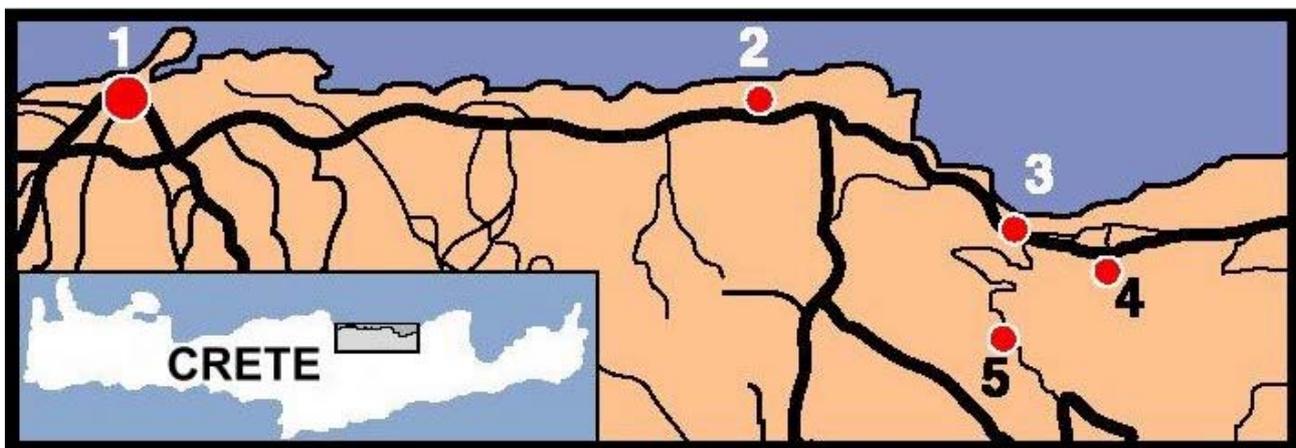


Some herpetological observations on Crete

Jelle Hofstra
Kerkwal 54
NL-8401 CH Gorredijk
The Netherlands

INTRODUCTION

From April 25 to May 9 my wife and I spent a vacation on the island of Crete, in the small coastal town of Stalis (Stalida), located approximately 45 km east of Heraclion. During our stay, Crete was blistered by a heat wave that caused temperatures of 33°C in the shade. I suspect that these unseasonably high temperatures caused many reptiles to remain in hiding, more so than usual. In spite of these very high temperatures we did manage to observe all three species of amphibians that are known to occur on Crete. Since our herpetological outings were restricted to the daytime, we did not encounter any of the mostly nocturnal geckos. Many locations on this beautiful island were already visited by Strijbosch in May of 1982, and this article can therefore be regarded as a small addition to his previous publication (STRIJBOSCH, 1983).



1 Heraclion 2 Analipsi 3 Stalis 4 Mália 5 Mochós Localities mentioned in the text.

STALIS

On an almost daily basis we took a walk around the little town of Stalis. During these outings, the mountainous country-side was not forgotten. These mountainous areas are predominantly covered in thorny bushes, an occasional tree and large numbers of rocks. The numerous curvy trails worn out in the country side and the remains of several old camp fires indicated that this area is heavily visited by humans in the high season, and I did not find many animals here.

GIANT EMERALD LIZARD

One of the very few lizards that we did find here was the Giant Emerald Lizard (*Lacerta trilineata polylepidota*). This subspecies is also known to occur on the islands Kythera and Theodoro (NETTMANN & RYKENA, 1984) and remains smaller than the nominate species. During the reproductive season, the normally uniform green males have a blue throat which makes them resemble the common Green Lizard (*Lacerta viridis*).

The females of this species have light spots on their flanks, and conspicuous whitish stripes run from the back of the head towards the tail. Juveniles and subadults are usually of a brownish hue, often with three or five narrow light longitudinal stripes.

These animals would appear at the most unexpected times and, because of the excessive heat, were moving extremely fast. Even before one could reach for a camera they would have vanished again, and unfortunately I did not succeed in taking a single decent picture of these beautiful animals.

One particular adult could be found on almost exactly the same spot nearly every day. Juveniles were a bit more common than adults. Along road sides one could observe both juveniles and subadult animals.

It appears that in the immediate vicinity of human settlements these animals often fall prey to domesticated animals. During the first few days of our stay in Stalis I received news of two lizards that had been killed by pets; one by a cat and another by a dog. In neither case I succeeded in finding the dead lizards when searching the next day.

OCCELLATED SKINK

Although STRIJBOSCH (1983) reported Ocellated Skinks (*Chalcides o. ocellatus*) to be extremely numerous near Platanes, we only managed to see one single animal. It was on a tarmac road, basking in the sun against a little wall. Upon my arrival, on this blazing hot day, the lizard disappeared into its hiding place and wasn't seen again throughout the rest of our vacation. I estimate the total length of this animal to have been approximately 20 cm. Its coloration was brownish, which does not confer with the illustration in Elsevier's Field Guide to Reptiles and Amphibians. This observation was confirmed by the locals on Crete. One of them showed me the proper coloration by holding a bottle of brownish olive oil up against the light. As far as I could tell, the local name for this lizard is 'Liaconi' (pronounced as 'Jaconi'), and the Greek think that this animal is extremely venomous. Other locals referred to this species as 'Sawra'. It never became completely clear which animal was perceived as life-threatening by the Greek. When I asked some of the locals to point out the dangerous animal in my field guide, some of them indicated the Spanish Skink (*Chalcides bedriagai*), which is only found on the Iberian peninsula, while others pointed out Johan's Skink (*Ablepharus kitaibelii*). The coloration of both of these species actually corresponds more with the coloration of the Ocellated Skinks on Crete, than does the illustration of this species in Elsevier's Field Guide. Johan's Skink has a large geographical range, but does not occur on Crete. However, it is known from a small island in the Agios Nikolaos bay. Only two people - who seemed most knowledgeable - managed to pick out the illustration of *Chalcides o. ocellatus* in my field guide without hesitation.

BALKAN WHIP SNAKE



Dead Balkan Whip Snake, *Coluber gemonensis*.

Photo: J. Hofstra

One dead specimen of the Balkan Whip Snake (*Coluber gemonensis*) was found behind one of the typical Crete bus stops - one of those structures made out of wooden poles. The animal was 74 cm long and, judging from its appearance and smell, it must have been dead for a few days already. Its cause of death was not clear, although it did not seem to be a road kill, by the looks of its injuries.

It would not surprise me if the snake had been beaten to death, since most locals have a great fear of everything that slithers. The Balkan Whip Snake usually inhabits scrub habitats, vineyards, overgrown ruins, open forest, road sides and

similar habitats. It is active during the day. Generally, the edges of some of the dorsal scales bear tiny white spots. The ventral area is of a light coloration with small dark spots on the outside of the ventral scales.

MÁLIA

The beach town of Mália is situated about 7 km east of Stalis. A relative told us that we could find a small brook here, which empties into the Mediterranean. This brook would harbor turtles, and could easily be reached on a bicycle by following the coastal road. All this turned out to be true.



Juvenile Caspian Stream Turtle,
Mauremys rivulata.

Photo: J. Hofstra

CASPIAN STREAM TURTLE

Immediately upon arrival we spotted a Caspian Stream Turtle (*Mauremys rivulata*), that was basking in the sun but rapidly slid into the very clear water. These turtles turned out to be very shy, but after a while we managed to count four little turtle heads poking out of the water. Tourism probably accounted for part of the shyness that these animals displayed - people seemed to be very aware of the presence of the turtles - and they hardly ever came ashore. We decided to try our luck again early next morning, and proved successful. We even managed to catch two animals. The turtles were relatively easily caught because they were still very slow, most likely due to the cold water they must have just emerged from. The largest specimen had a carapace length of approximately 15 cm. The other one - a juvenile - measured about 8 cm. The larger animal secreted a penetrating, musky odor. Since the sea was only a mere 150 m away from the spot where the turtles were caught, the water in the stream was probably brackish.

We also observed numerous basking turtles in a ditch that ran parallel to the coastal road. These animals were not visible from the road, but while seated on an old floating raft we saw the animals - both young and old - swim past underneath us.

Formerly, three subspecies of the Caspian Stream Turtle were recognized : *Clemmys caspica leprosa*, which inhabits the Iberian peninsula and northwestern Africa, *Clemmys caspica rivulata* of southeastern Europe and western Asia, and *Clemmys caspica caspica* in the more northern and eastern parts of the species' distribution range (GRZIMEK, 1973). *Mauremys leprosa* and *M. rivulata* are currently considered valid species, while *Mauremys caspica* has three subspecies : *Mauremys caspica caspica*, *M. c. siebenrocki*, and *M. c. ventrimaculata* (FRITZ & WISCHUF, 1997). Animals found in Greece and Crete are of the species *Mauremys rivulata*. The turtles from Crete have also been described earlier as a separate subspecies, *Mauremys caspica cretensis*, which was characterized by its light pigmentation and bright iris (PRITCHARD, 1979). This distinction was based on the fact that especially in older individuals the coloration may fade considerably (age-related flavism). These turtles seem to be very tolerant to brackish and even polluted water. Often they 'hibernate' during the summer when the smaller streams dry out.

It appears that each body of water on Crete harbors at least a few of these turtles. My first introduction to these animals on Crete was from the bus that took us from Heracion to Stalis. While enjoying the beautiful scenery I spotted an adult Caspian Stream Turtle in a tiny pool, not much more than a few dozen meters across, near the town of Analipsi.

GREEN TOAD



Green Toad, *Bufo viridis*.

Photo: J. Hofstra

Early in the morning, on our way to Mália, we discovered a Green Toad (*Bufo viridis viridis*) that was run over by a car. Although we could not find any egg strands, the size of the animal indicated it must have been a female. When I related this incident to the owner of a bar we visited briefly, he indicated that the area was full of these animals. All I needed to do was walk around his house and turn over a couple of rocks. Unfortunately, because of the prevailing drought, this search turned out in nothing. The bar owner recommended investigating a specific terrain that, judging from the soil structure, had been partially inundated. This piece of

land was mostly covered with a bamboo-like type of reeds (*Arundo donax*). Some of the locals used this area for growing their vegetables, and it also contained a plastic-covered greenhouse in which someone was growing bananas. In spite of the intense heat I decided to start turning over rocks, and within ten minutes I discovered one individual. Since it seemed like this was probably the only toad in the area, we decided to try and investigate the greenhouse. The bananas were irrigated on a regular basis and the humidity inside was very high. A very friendly and interested Greek gave us permission to visit. By lifting some of the banana leaves that were on the ground, our first Green Toad was found soon. After this discovery we decided to leave because the climate inside the greenhouse was almost unbearable.

CAT-EYED SNAKE

Although we did not find any Cat-eyed Snakes (*Telescopus fallax*), I would still like to mention this species. As soon as the locals found out that I was interested in snakes - something generally considered as quite odd - the Cat-eyed Snake instantly became a hot topic. The Greek call this animal 'Oxia' (pronounced as 'Osjá'), and are convinced that this snake is very dangerous. It is regarded as deadly and everyone seemed to know some sort of grueling story about this animal and its victims. Even a doctor who had spent considerable time working in a hospital was of the opinion that, although maybe not deadly, a bite by this species would most definitely have serious consequences for humans.

Elsevier's Field Guide to Reptiles and Amphibians describes the toxicity of this species as follows: "has grooved fangs in the rear of the upper jaw which are used to inject a venom into the prey. In the case of small lizards, these may succumb within two or three minutes. It is unlikely that this snake poses a threat to humans because its mouth is too small to effectively employ its fangs". The locals turned this down as complete nonsense. Interestingly, many of them did not appear to know the snake in question when asked to point it out in the field guide. However some, including the previously mentioned bar owner, flawlessly indicated the illustration of the Cat-eyed Snake. In fact, it turned out that his cat had just caught and killed a Cat-eyed Snake the day before. He thought that the dead snake might still be underneath the hedge. Although we examined the entire hedge, the animal was never found.



The lake near Mochós. Habitat of the Caspian Stream Turtle, Tree Frog, Green Frog and Dice Snake.

Photo: J. Hofstra

MOCHÓS

The town of Mochós is located in the mountains approximately nine kilometers from Stalis, at an elevation of about 250 to 300 m, according to the locals. In the back country is a small lake with a diameter of roughly 100 m, which is only accessible by two nearly impassible, unpaved and dusty roads. If not pointed out by the locals, most tourists will not notice this body of water. During the winter months, rain water that runs down from the mountains is collected here to be



Crete Great Green Frog (*Rana cretensis*).

Photo: J. Hofstra

used in spring and summer to irrigate the surrounding olive plantations and vineyards.

Around the lake are some gasoline-powered pumps, which suck up the water through 5-6 cm diameter hoses. It seems to me that the inhabitants of this lake, like fish, amphibians and reptiles, hardly stand a chance after being sucked into one of these hoses. In the fall, so much water has evaporated or has been used that the lake is dry, save for a few deep holes.

Dropped off early in the morning by our Greek friend Jiannis Frudarakis, I spent 6 hours in the blazing heat (with temperatures that exceeded 30°C in the shade) observing frogs, snakes, and turtles, before returning on Jiannis' mountain bike.



Colour varieties of the Crete Great Green Frog (*Rana cretensis*).

Photo: J. Hofstra

GREAT GREEN FROG

Out of the Green Frog-complex (*Rana esculenta*-complex) only one species inhabits Crete, *Rana cretensis*, which has only been recognized a few years ago (BEERLI et al., 1994). New species of Green Frogs are still being described, and a different form, *Rana epeirotica*, can be found on the Greek mainland (see : BRINGSØE, 1985). The croaking of the frogs could be heard from a distance, and upon approach several dozen frogs jumped in the water ahead of me - usually while emitting a squeaking sound. Although the majority of the animals was olive-gray, their coloration was variable. I saw animals with beautiful gray mottled backs, ruddy animals, mossy green animals with yellowish dorsolateral ridges, and even a bright

green frog that would not have looked out of place in a Dutch ditch. The snout-vent length of the frogs varied between 4 and 9 cm.

Unfortunately I did not bring any equipment for catching and identifying some of the tadpoles. However, at first glance, all appeared to be larvae of the Green Frogs.



Crete Tree Frog, *Hyla arborea kretensis*.

Photo: J. Hofstra

TREE FROG

I had hardly arrived at my destination when I heard, above the background noise of the chorus of Green Frogs, the calls of several Tree Frogs (*Hyla arborea kretensis*) coming from different directions. Approaching and finding these animals by tracing their calls turned out to be impossible. At a distance of several meters, the calls stopped, and looking through the surrounding foliage resulted in nothing. After having walked around for a little while, I suddenly discovered in the wet grass a bright green Tree Frog jumping for cover. Because of its yellowish-tan throat I was under the assumption that I caught a male. However, STRIJBOSCH (1983) reports that the males of this subspecies typically possess a dark band across the throat, level with the vocal sac. I have checked the tadpoles, to see if I could find any larvae of the Tree Frog. These tadpoles are easily distinguished from the larvae of the Green Frog by their higher tail fin, which originates higher on the body. However, I was not able to spot any. Strijbosch also failed to find any larvae of the Tree Frog in the month of May and suspected that at this time of year the reproductive season has barely started.

TURTLES AND INTRODUCED SPECIES



The carapace of *Testudo marginata*.

Photo: J. Hofstra

The lake near Mochós also revealed numerous slender turtle heads popping out of the water surface, while a number of basking turtles rapidly retreated into the water upon my approach. Again, the turtles here seemed to be relatively shy and hard to approach. I estimated the size of the adults to be approximately 20 cm. With my camera ready, I waited for a long time, body frozen in the most awkward and strangest positions. Unfortunately to no avail. Sitting at the edge of the water I did manage to spot a swimming juvenile *Mauremys rivulata* with a size of several centimeters, but this animal turned out to be just as shy as the adults. My most remarkable observation was that of a female

Common Slider (*Trachemys scripta*) with a carapace length of approximately 15 cm. The introduction of such exotic species seems far from harmless in an area like this. As opposed to The Netherlands, where one can find a Common Slider in almost every pond, the climate in

Crete seems ideal for a species like this to reproduce in the wild. If this would be the case, the native species would undoubtedly suffer. It is not uncommon to find introduced species on Crete. Apart from the normal Caspian Stream Turtles, STRIJBOSCH (1983) discovered an individual Moorish Turtle (*Testudo graeca iberica*) and suggested that it may have been an introduced animal. Additionally, I have found the partially decayed carapace of a dead Bell- or Wide-margined Turtle (*Testudo marginata*) in an overgrown garden in Stalis. Also a species that originally does not belong here.



Dice Snake, *Natrix tessellata*.



Photos: J. Hofstra

DICE SNAKE

The Dice Snake (*Natrix tessellata tessellata*) was commonly observed in and around the lake. The animals were usually seen basking on the water's edge or on the grassy stems of the surrounding vegetation. At the slightest disturbance they would slither into the water or would drop from their perch into the lake. I estimate the larger specimens to have measured about one meter. Most individuals were very dark, almost black, while their under surface was off-white. While sitting on the edge of the water, some snakes passed me within 30 cm, swimming around looking for food. Dice Snakes feed predominantly on fish, although they are known to eat amphibians also. Apart from a school of introduced Gold Carp, there was not a single fish to be seen in the lake - although there undoubtedly will be some. Often Dice Snakes will regurgitate their last meal when captured, just like the individual did that was caught by STRIJBOSCH (1983). In that particular case the prey consisted of larvae of the Green Toad (*Bufo viridis viridis*). A snake caught by me, with a total length of about 70 cm, did not show this behavior at all. What did happen though, was that after emptying its bowels on my hands, the snake vigorously tried to escape from my grasp by rapidly rotating the body along its axis. I have never observed this behavior in the closely related Grass Snake (*Natrix natrix*). Two juveniles, approximately 30 cm long, were found underneath a plastic bag that was abandoned by a farmer. The young look exactly like the adults.

ACKNOWLEDGEMENTS

I would like to express my gratitude to our Greek friend Giannis Frudarakis who, although having a panicky fear for reptiles, did everything possible for me to practise my hobby on Crete. Herman in den Bosch and Henrik Bringsøe pointed out that the find of *Testudo marginata* was very remarkable, and provided the bibliographical information on the description of the Crete Green Frog.

SOME HERPETOLOGICAL OBSERVATIONS ON CRETE

The author visited the Greek island of Crete at the end of April - beginning of May 1999. The island was suffering a heat wave, which was probably the reason that fewer reptiles were seen than expected. It was rather disconcerting to find an American *Trachemys scripta elegans* surface among the *Mauremys rivulata* in a pond near the town of Mochós. This introduction could have dangerous implications to the native species. It was also remarkable to find that the Greek are convinced that *Chalcides o. ocellatus* is very poisonous and that *Telescopus fallax pallidus* can even be deadly to humans.

Other species that were found are: *Lacerta trilineata polylepidota*, *Coluber gemonensis* and *Natrix tessellata tessellata*; the amphibians *Bufo viridis viridis*, *Hyla arborea kretensis*, and many *Rana cretensis*. The fact all three amphibian species known from Crete were observed, in spite of the excessive heat, was surprising. The shell of a dead, partially decomposed *Testudo marginata* was discovered in an abandoned garden in Stalis; this species is not native to the island, and this is the first record of its occurrence on Crete.

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