to 1000 m. Occurs everywhere in Northern Cyprus (Budak, 1974; Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a; Baran & Atatür, 1998; Tok *et al.*, 1999).

10. SNAKES IN CYPRUS

10.1. Family: Typhlopidae

***Typhlops vermicularis* Merrem, 1820 (Worm Snake)**

Identification: A slender snake rather like an earthworm. Head inconspicuous, not easily distinguishable from the tail; mouth subterminal; very short tail wide as long, with a small spine at tip. Eyes underneath scales, visible as two small black dots; Rostral plate approximately 1/3 of the head width, reaching up to the level of eyes on top of head; nasal partly divided; preocular present; 4 supralabials. Dorsal and ventral scales quite similar and cycloid shaped, in 21-24 rows around body, a dark spot at the posterior edge of each scale. Total length of the cylindrical snake around 25-35 cm, diameter may up to be 1 cm. The dorsum is pinkish or yellowish-brown; the venter yellowish.

Habitat & Biology: Mainly subterranean, inhabits damp soils or found under stones, fossorially preys on insect larvae and ants. When handled, tries to sting with the small spine at the end of its tail. No detailed data on its breeding biology, a female lays 4-8 eggs.

Distribution: Westwards from Afghanistan, widespread in Cyprus, Turkey, Greece, E Bulgaria, Albania and the southern parts of former Yugoslavia; with a vertical distribution to 1500-1600 m (Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a; Baran & Atatür, 1998).

10.2. Family: Colubridae

***Coluber jugularis* Linnaeus. 1758 (Large Whip Snake)**

Identification: Head well defined; total length up to 300 cm, being the longest snake of Cyprus. Pupils round. Usually 2 preoculars, the upper one bigger; usually 2, rarely 3 postoculars; usually 8, rarely 7 supralabials. 19 rows of smooth dorsal scales at mid-body. Ventrals and subcaudals between 189-215 and 99-128 respectively. The dorsum of young gray brown with dun-coloured and black maculations, in adults bright black. Under of head in adults yellowish-red, without maculations. The venter is red with roundish black markings. In young the venter is yellowish-white, with blackish markings only at the edges.

Habitat & Biology: Lives in dry, open places, meadows, rocky river banks, rocky-stony slopes, fields and swamps; can also be seen in gardens, vineyards and cemeteries. Hides under stones and in rodent galleries. Feeds on rodents, birds, chicks and lizards; sometimes even on other snakes. Not poisonous, but bites readily. Usually does not retreat and tries to defend itself by producing a hissing sound. A female lays 7-11 eggs. Quite useful in agricultural pest control, consuming crop-harming rodents.

Distribution: Widespread in Cyprus, Turkey, Syria, Iraq, Lebanon, Jordan and Israel; with a vertical distribution to 1000 m. Occurs in Cyprus anywhere (Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a; Baran & Atatür, 1998).

***Coluber cypriensis* Schätti, 1985 (Cyprus Whip Snake)**

Identification: Head well defined, it has a long and slender body reaching in length up to 110 cm. It is an endemic and apparently uncommon species from Cyprus. Generally resembles juveniles of the Large Whip Snake, *Coluber jugularis*. Usually 2 preoculars, the upper one bigger; usually 2 postoculars; usually 8 supralabials; typically 17 rows of smooth dorsal scales at mid-body. Ventrals and subcaudals vary between 202-204 and 124-132, respectively. The dorsum is black, dark brown or olive-brown with dun-coloured and black maculations, and also a well-defined white ring around the eyes.

Habitat & Biology: This snake species was identified recently and therefore, little information is known about its habitat. It prefers rocky areas covered with vegetation, is a diurnal species and feeds mainly on lizards. It has a relatively large mouth with small sharp teeth without venom. The Budak's Snake-eyed Skink, *Ablepharus budaki* Göçmen *et al.*, 1996 is an appropriate prey for this species. Judging from its body, it must be a good climber.

Distribution: This is another endemic reptile species of Cyprus Island. Occurs in Akamas, the Paphos forest and in a few other areas of the Paphos district. No record from Northern Cyprus yet (Schätti, 1985; Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a).

***Coluber najadum* (Eichwald, 1831) (Dahl's Whip Snake, "Arrow Snake")**

Identification: A slender snake with a total length up to 140 cm. Eyes large, with round pupils. 2 preoculars, rarely 1 or 3; 2 postoculars; usually 8, sometimes 9 or 7 supralabials. Usually 19, rarely 17 rows of smooth dorsal scales at mid-body. Ventrals and subcaudals between 200-236 and 100-140, respectively. The dorsum is gray or bluish-brown anteriorly, yellowish or reddish-

brown posteriorly. Sides of neck with a row of roundish black markings, the rims of which are lighter coloured; these get smaller posteriorly and disappear at the anterior part of the body. The front and back edges of the eyes are surrounded with a thin yellowish band. The venter is immaculate, yellowish-white.

Habitat & Biology: Usually found in dry, stony and bushy places; also seen in gardens, at the edges of cultivated fields and quite near to houses. Can climb on bushes and trees. Feeds on lizards and insects. Very quick moving, keeps anterior part of its body above ground while speeding along, hence nicknamed as “arrow snake”. A poisonless diurnal species, females of which lay 3-5 eggs.

Distribution: Known from Northern Cyprus, the southern parts of the Balkan Peninsula, Turkey, Syria and Iran; with a vertical distribution to 1800 m. First record on the presence of this snake in Cyprus was reported by Boulenger (1910). An alcohol material dated from 1962 collected from K. Kaymakli-Nicosia (Northern Cyprus) is present in the ZDEU (Zoology Department of Ege University, Izmir, Turkey) collection. Recently seen in Lapethos-Kyrenia (Northern Cyprus) by Göçmen in 1996 (Göçmen *et al.*, 1996a). Apparently, this snake species faces a serious threat of extinction in Cyprus as the Schneider’s Skink, *Eumeces schneideri*, the Grass Snake, *Natrix natrix* and the Dwarf Snake, *Eirenis modestus*.

***Coluber nummifer* Reuss, 1834 (Coin Snake)**

Identification: Head large and distinct; total length up to 140 cm. Pupils round. Usually 3 preoculars; usually 2, sometimes 3 and rarely 4 postoculars; usually 9, sometimes 8 or 10 supralabials. 23-25 rows of keeled dorsal scales at mid-body. Ventrals and subcaudals between 196-214 and 79-89 respectively. The dorsum is yellowish or gray brown, usually with roundish dun-coloured maculations, which sometimes join together. Dark markings on top and sides of head. Flanks with two rows of dark blotches. Dorsal and lateral markings form stripes or lines on tail. The venter is yellowish-white with blackish spots.

Habitat & Biology: Prefers rocky areas with scanty vegetation. Usually feeds on lizards, small mammals, birds and chicks; also on gekkonids, occurring at the earthen roofed houses. A quick moving and readily biting species, but poisonless. A female lays 5-10 eggs.

Distribution: Widespread in Cyprus Island, Syria, Lebanon, Israel, Jordan, Egypt, Turkey and Aegean islands; with a vertical distribution to 2000 m (Göçmen *et al.*, 1996a; Baran & Atatür, 1998).

***Eirenis modestus* (Martin, 1838) (Dwarf Snake)**

Identification: A slender bodied species with a total length up to 70 cm. Pupils round; usually 1 rarely 2 preoculars; 2 postoculars, rarely 1 or 3; 7 supralabials, rarely 8. Usually 17, rarely 19 rows of dorsal scales at mid-body. Ventrals and subcaudals between 143-189 and 51-81, respectively. The dorsum is yellowish-brown; black blotches on the head and nape distinct in young, not so or completely lacking in mature and old specimens. The dorsum usually immaculate, but in some with more or less dun-coloured markings. The venter is yellowish-white, without maculations.

Habitat & Biology: Lives in rocky areas with sparse vegetation. Shelters under stones. Feeds on insects and spiders, even earthworms etc. A female lays 3-8 eggs.

Distribution: Is widespread in Cyprus, the Caucasus, NW Iran, Turkey, Syria, Lebanon and in some Aegean islands; with a vertical distribution to 2000 m (Schmidtler, 1984; Osenegg, 1989; Baran & Atatür, 1998). In Cyprus, it is apparently an uncommon species and so, only once was seen in Lapethos-Kyrenia (Northern Cyprus) by Göçmen in 1997.

***Natrix natrix* (Linnaeus, 1758) (Grass Snake)**

Identification: A distinctly slender necked snake, with a total length up to 150 cm. A single preocular, rarely 2; 3 postoculars, rarely 2 or 4; 7 supralabials, rarely 6 or 8. Usually 19, rarely 17 or 18 rows of keeled dorsal scales at mid-body. Ventrals and subcaudals between 162-184 and 50-80, respectively. The dorsum is gray or buff-brown, rarely black. Over this ground colouration, usually two light coloured longitudinal lines present, but sometimes not distinct or absent. Between and lateral to these lines, black blotches are seen. Yellow half-moons usually distinct at posterolaterals of head. A row of black markings on flanks. The venter is yellowish-white, more or less with black markings.

Habitat & Biology: Prefers grasslands and rocky-stony places close to a water body; also seen in calm waters or streams, in gardens and cultivated fields, barns or houses. When handled does not bite, but secretes an evil smelling liquid from anal gland; sometimes plays dead, lying on back with mouth open. Feeds on frogs and toads, small fish and rodents. A female lays 6-13 eggs, sometimes a lot of eggs are laid in the same nest by more than a few females.

Distribution: Its range extends from Europe, NW Africa towards east to Middle Asia, including Cyprus; with a vertical distribution to 2400 m. It is the rarest snake of Cyprus and, due to its adaptation to aquatic habitats, also the most vulnerable and endangered one. Believed to be

extinct since the sixties (Schmidtler, 1984; Oseneegg, 1989; Schätti & Sigg, 1989). Wiedl & Böhme (1992) rediscovered a seemingly intact, reproducing population in the northern foothills of Mt. Troodos (District Nicosia). The subspecific status of this population in the southern part of the Island is not clear. However, among the few voucher specimens of this snake known from Cyprus, there is a record from Gönyeli-Nicosia (Northern Cyprus) (ZDEU 117/1960). This indicates a formerly wide distribution rather than a restriction to higher and therefore cooler elevations. This specimen belongs to *N. n. persa* (Pallas, 1814) (Göçmen *et al.*, 1996a).

***Telescopus fallax* (Fleischmann, 1831) (Cat Snake)**

Identification: A slender necked and broad headed snake with a total length up to 70-80 cm. Eyes small, with vertical pupils. A single preocular; 2 postoculars, rarely 1 or 3; 8 supralabials, sometimes 7 or 9. 19, rarely 21 rows of smooth dorsal scales at mid-body. Ventrals and subcaudals between 169-243 and 47-78 respectively. The dorsum is gray brown with black maculations, which become faded towards the posterior of body. A dark temporal stripe present. A row of maculations also on flanks. The venter is yellowish-white, with dun-coloured marblings.

Habitat & Biology: Prefers stony areas, sunny rocky slopes, sandy places with bushy plant cover adjacent to roads and ruins. Feeds on lizards and small mammals. Forages at dawn and dusk, killing its prey with venom, then swallowing. Has fangs at back of upper jaw, so not dangerous to man. A female lays 7-8 eggs.

Distribution: Widespread in Cyprus, SW Asia, Balkan countries, Turkey and Aegean islands; with a vertical distribution to 1600 m. It is one of the most frequently encountered snake species in Northern Cyprus and is represented with an endemic subspecies, *T. f. cypriaca* (Baran, 1976; Göçmen *et al.*, 1996a).

***Malpolon monspessulanus* (Hermann, 1804) (Montpellier Snake, “Yellow Snake”)**

Identification: A slender bodied narrow headed snake with a total length up to 200 cm. Eyes large, with a longitudinal depression or groove between them. A single preocular; 2, rarely 3 postoculars; 8, sometimes 9 supralabials. 17 or 19 rows of slightly grooved dorsal scales at mid-body. Ventrals and subcaudals between 155-190 and 67-102, respectively. The dorsum of adults greenish-gray brown and without maculations; in young, gray or brown, with small blackish blotches, the edges of which are lined in white. The venter is whitish or yellowish-white, with black or gray spots.

Habitat & Biology: Prefers open, sparsely vegetated, rocky and dry habitats, also seen around irrigation ditches in gardens. Feeds on lizards, small mammals and birds. Prey animals are killed within minutes by its venom, however its fangs are small and at back of upper jaw, so not very effective on humans, but still can produce numbing, stiffness and swelling. A female lays 4-12 eggs.

Distribution: Its range includes Cyprus, S Europe, Turkey, N Africa and W Asia; with a vertical distribution to 1500 m. In Cyprus, can be encountered everywhere. The race inhabited in Cyprus and adjacent mainlands is *M. m. insignitus* (Geoffroy-St. Hilaire, 1827) (Osenegg, 1989; Schätti & Sigg, 1989; Böhme & Wiedl, 1994; Baran & Atatür, 1998).

10.3. Family: Viperidae

***Vipera lebetina* (Linnaeus, 1758) (Blunt-nosed Viper, “Batsalli, Deaf Snake”)**

Identification: A stout snake with a total length up to 130-180 cm, the most stout and dangerous snake species of Cyprus. Top of the head covered with small, keeled scales, including over the eyes. Pupils vertical; the ring of scales around the eyes consists of 14-18 scales. Usually 3, rarely 2 rows of scales between eyes and supralabials. 10 supralabials, sometimes 9 or 11. 25, rarely 27 rows of keeled dorsal scales at mid-body. Ventrals and subcaudals between 155-180 and 35-58 respectively. The dorsum is gray or dun-brown, usually with distinct large blackish maculations, which are sometimes two pieced, and their edges surrounded with dun-coloured bands, their middles brick-red. Temporal stripes faded; a row of dark maculations on flanks. The venter is slightly pinkish-yellow or white, with black spots.

Habitat & Biology: Frequents flat meadows or pastures without trees and rocky places; seen also in ruins, cultivated fields and gardens. Largely nocturnal, feeds on small rodents, birds, lizards and snakes; swallowing its prey after striking and killing it. A poisonous species with a venom which may be dangerous to man, or fatal if not treated, but does not strike if not disturbed. The ovoviviparous females give birth to 5-7 young.

Distribution: Its range includes Cyprus, N Africa, Cyclades, Turkey, W and Middle Asia; with a vertical distribution to 2000 m. This venomous snake species of Northern Cyprus, is frequently seen in the vicinity of Geçitköy (Panagra), Karsiyaka (Vasilia) and Lapta (Lapethos) (District Kyrenia) and also in Karpaz District. It is represented with the nominate race, *V. lebetina lebetina* which is an endemic subspecies for Cyprus (Osenegg, 1989; Schätti & Sigg, 1989; Böhme & Wiedl, 1994; Göçmen *et al.*, 1996a). Böhme & Wiedl (1994) detected a specimen from the vicinity of Paphos, which had a markedly raised superciliary edge on the right side only, forming a small but distinct, anterodorsally-directed “horn”.

11. LEVHALAR (PLATES)

LEVHA (PLATE) 1

- Şekil 7: Erkek **Bufo viridis**, Gönyeli (Lefkoşe), fotoğraf B. Göçmen.
Figure 7: A male **Bufo viridis** specimen from Geçitköy (Kyrenia), photo by B. Göçmen.
- Şekil 8: Dişi **Bufo viridis**, Geçitköy (Girne), fotoğraf B. Göçmen.
Figure 8: A female **Bufo viridis** specimen from Geçitköy (Kyrenia), photo by B. Göçmen.
- Şekil 9: Geçitköy Göleti'nden (Girne) bir görünüş, fotoğraf B. Göçmen.
Figure 9: A view from Geçitköy Lakelet (Kyrenia), photo by B. Göçmen.
- Şekil 10: **Hyla savignyi**, Geçitköy (Girne), fotoğraf B. Göçmen.
Figure 10: A **Hyla savignyi** specimen from Geçitköy (Kyrenia), photo by B. Göçmen.
- Şekil 11: Geçitköy Göleti (Girne) civarından **Hyla savignyi**'nin bulunduğu bir habitat, fotoğraf B. Göçmen.
Figure 11: A habitat from the vicinity of Geçitköy Lakelet (Kyrenia), photo by B. Göçmen.
- Şekil 12: **Rana ridibunda**, Gönyeli (Lefkoşe), fotoğraf B. Göçmen.
Figure 12: A **Rana ridibunda** specimen from Gönyeli (Nicosia), photo by B. Göçmen.
- Şekil 13: Gönyeli Göleti'nden (Lefkoşe) bir görünüş, fotoğraf B. Göçmen.
Figure 13: A view from Gönyeli Lakelet (Nicosia), photo B. Göçmen.
- Şekil 14: Dişi bir **Mauremys caspica**, Kanlı Dere (Küçük Kaymaklı, Lefkoşe), fotoğraf B. Göçmen.
Figure 14: A female **Mauremys caspica** from Kanlı Dere (Küçük Kaymakli, Nicosia), photo by B. Göçmen.

LEVHA (PLATE) 2

- Şekil 15: Şekil 14'deki örnekten detaylanmış bir görüntü, fotoğraf B. Göçmen.
Figure 15: A head detail of the former specimen, photo by B. Göçmen.
- Şekil 16: **Caretta caretta**, 3.5 yaşında genç bir birey, fotoğraf M. K. Atatür.
Figure 16: A 3.5 years old **Caretta caretta** specimen, photo by M. K. Atatür.
- Şekil 17: **Chelonia mydas**, 3.5 yaşında genç bir birey, fotoğraf M. K. Atatür.
Figure 17: A 3.5 years old **Chelonia mydas** specimen, photo by M. K. Atatür.
- Şekil 18: **Cyrtopodion kotschy**, Lapta (Girne), fotoğraf B. Göçmen.
Figure 18: A **Cyrtopodion kotschy** specimen from Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 19: **Hemidactylus turcicus** (Massimo Capula, 1990'dan: Amphibians & Reptiles, Macdonald Orbis, London, 256 pp).
Figure 19: A **Hemidactylus turcicus** specimen (from Massimo Capula, 1990: Amphibians & Reptiles, Macdonald Orbis, London, 256pp).
- Şekil 20: Erkek **Laudakia stellio**, Lapta (Girne), fotoğraf B. Göçmen.
Figure 20: A male **Laudakia stellio** specimen from Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 21: **Chamaeleo chamaeleon**, Tepebaşı (Girne), fotoğraf B. Göçmen.
Figure 21: A **Chamaeleo chamaeleon** specimen from Tepebaşı (Kyrenia), photo by B. Göçmen.
- Şekil 22: **Acanthodactylus schreiberi** (üstte Juvenil ve altta ergin erkek örnek), Salamis (Magosa), fotoğraf B. Göçmen.
Figure 22: **Acanthodactylus schreiberi** specimens (juvenile-top and adult male-bottom) from Salamis (Famagusta), photo by B. Göçmen.

LEVHA (PLATE) 3

- Şekil 23: Erkek **Lacerta troodica** (Lapta, Girne), fotoğraf B. Göçmen.
Figure 23: A male **Lacerta troodica** specimen from Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 24: Lapta'dan (Girne) bir **Lacerta troodica**, **Laudakia stellio**, **Hemidactylus turcicus** ve **Cyrtopodion kotschy** habitatı, fotoğraf B. Göçmen.
Figure 24: A habitat of **Lacerta troodica**, **Laudakia stellio**, **Hemidactylus turcicus** and **Cyrtopodion kotschy** from Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 25: Dişi **Ophisops elegans** örneği, Gönyeli (Lefkoşe), fotoğraf B. Göçmen.
Figure 25: A female **Ophisops elegans** specimen from Gönyeli (Nicosia), photo by B. Göçmen.
- Şekil 26: Erkek **Ophisops elegans** örneği, Lapta (Girne), fotoğraf B. Göçmen.
Figure 26: A male **Ophisops elegans** specimen from Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 27: Lapta (Girne) deniz kıyısından bir **Ophisops elegans** biyotopu, fotoğraf B. Göçmen.
Figure 27: A habitat of **Ophisops elegans** from the coast of Lapethos (Kyrenia), photo by B. Göçmen.
- Şekil 28: **Ablepharus budaki** (Holotip), Adatepe Mahallesi (Lapta, Girne), fotoğraf B. Göçmen.
Figure 28: An **Ablepharus budaki** specimen (Holotype) from Adatepe (Lapethos, Kyrenia), photo by B. Göçmen.
- Şekil 29: Dikarpaz yolunda (Karpaz Bölgesi, Magosa) **Ablepharus budaki**, **Chalcides ocellatus** ve **Coluber nummifer** biyotopu, fotoğraf B. Göçmen.
Figure 29: A habitat of **Ablepharus budaki**, **Chalcides ocellatus** and **Coluber nummifer** from Dikarpaz Road (Karpaz District, Famagusta), photo by B. Göçmen.
- Şekil 30: **Chalcides ocellatus**, Bostancı (Güzelyurt, Lefkoşe), fotoğraf B. Göçmen.
Figure 30: A **Chalcides ocellatus** specimen from Bostancı (Güzelyurt, Nicosia), photo by B. Göçmen.
- Şekil 31: Geçitköy (Girne) civarından **Chalcides ocellatus**, **Acanthodactylus schreiberi** ve **Coluber jugularis** biyotopu), fotoğraf B. Göçmen.
Figure 31: A biotope of **Chalcides ocellatus**, **Acanthodactylus schreiberi** and **Coluber jugularis** from Geçitköy (Kyrenia), photo by B. Göçmen.

LEVHA (PLATE) 4

- Şekil 32: Erkek **Eumeces schneideri**, fotoğraf A. Senol (Kuzey Kıbrıs Çevre Bakanlığı, Çevre-Koruma Dairesi).
Figure 32: A male **Eumeces schneideri** specimen, photo by A. Senol (The Ministry of Environment, Northern Cyprus).
- Şekil 33: Ergin bir **Mabuya vittata** örneği, Yayla (=Kumköy) (Lefkoşe), fotoğraf B. Göçmen.
Figure 33: An adult **Mabuya vittata** specimen from Yayla (=Kumköy) (Nicosia), photo by B. Göçmen.
- Şekil 34: Genç **Mabuya vittata** örneği, Yayla(=Kumköy) (Lefkoşe), fotoğraf B. Göçmen.
Figure 34: A young **Mabuya vittata** specimen from Yayla(=Kumköy) (Nicosia), photo by B. Göçmen.
- Şekil 35: Toprak Solucanını andıracak şekilde grup halinde **Typhlops vermicularis** örnekleri, fotoğraf M. K. Atatür.
Figure 35: **Typhlops vermicularis** specimens, photo by M. K. Atatür.
- Şekil 36: Gönyeli'den (Lefkoşe) bir **Typhlops vermicularis** örneği, fotoğraf B. Göçmen.
Figure 36: A **Typhlops vermicularis** specimen from Gönyeli (Nicosia), photo by B. Göçmen.
- Şekil 37: Ergin bir **Coluber jugularis** örneği, fotoğraf M. K. Atatür.
Figure 37: An adult **Coluber jugularis** specimen, photo by M. K. Atatür.
- Şekil 38: Ergin bir **Coluber jugularis** örneğinin baş kısmı, Gönyeli (Lefkoşe), fotoğraf B. Göçmen.
Figure 38: Head of an adult **Coluber jugularis** specimen from Gönyeli (Nicosia), photo by B. Göçmen.

- Şekil 39: Genç **Coluber jugularis** örneği, fotoğraf S. C. Anderson (Leviton et. al., 1992'den).
Figure 39: A juvenile **Coluber jugularis** specimen, photo by S. C. Anderson (from Leviton et. al., 1992).
- Şekil 40: Güney Kıbrıs'tan bir **Coluber cypriensis** örneği, fotoğraf Teschner (Schätti & Sigg, 1989'dan).
Figure 40: A **Coluber cypriensis** specimen from Southern Cyprus, photo by Teschner (from Schätti & Sigg, 1989).
- Şekil 41: Bir **Coluber cypriensis**(Güney Kıbrıs) örneğinin baş kısmı, fotoğraf A. Demetropoulos (<http://www.cosmosnet.net/cyprus/explore/3snake.htm> den).
Figure 41: Head of a **Coluber cypriensis** from Southern Cyprus, photo by A. Demetropoulos (from <http://www.cosmosnet.net/cyprus/explore/3snake.htm>).

LEVHA (PLATE) 5

- Şekil 42: **Coluber najadum**, fotoğraf S. Üçüncü.
Figure 42: A **Coluber najadum** specimen, photo by S. Üçüncü.
- Şekil 43: **Coluber nummifer**, fotoğraf M. K. Atatür.
Figure 43: A **Coluber nummifer** specimen, photo by M. K. Atatür.
- Şekil 44: **Eirenis modestus**'a ait bir ergin(solda) ve bir genç (sağda) örnek, fotoğraf M. K. Atatür.
Figure 44: An adult and a juvenile specimen of **Eirenis modestus**, photo by M. K. Atatür.
- Şekil 45: **Natrix natrix**, fotoğraf S. Üçüncü.
Figure 45: A **Natrix natrix** specimen, photo by S. Üçüncü.
- Şekil 46: Gönyeli'den (Lefkoşe) bir **Telescopus fallax** örneği, fotoğraf B. Göçmen.
Figure 46: A **Telescopus fallax** specimen from Gönyeli (Nicosia), photo by B. Göçmen.
- Şekil 47: Şekil 46'daki örnekten detay, fotoğraf B. Göçmen.
Figure 47: A detail from the specimen in fig. 46, photo by B. Göçmen.
- Şekil 48: **Malpolon monspessulanus**, fotoğraf B. Schätti (Schätti & Sigg, 1989'dan).
Figure 48: A **Malpolon monspessulanus** specimen, photo by B. Schätti (from Schätti & Sigg, 1989).
- Şekil 49: **Vipera lebetina**, Geçitköy (Girne), fotoğraf B. Göçmen.
Figure 49: A **Vipera lebetina** specimen from Geçitköy (Kyrenia), photo by B. Göçmen.

LEVHA (PLATE) 1



LEVHA (PLATE) 2



LEVHA (PLATE) 3



LEVHA (PLATE) 4



LEVHA (PLATE) 5



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