

An addition to the herpetofauna of the Greek island Lesbos

Jelle Hofstra
Kerkewal 54
NL-8401 CH Gorredijk
The Netherlands
jelhofstr@planet.nl

Photos by the author unless otherwise indicated

INTRODUCTION

After the publication of my article concerning the herpetofauna on Lesbos (HOFSTRA, 2003), my wife and I continued to visit that same Greek island for four consecutive years.

Every year we stayed in the fishing village of Skala Kalloni in the same apartment and gradually got to know the best locations to look for reptiles and amphibians. In these five years, the islanders often said there was a heat wave. At high temperatures, 'our' animals do not often show themselves. In 2007, once again we visited during three terribly dry and warm weeks (May 18 - June 8), but our luck improved as there were a few rainy days. Probably as a result of these short wet periods, we found several species, which we had not seen in any of the previous years. Listed below are these species, additional notes on species I found

previously, and a checklist of the herp species of Lesbos.

Unless indicated otherwise, all observations were made at a maximum distance of 6-7 km from Skala Kalloni.

Eastern Spadefoot, *Pelobates syriacus*

EISELT (1988) reported *P. syriacus* from Lesbos (Filia, 230 m).

This species is secretive and strictly nocturnal. It is therefore easily missed during 'normal', i.e. diurnal, field trips.

Green Toad, *Pseudepidalea viridis*

Under the heading Green Frog in HOFSTRA (2003) I stated, "In a pond near a dump site we found thousands of recently metamorphosed little froglets". A closer look in the years thereafter under a magnifying glass showed these to be tiny Green Toads, *Pseudepidalea viridis*. We were astonished to still find tadpoles, while at the same time thousands of animals had already metamorphosed. In hindsight my mistake is slightly comprehensible as we saw numerous Green Frogs, *Pelophylax bedriagae*, with about the same colour and pattern as the Green Toads, and both groups of small anurans "flew" away at an astonishingly rapid speed with each footstep. In 2007, thanks to the wet weather, I also found my first live adult *P. viridis* on the island. The females were somewhat larger than



When the *Pseudepidalea viridis* were put into the water, the male spontaneously clasped the female.

the males. The green patterning on the males was more faded and the green spots showed less defined limits. As well, the male's front legs were thicker. In total, I found six adults. When two animals were put into water to take a photograph, the male spontaneously clasped the female.

Balkan Terrapin, *Mauremys rivulata*

My earlier notes on *Mauremys rivulata* need some additions. Females of this turtle deposited 4-6 hard-scaled eggs in May/June. Since the incubation time at 28-30°C is approximately 60-70 days (pers. obs.), thus the young animals hatch in July/August. WISCHUF & BUSACK (2001) presented a single captive observation indicating an incubation time of approx. four months at temperatures between 25-32°C. To me this seems rather long, but may indicate the large variation in incubation

duration. This gives the turtles over two months to eat and grow on Lesbos before the colder season sets in. However, very young animals of approximately 2-3 cm length are frequently seen in May. According to experts, these would be the juveniles of the previous season. My captive-born animals of *Mauremys mutica* and *Mauremys*

rivulata begin to have growth rings after a week (HOFSTRA, 1995). The young found on Lesbos are too small to be two months of age, and lacked growth rings. I wondered about this until I caught a small turtle in 2006. In this small animal the spot on the abdominal shield where the yolk sac is attached, was not yet entirely closed, proof that the animal was only a few days old. In addition, twice I found the remains of very recently hatched eggs of this turtle species. In my experience, eggs of *M. rivulata* are more elongated than those of *E. orbicularis* and thus distinguishable, although this might not always be so (cf. WISCHUF & BUSACK (2001: 101) and FRITZ (2001: 440-443)). Having bred the species myself, I was quite sure that the eggs had hatched naturally. When eggs have been dug up by a predator, one would expect to see markings of teeth or bills. It remains somewhat of a mystery how the eggshells



This juvenile *Mauremys rivulata* from Lesbos clearly shows a fresh umbilical scar.

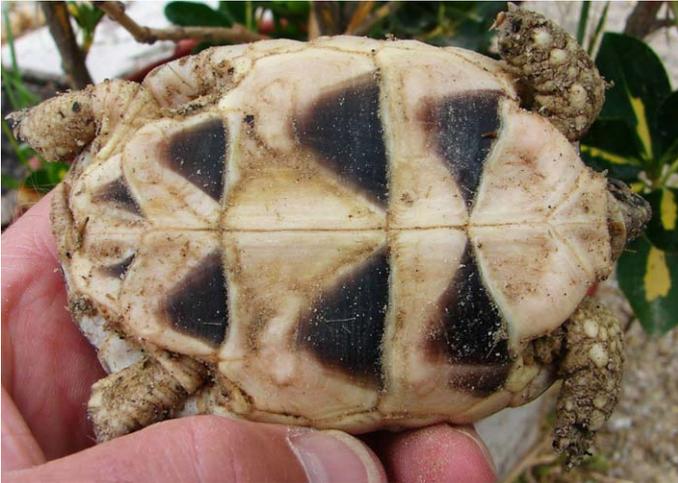
ended up on the soil surface, although I suspect the young turtles themselves were responsible. Sometimes the eggshell adheres for a longer period to the juvenile that has managed to crawl to the surface with just one or two legs free.

Margined Tortoise, *Testudo marginata*

In the Lesbian Wildlife Hospital, for a number of years, young were born that were hybrids, i.e. crosses between a female *Testudo marginata* and a male *Testudo graeca iberica*. Initially, the hospital's intention was to release the hybrids on the island. We got in touch with the administrators of the Lesbian Wildlife Hospital and suggested such a release was not a good idea (HOFSTRA, 2003), and tried to ensure that no more offspring had been hatched of this hybridisation. We were successful on both



The eggshells of *Mauremys rivulata* that we found in May 2007.



The triangular spots on the plastron confirm that this tortoise is probably a pure *Testudo marginata*.

counts. In 2006 we got a message that the first pure Marginated Tortoise had been hatched at the hospital, since a male *Testudo marginata* had been brought in, hailing from the island of Paros. In 2007 we admired the resulting single young tortoise. Given the triangular dark spots on the laminae of the plastron, it is apparently not a hybrid, but a pure *Testudo marginata*.

Worm Snake, *Typhlops vermicularis*

In 2007 we finally found our first *Typhlops vermicularis*. This animal lives mainly underground, in open areas with scattered stones. The species can be found by turning stones.



Typhlops vermicularis.

In summer, these snakes hide deeper in the ground. Probably because of the rain showers, when we were turning stones we found numerous yellow-brown scorpions and six worm snakes. On a later evening, another specimen was discovered under the gleam of a lantern. Two dead traffic victims were also encountered.

This snake can reach a length of approximately 35 cm. The end of the tail is thicker than the head. The largest animals found by us had a length of 29 cm. The eyes of this species are very small, rudimentary, and covered with scales. Because of this, *T. vermicularis* depends on sense of smell rather than sight to find food. Their diet consists mainly of ants and ant pupae. In May and June the female, which is indistinguishable from the male, lays approximately 6-7 eggs with a length of approximately 11 mm (ARNOLD & OVENDEN, 2002).



The eyes of *Typhlops vermicularis* are rudimentary and covered with scales.

Javelin Sand Boa, *Eryx jaculus*

Eryx jaculus inhabits the same biotope as the worm snake. Again, probably because of the rain in 2007, this snake was seen above ground. The first *Eryx jaculus* that we saw was a dead specimen, which was found by tourists close to Kalloni Lake. By turning innumerable rocks, we eventually found three animals. They had a length of approximately 30 cm, although according to the literature they can reach lengths of up to 80 cm (TOKAR & OBST, 1993). The snake



Several *Eryx jaculus* came to the surface in 2007, presumably because of the rain.

has a short, obtuse tail, no clear dissidence between head and body and very small eyes with a vertical pupil. The snout has somewhat of an overbite and could be said to have the form of a chisel. The snake feeds mainly on small rodents, but also on lizards and sometimes even snails. Larger prey animals are strangled firstly. The species gives birth to live young, varying in number from 6-18, and possibly more (ARNOLD & OVENDEN, 2002). ARNOLD & OVENDEN (2002) indicated that sand boas can be found during dusk and at night above ground and that they seem to be fairly fast moving. During the day in the warmer season, the species is usually only found if it is ploughed up from the ground, or by turning rocks. It may also be diurnal and seen on open ground during spring and autumn, see TOKAR & OBST (1993) who previously reported the species from Lesbos.

Hemorrhhois nummifer.

Photo: J. Speybroeck

Coin-marked Snake, *Hemorrhhois nummifer*

In 2007 I photographed an initially unidentified snake. Probably as a result of being scared by us, the animal rapidly crawled into a dry stone wall. We hardly saw anything of the body. Suddenly, the animal stuck out its head from between the stones, which gave me the opportunity to take one photograph. The head was immediately withdrawn, and that was it. The exact local-





The head of the observed *Hemorrhhois nummifer*.

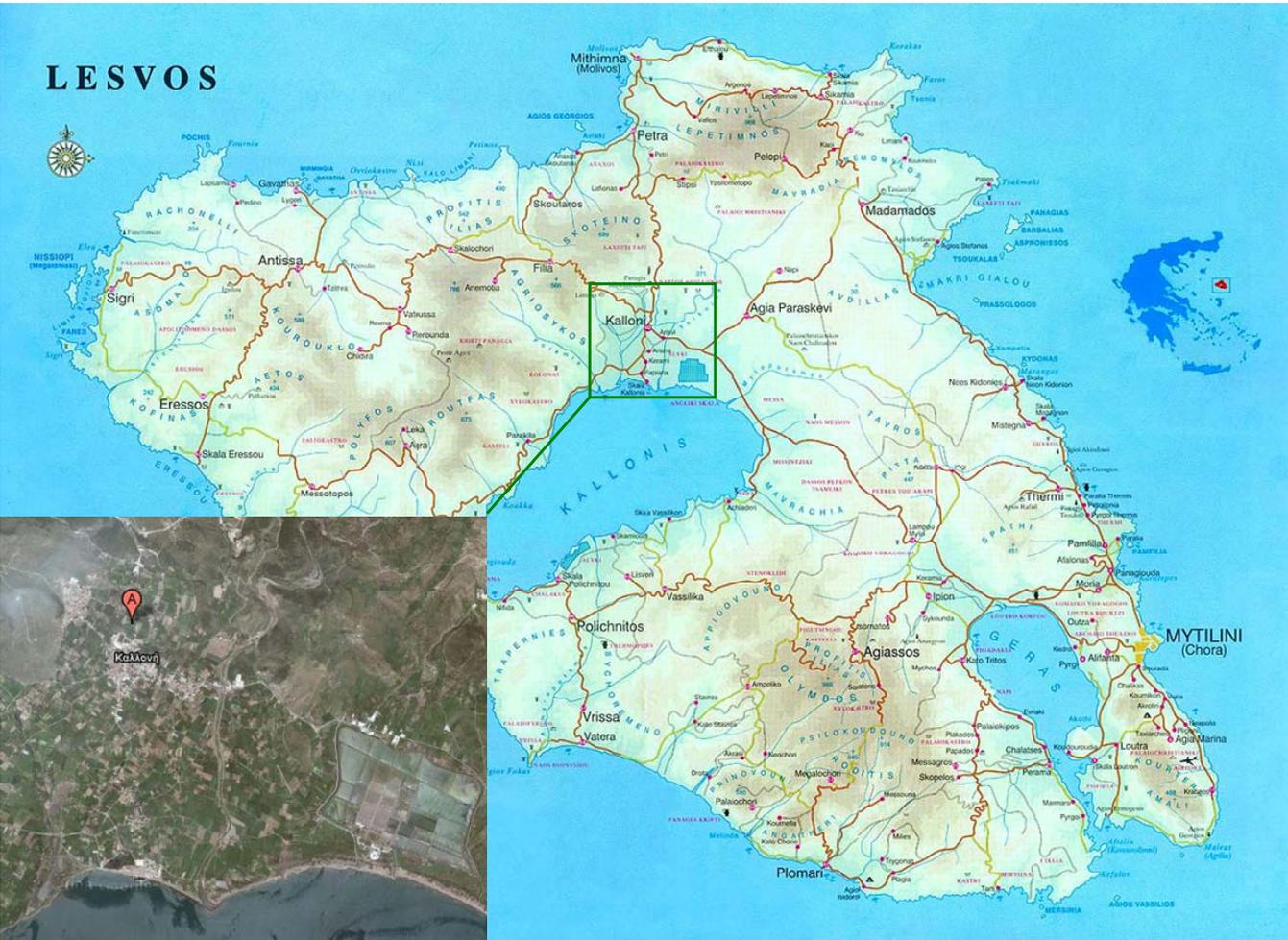
ity is indicated on the map. After consulting a number of people more knowledgeable about snakes than I, the snake was identified as a Coin-marked Snake, *Hemorrhhois nummifer* (Reuss, 1834), a species which had not been previously observed on Lesbos. It has been recorded, however, from the more southerly

located Greek islands of Rhodes (WETTSTEIN 1953), Kos (LOTZE, 1977), and Kalymnos (SCHNEIDER, 1983). ARNOLD & OVENDEN (2002) also listed Leros and Symi, and gave Asiatic Turkey, Cyprus, southwest and central Asia, and northeast Egypt as the range.

Andi Meyer (pers. comm. to David Buttle, 1998) observed this species on the more northerly lying Samos in 1997 in late November. He found roadkill juvenile specimens, one adult, and an adult specimen that was killed by locals. *H. nummifer* was found only in the south-central part of the island around the villages of Spatharei, Pagondas and Myli, and only during that late-in-the year trip at the end of 1997. Andi Meyer was unable to find this species during other excursions on Samos at a 'better' time of the year, or in other parts of the island.

The symbol indicates the locality of the *Hemorrhhois nummifer* find.

From: <http://www.lesvos-island.eu/?p=68> and Google Maps



The Coin-marked Snake reaches up to about 100 cm total length, is dorsally coloured brown, grey or olive grey, and often has a row of about 60 large, rounded dark spots, which give it its English name. The pupil is round, the head often with a dark bar between the eyes and irregular marking on the back of the head. The tail is longitudinally striped. For further habitus details refer to the picture on page 5, taken on the more southerly Symi (see ANONYMUS, n.d.) and provided by Jeroen Speybroeck.

The snake lives in dry rocky, sunny places with bushy vegetation. Food ranges from small birds to lizards and mammals. Prey is strangled.



Distribution pattern of *Hemorrhois nummifer* (adapted from SCHÄTTI & AGASIAN, 1985: fig. 2) in Asia Minor and the Near East. (Squares and lozenges denote two different *H. nummifer* types, the circle shows *H. ravergeri*.) Lesbos is indicated in red.

In the past the species has been frequently confused with the closely related *Hemorrhois ravergeri* (for overview see SCHÄTTI & AGASIAN, 1985) and also considered as a subspecies of that form – '*Coluber ravergeri nummifer*'. The genus *Hemorrhois* includes only four species that form two distinct groups based on geographic distribution. A western group

is composed of *H. hippocrepis* of North Africa, the Iberian Peninsula and a number of Mediterranean islands, and *H. algerus*, which also inhabits North Africa and some Mediterranean islands. Geographically well separated from this sister species pair is the eastern group consisting of the closely related *H. ravergeri* and *H. nummifer*.

These two species inhabit Central Asia, largely in sympatry (NAGY et al., 2004). For distribution maps of *H. nummifer* and *H. ravergeri* see SINDACO et al. (2000).

Leopard Snake, *Zamenis situla*

Arriving at our apartment at night (in 2007) we found a plastic bag hanging on the doorknob with a note: Take care! Leopard snake! Indeed, it contained a shiny, but unfortunately dead, *Zamenis situla*. A traffic victim, the snake had a total length of approximately 44 cm. It was found by tourists close to the convent of Metòchi.

The Leopard Snake is undoubtedly the most beautiful snake on the island of Lesbos. With its red, brown and black outlined spots (leopard spots) on the back, it is a very striking animal. The length of this snake varies between 70-90 cm. On rare



Zamenis situla is, without a doubt, the most beautiful snake of Lesbos.

occasions it can grow to 100 cm (ARNOLD & OVENDEN, 2002).

The females grow somewhat larger than the males. During mating, which can last for several hours, the females are bitten on the neck by the males. This oviparous snake, which lays eggs every other year, is active by day and lives in numerous biotopes,

such as roadsides, farmlands, and stone walls. The animal frequently lives close to people and is found in gardens, old barns and even in houses. The Leopard Snake feeds on small rodents, young nest birds and lizards, and kills by constricting.

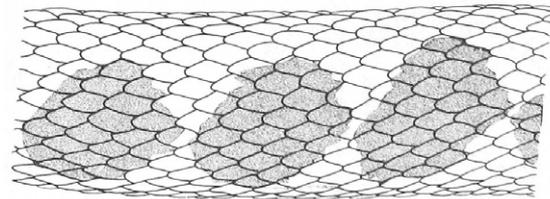
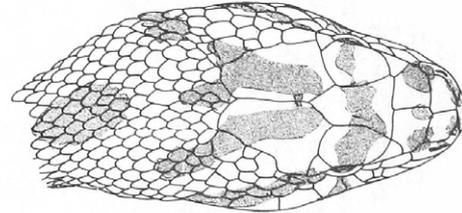
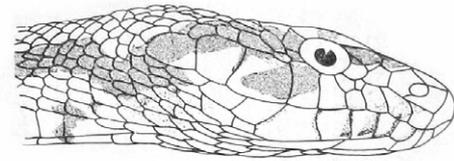
Because of its hidden lifestyle, the chance of meeting a live specimen is small. However, in 2006 someone from our apartment told us that she had seen a splendidly red-brown spotted snake on an excursion to Mitilini, the capital.

KASAPIDIS et al. (1996) considered *Z. situla* to be the most common snake on the island of Lesbos.

DISCUSSION

The really exciting find was the specimen of *Hemorrhois nummifer* as it was new for this island. This discovery is geographically understandable because the species occurs on the Turkish mainland, which is relatively close at a distance of approximately 15 km (see figure adapted from SCHÄTTI & AGASIAN, 1985). *H. nummifer* also occurs on several Greek islands (see e.g. ANONYMUS (n.d.) for Symi, or ARNOLD & OVENDEN (2002) who mentioned islands in the southeastern Aegean Sea: Leros, Kalymnos, Kos, Symi, and Rhodes). Further research must make clear if there is really a population on Lesbos or if my single find is an introduced specimen.

On Lesbos I found not only hatchling *M. rivulata* in spring, but also very young *E. orbicularis*. This is not unique to the island, but is also known from elsewhere in Greece: ADEMA & IN DEN BOSCH (1980) reported the find of a tiny *E. orbicularis* with a clearly visible umbilical scar on May 14, 1980, 12 km SE of Alexandria, Macedonia, Greece. It is impossible to decide whether these are cases of diapause (delayed development or postponed hatching), or juveniles hibernating in the nest chamber without further research. WERMUTH (1957)



Hemorrhois nummifer from Izmir (adapted from SCHÄTTI & AGASIAN, 1985: fig. 3).

appeared to be in favour of the first explanation for *E. orbicularis*. The other rationalisation, that eggs were laid in the beginning of March, seems quite improbable because of the low temperatures.

Table 1 summarises the 26 herpetological species now known from Lesbos, 5 amphib-

Species
<i>Pelobates syriacus</i>
<i>Bufo bufo</i>
<i>Pseudepidalea viridis</i> *
<i>Hyla arborea</i> *
<i>Pelophylax bedriagae</i> *

<i>Emys orbicularis</i> *
<i>Mauremys rivulata</i> *
<i>Testudo graeca</i> *
<i>Testudo marginata</i> *
<i>Laudakia stellio</i> *
<i>Hemidactylus turcicus</i> *
<i>Mediodactylus kotschy</i>
<i>Lacerta trilineata</i> *
<i>Ophisops elegans</i> *
<i>Ablepharus kitaibelii</i>
<i>Pseudopus apodus</i> *
<i>Typhlops vermicularis</i> *
<i>Eryx jaculus</i> *
<i>Malpolon insignitus</i> *
<i>Dolichophis caspius</i> *
<i>Hemorrhois nummifer</i> *
<i>Zamenis situla</i> *
<i>Eirenis modestus</i>
<i>Natrix natrix</i> *
<i>Natrix tessellata</i> *
<i>Montivipera xanthina</i> *

Table 1. Checklist of the amphibians and reptiles known to occur on Lesbos. An asterisk (*) denotes those species that were recorded on the island by the author.

ian and 21 reptile. KASAPIDIS (1996) already surmised, because of their occurrence on neighbouring islands, that *Anatololacerta danfordi* (on Samos) and *Chamaeleo chamaeleon* (Chios, Samos) could be expected on Lesbos. Similarly, various other Turkish forms might materialise on the island in the future.

Two species of marine turtles, *Caretta caretta* and *Dermochelys coriacea*, live in the Aegean Sea whereas *Chelonia mydas* occurs and breeds further to the southeast in the Mediterranean Sea. Rarely *D. coriacea* is recorded in the eastern part of the Aegean (CASALE et al., 2003). These species might thus end up on Lesbian shores.



Several rainy days in 2007 probably increased our chances of finding more species.

SUMMARY

For the first time, *Hemorrhhois nummifer* is reported on Lesbos. Based on a recently hatched juvenile and egg remnants, it is suggested that at least some *Mauremys rivulata* eggs go into diapause and hatch in May of the following year. Because of wetter weather, we found more species than on previous visits. A checklist of herpetological species present on Lesbos is given.

SAMENVATTING

Hemorrhhois nummifer wordt voor de eerste maal gemeld op het eiland Lesbos. Aan de hand van een zeer recent uitgekomen jong in het voorjaar, tezamen met vondsten van restanten van eischalen, wordt het vermoeden geuit dat tenminste sommige *Mauremys rivulatae* eieren na de leg in diapauze gaan en pas in mei van het volgende jaar uitkomen. Waarschijnlijk dankzij het nattere



Habitat in which *Hemorrhhois nummifer* was found.

weer, vonden we meer soorten in 2007 dan in de voorgaande jaren. Aan de hand van eigen waarnemingen en literatuur, is een herpetologische soortenlijst samengesteld.

ACKNOWLEDGEMENTS

I thank Henk Strijbosch for identifying *Zamenis situla* from a slide. The paper on the Balkan *Pelobates* was pointed out to me by Herman in den Bosch, who also improved the text of this article significantly. I am grateful to Beat Schätti who confirmed the identity of the snake on my picture as *Hemorrhhois nummifer* and for permitting me to use part of his published distribution map. Information by Henrik Bringsøe, David Buttle, Andi Meyer, and Jeroen Speybroeck is appreciated, the latter is also thanked for the use of a photo.



Hemidactylus turcicus.

LITERATURE

- ANONYMUS, n.d. *Hemorrhois nummifer* — map of occupied quadrates. <http://www.balcanica.cz/2/30/80>, retrieved 18 February, 2008.
- ADEMA, J.P.H.M. & H.A.J. IN DEN BOSCH, 1980. Enige faunistische resultaten van de excursie Griekenland. Internal publication Rijksmuseum van Natuurlijke Historie, Leiden.
- ARNOLD, E.N. & D. OVENDEN, 2002. A field guide to the reptiles and amphibians of Britain and Europe. HarperCollins Publishers, London.
- CASALE, P., P. NICOLOSI, D. FREGGI, M. TURCHETTO & R. ARGANO, 2003. Leatherback turtles (*Dermodochelys coriacea*) in Italy and in the Mediterranean basin. *Herpetol. J.* 13: 135-139.
- EISELT, J., 1988. Krötenfrösche (*Pelobates* gen., Amphibia, Salienta) in Türkisch-Thrakien und Griechenland. *Ann. naturhist. Mus. Wien* 90: 51-59. [Not seen.]
- FRITZ, U., 2001. *Emys orbicularis* (Linnaeus, 1758) — Europäische Sumpfschildkröte. In: FRITZ, U. (ed.), *Handbuch der Reptilien und Amphibien Europas*. Band 3/IIIA. Schildkröten (Testudines) I: 343-515. AULA-Verlag, Wiebelsheim.
- HOFSTRA, J., 1995. Kweken met de moerasschildpad *Mauremys mutica*. *Lacerta* 53: 187-191.
- HOFSTRA, J., 2003. Herpetological observations on the Greek Island of Lesbos. *Pod@rcis* 4: 101-111. www.podarcis.nl
- KASAPIDIS, P., S. PROVATIDOU, P. MARAGOU & E.D. VALAKOS, 1996. Neue Daten über die Herpetofauna von Lesbos (Ägäischen Inseln, Griechenland) und einige biogeographische Bemerkungen über die Inseln des nordöstlichen ägäischen Archipels. *Salamandra* 32: 171-180.
- LOTZE, H.U., 1977. *Coluber ravergeri* non *Elaphe quatuorlineata* von der Sporaden Insel Kos. *Salamandra* 13: 117.
- NAGY, Z.T., R. LAWSON, U. JOGER & M. WINK, 2004. Molecular systematics of racers, whipsnakes and relatives (Reptilia: Colubridae) using mitochondrial and nuclear markers. *J. Zool. Syst. Evol. Res.* 42: 223–233.
- SCHÄTTI, B. & A. AGASIAN, 1985. Ein neues Konzept für den *Coluber ravergeri* - *C. nummifer*-Komplex (Reptilia, Serpentes, Colubridae). *Zool. Abh. Mus. Tierk. Dresden* 40(9): 109-123.
- SINDACO, R., A. VENCHI, G.M. CARPANETO & M.A. BOLOGNA, 2000. The reptiles of Anatolia: a checklist and zoogeographical analysis. *Biogeogr.* 21: 468-554.
- SCHNEIDER, B., 1983. Zur Herpetofauna der Inseln Kalymnos und Telenos Dodekanes, Ägäis. *Salamandra* 19: 61-70.
- TOKAR, A.A. & F.J. OBST, 1993. *Eryx jaculus* (Linnaeus, 1758) — Westliche Sandboa. In: BÖHME, W. (ed.), *Handbuch der Reptilien und Amphibien Europas*. Band 3/I. Schlangen (Serpentes) I: 35-53. AULA-Verlag, Wiesbaden.
- WERMUTH, H., 1957. De Europese moerasschildpad. Uitgeverij Breughel, Amsterdam / Uitgeverij Mertens & Stappaerts, Antwerpen.
- WETTSTEIN, O., 1953. Herpetologia aegaeae. *Sber. Österr. Akad. Wiss., Math.-Naturw. Kl., Abt. 1, Wien* 162: 651-833.
- WISCHUF, T. & S.D. BUSACK, 2001. *Mauremys rivulata* (Valenciennes in Bory de Saint-Vincent et al., 1833) — Ostmediterrane Bachschildkröte. In: FRITZ, U. (ed.), *Handbuch der Reptilien und Amphibien Europas*. Band 3/IIIA. Schildkröten (Testudines) I: 89-110. AULA-Verlag, Wiebelsheim.