IO II

# Acknowledgements

## Introduction

# General geography of Greece

Greece is a relatively small country, and with a surface area of 132,000 km² it is only half as big as the UK. Encompassed, however, in this modest area, is a great diversity of habitats, exceeding many European countries of much larger size. For example, one can encounter in Epirus alpine areas complete with lush conifer forests, dramatic peaks and extensive snowfields that physiographically resemble Switzerland. On the other hand, some regions of the southern Aegean are closer to Africa than to Athens, and their climate and habitats reflect this proximity. Southeastern Crete for example, contains one of the few true European deserts, an area closely resembling certain hammada regions of the Middle East.

Greece is a country of mountains and islands. The Pindos range, an extension of the Dinaric Alps, forms the backbone of peninsular Greece. A number of smaller mountains originate as spurs from this block, although some, including Mount Olympus, the highest mountain in Greece (2,917 m elevation) arise in relative isolation. A second major mountain block, the Rhodopes, located in Thrace, runs in a roughly east-west direction separating Greece and Bulgaria. The Peloponnese, a smaller peninsula in the south, is as mountainous as the mainland and encompasses several peaks exceeding 2,000 m in elevation.

With the exception of a few large flat regions located mostly in Thessaly and Thrace, the country lacks extensive plains. Typically the mountains drop rather steeply into the sea and are generally flanked only by narrow coastal plains. While this has historically translated into meager agricultural outputs, it also means that large areas of the country are, by virtue of their steep and mountainous terrain, relatively protected from human activities.

To visitors, Greece conjures up images of islands and there is a good reason for this. The country encompasses close to 10,000 islands and islets, the vast majority of which are found in the Aegean Sea. However, due to difficult transportation and the harsh conditions, only about 200 of them are inhabited. These islands vary significantly in physical and biological characteristics so that visiting a number of them may be necessary to obtain a good understanding of the region.

#### Climate

The climate in Greece is broadly classified as Mediterranean, with mild, rainy winters and long, dry summers. Typically the bulk of the annual precipitation, in the form of



Photo 1: Southeast Europe.



**Photo 1:** Physical map of Greece.



Photo 1: Physical map of Greece.



Photo 1: Political map of Greece.

X. XXX

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**Photo 1:** Meadow in the mountains of central Greece.





Photo 2: Rhodopes Mountains along the northern border with Bulgaria.





Photo 3: Pindos, the "mountainous spine" of Greece.





Photo 4: Vipera berus can be found in the mountains of northern Greece. J. VAN DER VOORT

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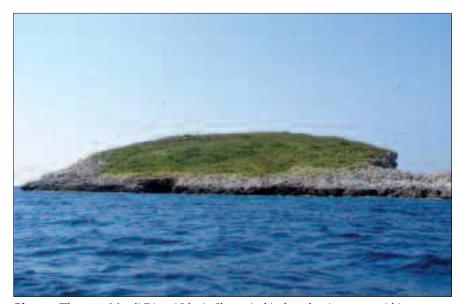


Photo 5: The peak of Olympus, the highest mountain in Greece.

A. Trichas



**Photo 6:** Venetiko Islet (right), Schinousa Island, Agrilou and Ophidou Islets (left and center), and Keros Island in the back.



**Photo 7:** The green Megali Diavati Islet in Skyros Archipelago, hosting an astonishing population of giant *Podarcis gaigeae*.



Photo 8: Maquis is characterstic for the Taigetos Mountain area, near Sparta.

F. Wüthrich



Photo 9: Degrading maquis on Keros Island.





Photo 10: Phrygana on Daskalio Islet, out of Keros Island. ???

P. Pafilis



**Photo II:** Mountain torrents like this one on the northern Peloponnese, dry out in summer.

P. Pafilis

rain in most of the country and snow in the highland regions, comes during the winter months. While all of Greece experiences a pronounced dry season during the summer months, this period varies substantially in length and intensity, and can range anywhere from 1 to 7 months of the year.

A surprising amount of variation in climatic conditions exists between the different parts of the country. As a general rule, higher elevations tend to receive more precipitation. As clouds are forced up the mountain moisture condenses and comes down in the form of rain or snow on the windward side of a mountain, in contrast, the leeward side remains comparatively dry. Although this can be observed on a small scale on individual mountains, it is particularly true for the Pindos mountain chain, which forms an effective barrier against the prevailing northwest weather fronts by running in a roughly north-south direction. As a result, western Greece receives significantly more precipitation than the eastern region. This is also reflected in the fact that there is substantially more surface water, in the form of lakes and rivers, in the western rather than the eastern slopes of the Pindos range. As one travels eastwards and southwards, precipitation progressively decreases and reaches a minimum of less than 400 mm in the low, "desert" islands of the southeast Cyclades. A similar pattern but on a smaller scale can be observed on Crete, where western regions around Chania receive more than twice the precipitation of the far southeast corner around Ierapetra.

Temperature regimes in Greece are influenced by three key factors: latitude, altitude and distance from the sea. For example, the average January temperature in northern Greece is as much as 8 °C warmer than comparable temperatures in Crete and the southern Dodekanese. This effect is further exacerbated by the higher average elevations found in the north of the country. As a result, the winter landscape of Florina or the Prespes Lakes region is regularly blanketed with snow and the overall conditions resemble central Europe. In regions above 1,000 m snow may remain on the ground for four months of the year and above 2,000 m this period may extend to more than half the year.

Greek summers tend to be hot across the country with average July temperatures in the southern lowlands ranging between 24–27 °C. Even northern inland regions around Kastoria and Serres register average July temperatures above 22 °C demonstrating the pervasiveness of the summer heat. The only areas that may experience relatively cooler temperatures are the Aegean islands where the tempering effect of the sea in combination with the prevailing meltémi winds acts to moderate the summer heat.

# Climatic conditions and finding reptiles

Because of their ectotherm physiology, reptiles and amphibians are more dependent on prevailing thermal conditions than are mammals or birds.

As a result, ambient conditions are of paramount importance for the field herpetologist. While both regional climate and local microclimatic conditions will shape the composition of the herpetofauna in an area, prevailing weather will also determine whether one is likely to encounter a particular species. Different taxa can also differ widely in their specific thermal preferences. While a cool and partially overcast spring day in the Cyclades can be warm enough to lure Aegean wall lizards (*Podarcis erhardii*) out of their hiding places, it will likely fail to make harduns (*Laudakia stellio*) appear. Alternatively, while on a hot summer afternoon in Ikaria, it is still possible to encounter *Ophisops elegans* in the open, *Lacerta oertzeni* will have probably retreated into their refugia.

Despite its small size, the varied topography of Greece offers a diversity of year round herpetological opportunities. During the winter months, when snow and cold conditions prevent herpetological investigations in northern Greece such as the mountains of Pindos and the Peloponnese, most species of reptiles and amphibians will be active in the lowlands of Crete or the Dodecanese. On the other hand, when the lowlands of southern Greece are baking in the summer heat and most reptile species become inactive, a trip into the highlands of the Rhodopes or the Prespa Lakes can be particularly rewarding. Thus, the best months for reptile and amphibian observations in the Aegean and Ionian Islands as well as the lowlands of southern Greece fall in the months of March through June, and then from September through November. In contrast, the best period to visit the mountains and the highlands of northern Greece starts in May and lasts through September.

In practice, there are a number of ways to make the most of a herpetological visit to Greece. Driving up or down a mountain range can provide access to those elevations where conditions are most favorable for reptile or amphibian activity at any given time of the year. On a smaller scale, the aspect of an area can also influence the activity of reptiles. In our experience, not only do north-facing slopes receive less solar radiation but are also covered by dense vegetation and have more surface water availability than south-facing slopes. As a result of these microclimatic conditions they are best visited during the summer months. In contrast, the snow melts first on the south-facing slopes and reptiles may emerge from hibernacula in early spring. Lastly, if conditions are marginal, it is worth focusing search efforts to those particular hours of the day that are most appropriate for reptiles. For example, when summer temperatures in southern Greece become prohibitively hot, searching during early morning hours or even at night along dry stone walls and ravines can be a good way of finding snakes and lizards.

tuberance on the dorsal surface of the tail base and nuptial pads on the forelegs that are well-developed during the breeding season. The protuberance is thought to function in predisposing the female's cloaca to accept the spermatophore.

Notes on biology: *Lyciasalamandra helverseni* is active from October or November to March, when mating occurs. This salamander is nocturnal and seems to be more active on the surface under cool, humid and windless conditions, as well as during and after rainfall. The rest of the time it hides in underground burrows, cracks and crevices, rocky walls, etc., usually in groups in order to avoid dehydration. This species reproduces independently of water. The protuberance on the tail-base is rubbed against the female's cloaca during the ventral amplexus, but its precise function is unknown. The female usually gives birth to 2 fully developed young after a gestation period of 1 year. Sexual maturity is attained at 3 years. Longevity is estimated to be 14 years. Adults feed mainly on crawling invertebrates.

Conservation: This species is listed in Appendix II of the Bern Convention, and in Annexes II and IV of the EU Natural Habitats Directive (under the name *Mertensiella luschani*, see Remarks). It is protected by national legislation and is listed in the National Red Data Book as "rare". Small island populations of *L. helverseni* encounter the same problems as all other rare species. The population on Kasos Island is the most endangered. Main threats to this population are habitat destruction due to over-grazing and collecting for the pet trade.

Remarks: Before the recent taxonomic re-evaluation, the species was known as *Mertensiella luschani helverseni*.

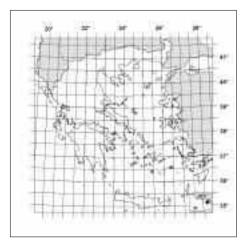
## Lyciasalamandra luschani (Steindachner, 1891)

GR: Nyfitsa (Νυφιτσα) • G: Lykischer Salamander • EN: Lycian salamander • F: Salamandre de Lycie

Main synonyms: Molge luschani Steindachner, 1891; Salamandra luschani Boulenger, 1892; Mertensiella luschani Wolterstorff, 1925

Range: This species is found on the southern coast of Turkey and on the Greek island of Kastellorizo (Megisti).

Habitat: The Lycian salamander occurs in various habitat types such as Mediterranean maquis, pine forest and scrubland. Shady slopes or valleys are preferred, particularly those with a loose substrate and limestone crevices that provide efficient hiding places. The species is abundant near human settlements, inhabiting loose rock walls and ruins.



Identification: The maximum length is 140 mm for males and 150 mm for females. The tail is usually slightly shorter than the SVL. The head is flat and somewhat longer than wide. II—I3 weakly defined costal grooves are present at either side of the long, cylindrical body. There are well-defined parotid glands at the back of the head. The colouration in this species is highly variable. The dorsal surface varies from pale brown to orange-pink, brighter on the parotid glands, with brown or black spots irregularly distributed across the back. The head, tail and sides of the limbs are bright orange-pink and sparsely covered with brown spots. Unlike females, the males possess a spike-shaped protuberance on the dorsal surface of the tail base and nuptial pads on the forelegs, best developed during the breeding season. The protuberance is thought to have a function in predisposing the females' cloaca to receive the spermatophore.

Notes on biology: *Lyciasalamandra luschani* is a strictly terrestrial amphibian, mostly active during the cooler winter months when it can be quite abundant. Mating also takes place during this period. Mostly nocturnal, it seems to be more active on the sur-

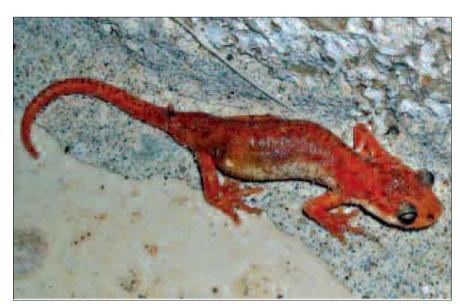


Photo x: Lyciasalamandra luschani male.





Photo x: Lyciasalamandra luschani male.





Photo x: Salamandra salamandra.





Photo x: Salamandra salamandra female. Southern Peloponnese.

D. Escoriza

face during and after rainfall, and when atmospheric pressure drops. During the summer it aestivates in deep underground burrows, rocky cracks or crevices. Reproduction is independent of water. The protuberance on the tail-base is rubbed against the female's cloaca during the ventral amplexus, but its precise function is unknown. The species is viviparous and usually gives birth to 2 fully developed young after 1 year of gestation. They can measure as long as 7 cm at birth, and weigh up to 2 grams. Sexual maturity is reached in 3 years, while longevity is estimated to be over 10 years, exceptionally reaching 22 years (!). Adults feed mainly on earthworms, slugs and various insects.

Conservation: This species is listed in Appendix II of the Bern Convention, and in Annexes II and IV of the EU Natural Habitats Directive (under the name *Mertensiella luschani*, see Remarks). It is protected by national legislation and is listed in the National Red Data Book as "rare". The Lycian salamander is very abundant on Kastellorizo. However, general habitat alteration and loss, habitat modification from deforestation or logging related activities, urbanization, loss of genetic diversity (a small population phenomenon), are the main threats for the viability of the species.

**Remarks:** Populations on Kastellorizo are assigned to the subspecies *L. luschani basoglui* (AUTHOR, ???).

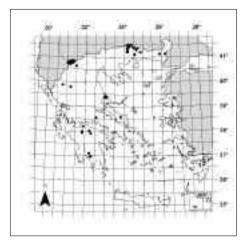
#### Salamandra salamandra (LINNAEUS, 1758)

GR: Salamandra (Σαλαμανδρα), Vrohalida (Βροχαλιδα), Voidaki tou Theou (Βοιδακι του Θεου) • G: Feuersalamander • EN: Fire salamander • F: Salamandre tachetée

Main synonyms: Lacerta salamandra Linnaeus, 1768; Salamandra maculata Schrank, 1786; Salamandra maculosa Doderlein, 1872

Range: A species widely distributed across central and southern Europe, northwestern Africa and the Middle East. In Greece it is found throughout the mainland between 600 and 1,800 m elevation.

Habitat: Salamandra salamandra inhabits mainly deciduous and mixed, sometimes conifer forests, where it hides under logs or stones, in cracks or crevices, leaf litter, and other places that provide shelter and moisture. Populations inhabiting anthropogenic landscapes and deforested habitats can be considered relicts of formerly forest dwellers.



Identification: This species reaches 250 mm in body size. Females are generally larger than males and possess relatively shorter limbs and tail. The cloaca of the male is much more swollen than that of the female. The tail is cylindrical and shorter than the SVL. Parotid glands behind the eyes are prominent and always pigmented. Two rows of poison glands run down the back and the tail, while two more run along each flank. Dorsal and lateral surfaces are black with large yellow to orange spots and/or bands. The ventral surface is black or brownish. This colouration and pattern serve two purposes: cryptic, where the spots on a black background allow the animal to hide on a dappled forest floor, or aposematic, where the bright spots indicate poisonous skin secretions.

**Notes on biology:** A mostly nocturnal species, it spends the day hidden in favourable places. Females are active through the day in the breeding season. During rainy weather



Photo x: Salamandra salamandra.



**Photo x:** Salamandra salamandra foraging for earthworms in leaf litter.





Photo x: Salamandra salamandra. Taigetos, Peloponnese.





Photo x: Salamandra salamandra. Taigetos, Peloponnese.

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## **AGAMIDAE**

# Laudakia stellio (LINNAEUS, 1758)

GR: Krokodilaki (Κροκοδειλακι) • G: Hardun • EN: Rough-tailed agama • F: Stellio commun

Main synonyms: Lacerta stellio Linnaeus, 1758; Stellio vulgaris Sonnini & Latrellie, 1802; Agama stellio Boulenger, 1885; Stellio stellio Moody, 1980

Range: Greece is the western boundary for this species, which is distributed through Turkey, Syria, Lebanon, Egypt, Iraq, Saudi Arabia, Cyprus, Jordan and Israel. Within Greece it is present on the islands of the east Aegean (on the majority of islands from Lesbos to Kastellorizo), the Cyclades (Mykonos, Rhineia, Delos, Paros, Naxos, Despotico, Antiparos), Corfu (introduced in 1915), Paxi, and some areas around Thessaloniki.

Habitat: In the eastern Aegean islands the species appears in a variety of habitats including Mediterranean maquis, phrygana, oak forests, olive groves and other cultivated areas. It prefers rocky places or stonewalls. In other areas of Greece it frequents olive groves, dry places with phrygana, and stone walls or archaeological ruins.

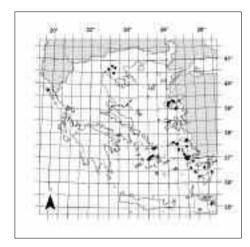




Photo x: Laudakia stellio daani male. Lesvos.

A. Trichas

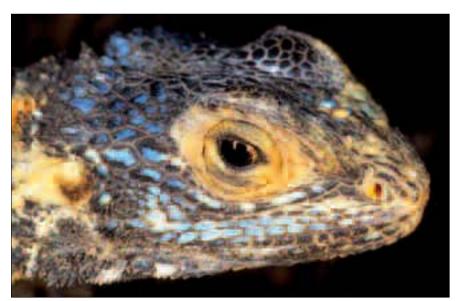


Photo x: Laudakia stellio daani. Rhodes.





**Photo x:** *Laudakia stellio daani*. Ticks are common parasites of rough-tailed agamas, as the one in the neck of this specimen from Paros.



Photo x: Laudakia stellio daani. Samos.

E. Razzetti

Identification: Laudakia stellio is an unmistakable animal resembling to some extent a small crocodile. Adult total length is up to 30 cm. The tail is long, almost of the same length as the body. The body is flat and the head triangular. It is covered with small, asymmetrically distributed scales and plates. There are many spiny scales on the neck and the sides of the head. The tail is covered with spiny scales and it does not break easily. The upper part of the body is dark brown or gray with some yellowish spots on the back. The belly is whitish, and males have light blue spots on the head. The legs are long and the ear orifices visible.

Notes on biology: This diurnal lizard is active from early spring until late autumn. It climbs well and hides in crevices in tree trunks as well in rocks and between the stones of walls. Males defend their territory by bobbing their heads up and down rhythmically. Females lay 6–14 eggs at the end of spring. The first offspring appear in mid-July. *Laudakia stellio* feeds mainly on arthropods and other invertebrates, but also on lizards and plant materials, such as fruit.

Conservation: The species is listed in Annex II of the Bern Convention, and in Annex IV of the EU Habitats Directive. It is also protected by Greek Law (Presidential Decree 67/1981).

Remarks: Other Greek names are *Kasidis, Korkofila* (Icaria), *Krokudialos, Krokotavlos* (Samos), *Kroka* (Halki), *Kurkudialos* (Kalymnos), and *Krokodilos* (Mykonos).

#### **ANGUIDAE**

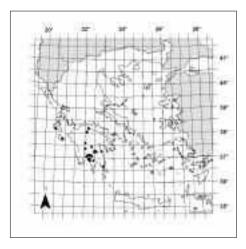
Anguis cephallonicus (Werner, 1894)

GR: Konaki tis Peloponnisou (Κονακι της Πελοποννησου) • G: Peloponnes-Schleiche • EN: Peloponnese slow worm • F: Orvet du Peloponnese

Main synonyms: Anguis fragilis peloponnesiacus STEPANEK, 1937

Range: Anguis cephallonicus is endemic to Greece and distributed throughout the Peloponnese, Cephalonia, Zakynthos, Ithaca and Levkada.

Habitat: Anguis cephallonicus has been recorded from sea level up to an altitude of 1,200 m (Mount Taygetos). It frequents humid areas in meadows, scrubland, open forest (deciduous and coniferous), hedgerows and wooded stream banks. It also occurs in rural gardens and traditionally farmed agricultural areas.



Identification: Anguis cephallonicus is a legless lizard with a body length of up to 50 cm. Morphologically it is similar to Anguis fragilis, but adults are more slender and have narrower heads. The number of scales at mid-body is greater in the former than in the latter species (34–36 vs 24–26). The back is creamy brown, the flanks and the belly are dark brown. The borders between these areas of the body are well defined, from the tip of the nose to the tip of the tail. There is usually a dark stripe, 4–6 cm in length, which begins from the middle of the neck.

**Notes on biology:** The available information on the biology of this species is limited. Generally speaking, some of its habits are similar to those of *Anguis fragilis*.



Photo x: Zamenis situla. Samos.



Photo x: Zamenis situla. Western Peloponnese.





Photo x: Zamenis situla. Milos.



Photo x: Zamenis situla. Rhodos.



#### **VIPERIDAE**

### Macrovipera schweizeri (WERNER, 1935)

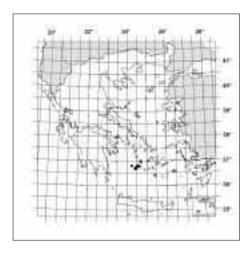
GR: Levantoxendra (Λεβαντοχεντρα), Ohia tis Milou (Οχια της Μηλου), Therio (Θεριο) • G: Milosotter • EN: Cyclades blunt-nosed viper • F: Vipère des Cyclades

Main synonyms: Vipera lebetina schweizeri Werner, 1935; Vipera lebetina siphnensis Wettstein, 1952; Daboia lebetina schweizeri Obst, 1983; Vipera schweizeri Nilson & Andrén, 1988

Range: Found only in the Milos Archipelago (Milos, Kimolos, Polyaigos and Sifnos).

Habitat: The island ecosystems where this species is distributed are more or less similar, phrygana and maquis being the dominant type. It prefers humid areas close to water such as streams, small rivers and lakes, and is usually found in gardens and cultivated land.

Identification: A large, robust viper (total length 1.5 m). The head is large, triangular, and clearly distinct from the neck. The eyes are large with a vertical pupil like in all vipers. The tail is relatively short. The head is covered with small, mostly keeled, scales; apicals: 2–3, nasal: 1, partially fused with the rostral, oculars: 11–18, upper labials: 9–12, lower labials: 4–5, ventrals: 126–181 in 23–27 rows, anal undivided: 29–58.



Overall, the colour is very variable with a darker zigzag pattern on the dorsal surface of the body.

Notes on biology: *Macrovipera schweizeri* is active mainly during the day and is usually seen out during summer, especially on road surfaces. It is a good climber and during spring it often creeps up trees to prey on nesting and perching birds. In addition it seems to be a skilful swimmer, crossing small streams and lakes. It is mainly a diurnal snake that is also active at dusk or early in the night during the summer. It preys upon mammals (mostly rodents), birds, lizards (especially on *Podarcis milensis*) and insects (usually Coleoptera). Mating occurs in May. The female lays 7–11 eggs, the incubation period lasts 30–45 days and the young hatch out in August. Hatchlings are 18–25 cm long. It is the only egg-laying viper in Europe. It is not an aggressive snake and hisses before attacking.

Conservation: Endemic to the Milos archipelago. Vulnerable. Until the 1970s the Forest Service classified *Macrovipera schweizeri* as vermin. Main threats are illegal capture by reptile collectors, habitat destruction (especially on Milos, which hosts the largest population), and accidental death on the roads. Milos has a particularly interesting and valuable geological history and its exceptionally rich subsoil has been exploited since ancient times. Mining and the new road network are responsible for the dramatic decrease in the viper population in Milos. This species is listed in Annex II of the Bern Convention, and also in Annexes II and IV of the EU Habitats Directive as a priority species, while it is protected by Greek Law as well (Presidential Decree 67/1981). Listed in the IUCN Red Data book as "endangered", whereas in the Greek Red Data Book of threatened Vertebrates it is referred to as a "vulnerable" taxon.

Remarks: Highly venomous! As mentioned above, colour varies widely. The most impressive specimens display a red background with a blackish rhombus shape on the dorsal surface.



**Photo x:** *Macrovipera schweizeri* is endemic to the Milos Archipelago.





Photo x: Macrovipera schweizeri. Milos.





**Photo x:** *Macrovipera schweizeri* climbs trees, particularly during spring, to feed on birds.

М. Dімакі



Photo x: Macrovipera schweizeri. Milos.

B. Trapp

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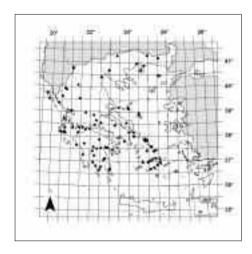
Vipera ammodytes (LINNAEUS, 1758)

GR: Ohia (Οχια) • G: Sandotter • EN: Sand viper • F: Vipère ammodyte

Main synonyms: Coluber ammodytes LINNAEUS, 1758

Range: North Italy, south Austria, Balkans and southwest Asia. In Greece it is present on the mainland and many islands of the Aegean and Ionian Seas.

Habitat: Found in a vast variety of biotopes, from dune ecosystems at sea level to mountains of 2,500 m height. It is found on rocky slopes with a sparse vegetation, phryganic biotopes and light Mediterranean forests while also inhabiting manmade habitats such as gardens, dry stonewalls, cultivated fields and even areas close to human settlement.



Identification: Vipera ammodytes is a small-sized, stout-bodied viper of a total length up to 90 cm, though usually under 65 cm. The head is large and triangular, covered in small scales. Over each eye is a single, flat scale. The eyes have vertical pupils and are separated from the upper labials by 2 rows of small scales. At the end of the head is a distinct nose-horn. The tail is shortened and ends in a spine. Head scalation: 10–13 scales around the eye, 9–11 upper labials, 12–14 lower labials. Body scalation: 21–23 rows of dorsal scales at mid-body, 160–165 ventrals, with the anal shield undivided. Colouration shows an astonishing variety. A characteristic vertebral band, consisting of rhomboid blotches fused into a zigzag, runs from the neck to the tail. The band is usually darker than the background, which varies from light gray or yellowish brown to dark red, and even melanistic specimens have been reported in rare cases.

**Notes on biology:** Activity pattern alters according to the season. Though usually active by day, may be seen after dusk and even at night during warmer periods. It climbs bushes and trees with ease, especially during spring. The breeding season lasts from

April to May. Females lay 12–20 eggs. *Vipera ammodytes* feeds on small mammals, birds and lizards. When disturbed it first tries to escape rapidly, hissing loudly. If its escape route is cut off, it coils up and strikes vigorously.

**Conservation:** This viper is listed in Annex II of the Bern Convention, and also in Annex II the EU Habitats Directive. This species is present in many protected areas.

**Remarks:** Highly venomous! *Vipera ammodytes* is the most widespread viper in the country and its venom can prove fatal. For this reason its name has become a synonym for treason and death in country lore.



 $\textbf{Photo x:} \ \textit{Vipera ammodytes meridionalis} \ \text{ready to attack.} \ \text{Western Peloponnese}.$ 

K. Eleftherakos



Photo x: Vipera ammodytes meridionalis male. Florina.

G. Kreiner



Photo x: Vipera ammodytes meridionalis. Mani Peninsula, Peloponnese.





Photo x: Vipera ammodytes meridionalis pair.

G. Kreiner

424 Bibliography Bibliography 425

- *ment.* Goulandris Natural History Museum, National Center for Wetlands, Thessaloniki.
- CHRISTODOULAKIS, D. 1994. The Greek rock islets: natural ecosystems of great ecological value. [in Greek]. *Bot. Chro.*, 11: 9–14.
- CLARK, R. J. 1967a. Herpetofauna of the islands of the Argo-Saronic Gulf, Greece. *Proc. Calif. Acad. Sci.*, 35: 23–36.
- CLARK, R. J. 1967b. Note on a large viper from the Cyclades. *Brit. J. Herp.*, 3: 205–206.
- CLARK, R. J. 1968a. A collection of snakes from Greece. *Brit. J. Herp.*, 4: 45–48.
- CLARK, R. J. 1968b. Aussergewöhnliche Färbung und Zeichnung bei Vipera ammodytes meridionalis von einer Griechischen Insel. Salamandra, 4: 69–72.
- CLARK, R. J. 1970a. A definite record of *T. marginata* Schöpff from the Cyclades, Greece. *Brit. J. Herp.*, 5: 188–189.
- CLARK, R. J. 1970b. A further contribution to the herpetofauna of the islands of the Argo-Saronic Gulf, Greece. *Brit. J. Herp.*, 4: 185–188.
- CLARK, R. J. 1971. Further comments on the Aegean 4-lined snake *Elaphe quatuorlineata* including a consideration of the Amorgos *Elaphe* snakes. *Brit. J. Herp.*, 4: 207–209.
- CLARK, R. J. 1972. New locality records for Greek reptiles. *Brit. J. Herp.*, 4: 311–312.
- CLARK, R. 1989a. A checklist of the herpetofauna of the Argo-Saronic Gulf district, Greece. *Brit. Herp. Soc. Bull.*, 28: 8–24.
- CLARK, R. 1989b. A report on a herpetological trip to the N. E. Aegean. *Herptile*, 14: 68–82.
- CLARK, R. 1989c. Some notes on reptiles and amphibians from the N. W. Pindos. *Herptile*, 14: 99–104.

- CLARK, R. 1989d. Observations on winter activity of reptiles in Greece. *Herptile*, 14: 105–112.
- CLARK, R. 1990a. An appraisal of the status of *Coluber jugularis* and *Elaphe quatuorlineata* in Greece, Part 1. *Herptile*, 15: 42–56.
- CLARK, R. 1990b. An appraisal of the status of *Coluber jugularis* and *Elaphe quatuorlineata* in Greece, Part 2. Cycladean populations of *E. quatuorlineata*. *Herptile*, 15: 57–64.
- CLARK, R. 1991a. A report on herpetological investigations on the island of Samothraki, north Aegean Sea, Greece. *Brit. Herp. Soc. Bull.*, 38: 3–7.
- CLARK, R. 1991b. Observations on the lizard and snake fauna of the islands Kephallinia and Zakynthos, Ionian Sea, Greece. *Herptile*, 16: 81–92.
- CLARK, R. J. 1992a. A collection of reptiles from the islands of Symi, Tilos and Gairdaronisi, Dodecanese, Greece. *Herptile*, 17: 19–27.
- CLARK, R. 1992b. An account on the herpetological observations in Macedonia, the Pindos Mountains and Prespa lake region, Greece. *Herptile*, 17: 49–63.
- CLARK, R. 1993. The herpetofauna of the Greek island of Thassos. *J. Int. Herp. Soc.*, 18: 183–187.
- CLARK, R. 1994a. New observations on the *Elaphe* snakes from Amorgos (Cyclades, Greece) and the validity of *Elaphe rechingeri*, WERNER, as an endemic species. *Herp. J.*, 4: 91–97.
- CLARK, R. 1994b. Rival combat dance in the Greek long-nosed viper, *Vipera ammodytes meridionalis*. *Herptile*, 19: 17–19.
- CLARK, R. 1996. Some notes on the reptile fauna of Fournoi, Ikaria, and Schoinoussa,

- Aegean Sea, Greece. *Brit. Herp. Soc. Bull.*, 56: 35–39.
- CLARK, R. 1997. The herpetofauna of the uninhabited islands of the Spetsai/Hydra island complex, Greece. *Brit. Herp. Soc. Bull.*, 58: 36–43.
- CLARK, R. 1998. Herpetofauna of Thassos, north Aegean Sea, Greece. *Brit. Herp. Soc. Bull.*, 66: 14–18.
- CLARK, R. 2000a. The herpetology of Samos Island, eastern Aegean Sea, Greece. *J. Int. Herp. Soc.*, 25: 172–175.
- CLARK, R. 2000b. Herpetological notes on the islands of Lipsi and Agathonisi, Dodecanese, Greece. *Herp. Bull.*, 74: 6–7.
- CLARK, R. J. & E. D. CLARK 1970. Notes on four lizard species from the Peloponnese: Algyroides moreoticus (BIBRON & BORY), Anguis fragilis peloponnesiacus (STEPANEK), Ophiomorus punctatissimus (BIBRON & BORY) and Ophiosaurus apodus (PALLAS). Brit. J. Herp., 4: 135–137.
- CONNOR, M. J. 1993. Hermann's tortoise, *Testudo hermanni. Tortuga Gazette*, 29: 1–3.
- CORTI, C., BISCHOFF, W. & W. BÖHME 1999. Die Lacertiden der Mittelmeer-Inseln – eine erste Übersicht. *Die Eidechse*, 10: 41–58.
- Cox, N., Chanson, J. & S. Stuart 2006. The status and distribution of reptiles and amphibians of the Mediterranean Basin. IUCN Species Programme
- CRUCITTI, P., CAMPESE, A. & M. MALORI 1990. Popolazione sintopiche di *Emys orbicularis* e *Mauremys caspica* nella Tracia. Grecia orientale (Reptilia: Testudines: Emydidae). *Boll. Mus. Reg. Sci. Nat. Torino*, 8: 187–196.
- Crucitti, P. & L. Tringali 1986a. Observazioni su *Bombina variegata scabra* (Küster)

- nei Pindo e nella Thracia (Grecia centrosettentrional e ed orientale) (Anura Discoglossidae). *Riv. Idrobiol.*, 25: 1–3.
- CRUCITTI, P. & L. TRINGALI 1986b. Alcune caratteristiche dell'Erpetofauna Ellenica (Amphibia Reptilia). *Boll. Mus. Reg. Sci. Nat. Torino*, 8: 167–196.
- CRUCITTI, P. & L. TRINGALI. 1986c. Il genere *Testudo* nella Grecia (Reptilia: Testudines: Testudinidae). *Inst. Lombardo (Rend. Sci.)*, B, 120: 27–44.
- Cyrén, O. 1928. Herpetologische Berichte von einer Reise nach Griechenland. *Blätt. Aquar.-Terrar.-Kunde, Stuttgart*, 1: 8–15.
- Cyrén, O. 1933. Lacertiden der südöstlichen Balkanhalbinsel. *Mitt. königl. Nat.-wiss. Inst. Sofia*, 6: 219–240.
- Cyrén, O. 1935. Herpetologisches vom Balkan. Blätt. Aquar.-Terrar.-Kunde, Stuttgart, 46: 129–135.
- DAAN, S. 1967. New record localities of Aegean amphibians and reptiles. *Brit. J. Herp.*, 3: 312–313.
- DE BETTA, E. 1868. I rettili e anfibi della Grecia con alcune notizie sulla distribuzione geografica delle specie. *Atti Inst. Veneto Sci.*, *Lett. Art.*, *Venezia*, 3: 876–963.
- DE LAPPARENT DE BROIN, F. 2002. A giant tortoise from the Late Pliocene of Lesvos Island (Greece) and its possible relationships. *Ann. Geol. Hellen.*, 39: 99–103.
- Demetriades, L. & A. Dimitropoulous 1991. The amphibians and reptiles of the South East Aegean, Part 1 – Nisyros. *Herptile*, 16: 176–177.
- Denoël, M. 2004a. Distribution and characteristics of aquatic habitats of newts and yellow-bellied toads in the district of Ioannina (Epirus, Greece). *Herpetozoa*, 17: 49–64.

Bibliography Bibliography 427

- Denoël, M. 2004b. Terrestrial versus aquatic foraging in juvenile alpine newts (*Triturus alpestris*). *Ecoscience*, 11: 404– 409.
- Denoël, M. & R. Schabetsberger 2003. Resource partitioning in two heterochronic populations of Greek alpine newts, *Triturus alpestris veluchiensis*. *Acta Oecol.*, 24: 55–64.
- DIMAKI, M. 2002. Herpetofauna of Rhodes and the rest of the Dodecanese. Pp. 63–68 in Massett, M., editor. Island of Deer: Natural History of the Fallow Deer of Rhodes and of the Vertebrates of the Dodecanese. Environment Organization, Rhodes.
- DIMAKI, M. 2004. *Telescopus fallax* (Cat snake). *Herp. Review*, 35: 294.
- DIMAKI, M. & Y. IOANNIDES 1997. A new locality record for *Ablepharus kitaibelii* (BIBRON & BORY, 1833) (Reptilia, Scincidae) on Polyaigos island, Greece. *Enim. Delt. Ellin. Zool. Etaireias*, 30: 10.
- DIMAKI, M. & A. LEGAKIS 1999. The reptile fauna of the Fourni Archipelago (Eastern Aegean, Greece). *Herpetozoa*, 12: 129–133.
- DIMAKI, M., VALAKOS, E. D. & A. LEGAKIS 2000. Variation in body temperatures of the African chameleon *Chamaeleo africanus* Laurenti, 1768 and the common chameleon *Chamaeleo chamaeleon* (LINNAEUS, 1758). *Belgian J. Zool.*, 130 (Suppl. 1): 87–91.
- Dimaki, M., Valakos, E. D., Legakis, A., Chondropoulos, B. & A. Bonetti 1999. Preliminary results on the feeding ecology of the African chameleon *Chamaeleo africanus* Laurenti, 1768 from the southwestern Peloponnese, Greece. Pp. 57–63 *in* Lymberakis, P., Valakos, E. D., Pafilis, P. & M. Mylonas, editors. *Herpetologia candiana*. Societas Europaea

- Herpetologica, Irakleio, Crete.
- DIMAKI, M. H., VALAKOS, E. D., CHONDRO-POULOS, B. & A. LEGAKIS 2000. Morphometric analysis of the African chameleon *Chamaeleo africanus* LAURENTI (1768) from the southwestern Peloponnese, Greece. *Israel J. Zool.*, 46 (3): 231–237.
- DIMITROPOULOS, A. 1985. First records of Orsini's viper, *Vipera ursinii* (Viperidae) in Greece. *Ann. Mus. Goulandris*, 7: 319–323.
- DIMITROPOULOS, A. 1986. Some notes on the color and pattern variation of the Greek snake fauna in relation to geographic distribution. *Biol. Gallo-Hellen.*, 12: 463–471.
- DIMITROPOULOS, A. 1987a. The distribution and status of the Mediterranean chameleon *Chamaeleo chamaeleon chamaeleon* (LINNAEUS, 1758) in Greece. *Herptile*, 12: 101–104.
- DIMITROPOULOS, A. 1987b. Some notes based on observations of the Ottoman viper, (*Vipera xanthina xanthina*, GRAY, 1849) in the Greek islands of Leros, Dodecanes (S. E. Aegean) and Chios (E. Aegean). *Herptile*, 12: 72–81.
- DIMITROPOULOS, A. 1990. A new locality record of Ottoman viper, *Vipera xanthina* (Serpentes, Viperidae) from the Greek island of Oenousses, N. E. Aegean. *Ann. Mus. Goulandris*, 8: 245–249.
- Dimitropoulos, A. & M. Gaethlich 1986. The reptiles of Athens. *Herptile*, 11: 62–65.
- DIMITROPOULOS, A. & J. IOANNIDIS 2002. Goulandris' Natural History Museum: reptiles of Greece and Cyprus [in Greek]. KOAN, Athens.
- Douglass, G. N. 1892. Zur Fauna Santorins. *Zool. Anz.*, 15: 453–455.
- Dusej, G. 1986. Zum Vorkommen der Leopardnatter *Elaphe situla* (LINNAEUS,

- 1758) auf Kea (NW-Cycladen) (Serpentes: Colubridae). *Salamandra*, 22: 213–214.
- Ehrengart, W. 1971. Zur Pflege der Griechischen Landschildkröte (*Testudo hermanni*). *Salamandra*, 7: 71–80.
- EISELT, J. 1988. Krötenfrösche (*Pelobates* gen., Amphibia, Salientia) in Türkisch-Thrakien und Griechenland. *Ann. Naturhist. Mus. Wien*, 90: 51–59.
- EISELT, J. & J. F. SCHMIDTLER 1987. Der *Lacerta danfordi*-Komplex (Reptilia: Lacertidae). *Spixiana*, 9: 289–328.
- Engelman, W. E., Fritzsche, J., Günther, R. & F. J. Obst 1986. *Lurche und Kriechtiere Europas*. DTV-Verlag, Stuttgart.
- EWALD, P. 1980. Sur quelques reptiles et batrachiens du Peloponnese oriental (Grece). *Riviera scient.*, 3/4: 1–14.
- FILIO, A. & A. BYRON 1990. On the legal status concerning the protection of amphibians and reptiles in Greece. *Herp. Review*, 21: 30–32.
- Fouropoulos, J. 1997. The reptile fauna of the northern Dodecanese (Aegean islands, Greece). *Herpetozoa*, 10: 3–12.
- Fouropoulos, J. & A. R. Ives 1999. Reptile extinctions on land-bridge islands: life-history attributes and vulnerability to extinction. *Amer. Nat.*, 153: 1–25.
- Frangides, C. Y., Koulouras, V., Kouni, S. N., Tzortzatos, G. V., Nikolaou, A., Pneumaticos, J., Pierrakeas, C., Niarchos, C., Kounis, N. G. & C. M. Koutsojannis 2006. Snake venom poisoning in Greece. Experiences with 147 cases. *Eur. J. Int. Med.*, 17: 24–27.
- Franzen, M. & U. Franzen 2006. Tailed amphibians of the Peloponnese the common newt, the alpine newt and the salamander. *Amphibia*, 5: 4–10.
- Frazer, J. F. D. 1965. Herpetological notes on

- Rhodes. Brit. J. Herp., 3: 220-224.
- Fritz, U. 1992. Zur innerartlichen Variabilität von *Emys orbicularis* (Linnaeus, 1758)

   Variabilität in Osteuropa und redefinition von *Emys orbicularis orbicularis* (Linnaeus, 1758) und *E. o. hellenica* (Valenciennes, 1832). *Zool. Abhandl. Mus. Tierkde Dresden*, 47: 37–78.
- Fritz, U. 1995. Kritische Übersicht der Fossilgeschichte der Sumpfschildkrötengattung *Emys* A. Duméril, 1806 (Reptilia: Testudines: Emydidae). *Zool. Abh. Mus. Tierkde Dresden*, 48: 243–264.
- FRITZ, U. 2001. Emys orbicularis LINNAEUS, 1758 – Europäische Sumpfschildkröten. Pp. 343–515 in FRITZ, U., editor. Handbuch der Reptilien und Amphibien Europas, Schildkröten (Testudines) I. Aula-Verlag, Wiebelsheim.
- Fritz, U., Auer, M., Bertolero, A., Cheylan, M., Fattizzo, T., Hundsdörfer, A. K., Sampayo, M. M., Pretus, J. L., Siroky, P. & M. Wink 2006. A rangewide phylogeography of Hermann's tortoise, *Testudo hermanni* (Reptilia: Testudines: Testudinidae): implications for taxonomy. *Zool. Scripta*, 35: 531–543.
- Fritz, U. & F. J. Obst 1995. Morphologische Variabilität in den Intergradationszonen von *Emys orbicularis* und *E. o. hellenica*. *Salamandra*, 31: 157–180.
- FRITZ, U., SIROKY, P., KAMI, H. & M. WINK 2005. Environmentally caused dwarfism or a valid species is *Tesudo weissingeri* BOUR, 1996 a distinct evolutionary lineage? New evidence from mitochondrial and nuclear genomic markers. *Mol. Phyl. Evol.*, 37: 389–401.
- Frör, E. 1979. Intraspecific differentiation of the green lizards (*Lacerta trilineata* and

- Lacerta viridis) of Greece. Biol. Gallo-Hellen., 8: 331–336.
- Frör, E. & A. Beutler 1978. The herpetofauna of the oceanic islands in the Santorini-archipelago, Greece (Reptilia). *Spixiana*, 1: 301–308.
- FUCHS, H. P. 1979. Als Terrarianer auf Kreta. herpetofauna, 1: 18–21.
- Fuhn, I. E. 1970. Über die Unterarten von *Ablepharus kitaibelii* (Bibron & Bory de St. Vincent, 1833). *Acta Soc. Zool. Bohem.*, 34: 9–17.
- GAD, J. 1990. Nachweiss einer Schildkröte des Mauremys-Ocadia-Komplexes aus dem Obermiozän von Nordgriechenland. Salamandra, 26: 311–313.
- GÁL, J., TÓTH, T., MOLNÁR, V., MAROSÁN, M. & E. Sós 2005. Mass incidence of gout in a breeding colony of Milos vipers (Macrovipera schweizeri). Magy. Állatorv. Lapja, 127: 551–556.
- GÄRDENFORS, U. 1980. Ein Nachweis von Vipera xanthina in Griechenland (Reptilia: Serpentes: Viperidae). Salamandra, 16: 270.
- GASC, J. P., CABELA, A., CRNOBRNJA-ISAILOVIC, J., DOLMEN, D., GROSSENBACHER, K., HAFFNER, P., LESCURE, J., MARTENS, H., MARTINEZ RICA, J. P., MAURIN, H., OLIVEIRA, M. E., SOFIANIDOU, T. S., VEITH, M. & A. ZUIDERWIJK 1997. Atlas of Amphibians and Reptiles in Europe. Societas Europaea Herpetologica & Museum national d'Histoire naturelle (IEGB/SPN), Paris.
- GITTENBERGER, E. & M. S. HOOGMOED 1985. Notizen zum christlichen Schlangenkult auf der Ionischen Insel Kefallinia (Kefalonia). *Salamandra*, 21: 90–94.
- GLAW, F. & M. FRANZEN 2006. Type catalogue of amphibians in the Zoologische

- Staatssammlung München. *Spixiana*, 29: 153–192.
- GRILLITSCH, H. & A. CABELA 1990. Zum systematischen Status der Blindschleichen (Squamata: Anguidae) des Peloponnes und der südlichen Ionischen Inseln (Griechenland). *Herpetozoa*, 2: 131–153.
- GRILLITSCH, H. & B. GRILLITSCH 1991. Zur Taxonomie und Verbreitung des Feuersalamanders, *Salamandra salamandra* (LINNAEUS, 1758) (Caudata: Salamandridae), in Griechenland. *Herpetozoa*, 4: 133–147.
- GRILLITSCH, H. & F. TIEDEMANN 1984. Zur Herpetofauna der griechischen Insel Kea, Spanopoula, Kythnos, Sifnos, Kitriani (Cycladen), Alonnisos und Piperi (Nördliche Sporaden). *Ann. Naturhist. Mus. Wien*, 86: 7–28.
- GRUBER, U. 1971. Die Inselpopulationen der Cycladen-Eidechse (*Lacerta erhardii*) in der Ägäis. *Opera Botanica*, 30: 71–79.
- GRUBER, U. 1979. Patterns of relationship and ecology of Aegean snakes. *Biol. Gallo-Hellen.*, 8: 345–348.
- Gruber, U. 1986a. Podarcis erhardii (Вергіада, 1876) – Ägäische Mauereidechse. Pp. 25– 49 in Вöнме, W., editor. Handbuch der Reptilien und Amphibien Europas, Echsen (Sauria) III. Lacertidae III: Podarcis. Aula-Verlag, Wiesbaden.
- GRUBER, U. 1986b. *Podarcis gaigeae* (WERNER, 1930) Skyros-Mauereidechse. Pp. 65–70 in Böhme, W., editor. *Handbuch der Reptilien und Amphibien Europas, Echsen (Sauria) III. Lacertidae III:* Podarcis. Aula-Verlag, Wiesbaden.
- Gruber, U. 1989. *Die Schlangen Europas und rund ums Mittelmeer.* Kosmos, Stuttgart.
- Gruber, U. & D. Fuchs 1977. Die Herpetofauna des Paros-Archipels (Zentral-Ägäis).

- *Salamandra*, 13: 60–77.
- GRUBER, U. & T. SCHULTZE-WESTRUM 1971. Zur Taxonomie und Ökologie der Cycladen-Eidechse (*Lacerta erhardii*) von der Nördlichen Sporaden. *Bonn. zool. Beitr.*, 22: 101–130.
- GRUSCHWITZ, M. & W. BÖHME 1986. Podarcis muralis (LAURENTI, 1768) – Mauereidechse. Pp. 155–208 in BÖHME, W., editor. Handbuch der Reptilien und Amphibien Europas, Echsen (Sauria) III. Lacertidae III: Podarcis. Aula-Verlag, Wiesbaden.
- HAGEDOORN, F. 1992. Some remarks of *Mertensiella luschani*. *Lacerta*, 50: 182–187.
- Hailey, A. 2000a. Implications of high intrinsic growth rate of a tortoise population for conservation. *Anim. Cons.*, 3: 185–189.
- Hailey, A. 2000b. Assessing body mass condition in the tortoise *Testudo hermanni*. *Herp. J.*, 10: 57–61.
- HAILEY, A. 2000c. The effects of fire and mechanical habitat destruction on survival of the tortoise *Testudo hermanni* in northern Greece. *Biol. Cons.*, 92: 321–333.
- Hailey, A. & V. Goutner 1991. Villas, villagers and tortoises in Greece: a sequel. *Oryx*, 25: 169–171.
- HAILEY, A. & V. GOUTNER 2002. Changes in the Alyki Kitrous wetland in northern Greece: 1990–1999, and future prospects. *Biodiv. Cons.*, 1I: 357–377.
- Hailey, A. & N. S. Loumbourdis 1988. Egg size and shape, clutch dynamics and reproductive effort in European tortoises. *Can. J. Zool.*, 66: 1527–1536.
- Hailey, A. & N. S. Loumbourdis 1990. Population ecology and conservation of tortoises: demographic aspects of reproduction in *Testudo hermanni*. *Herp. J.*, 1: 425–434.

- HAILEY, A., PULFORD, E. A. & D. STUBBS 1984. Summer activity patterns of *Testudo hermanni* GMELIN in Greece and France. *Amphibia-Reptilia*, 5: 69–78.
- HAILEY, A. & R. E. WILLEMSEN 2000. Population density and adult sex ratio of the tortoise *Testudo hermanni* in Greece: evidence for intrinsic population regulation. *J. Zool.*, 251: 325–338.
- Hailey, A. & R. E. Willemsen 2003. Changes in the status of tortoise populations in Greece 1984–2001. *Biodiv. Cons.*, 12: 991–1000.
- Hailey, A., Wright, J. & E. Steer 1988. Population ecology and conservation of tortoises: the effects of disturbance. *Herp. J.*, 1: 294–301.
- HAITLINGER, R. 1993. Acari (Arachnida) and Anoplura (Insecta) collected on small mammals, reptiles and insects in Greece and Cyprus. *Biol. Gallo-Hellen.*, 20: 83–88.
- Hanger, M. 1984. Some reptiles of Corfu. *Brit. Herp. Soc. Bull.*, 10: 39–42.
- HARRIS, D. J., BATISTA, V., LYMBERAKIS, P. & M. A. CARRETERO 2004. Complex estimates of evolutionary relationships in *Tarentola mauritanica* (Reptilia: Gekkonidae) derived from mitochondrial DNA sequences. *Mol. Phyl. Evol.*, 30: 855–859.
- HAYS, G. C. & J. R. SPEAKMAN 1993. Nest placement by loggerhead turtles, *Caretta caretta*. *Anim. Behav.*, 45: 47–53.
- HELMDAG, A. 1993. Faunistische Beobachtungen auf der Insel Rhodos. *Die Eidechse*, 10: 25–26.
- Helmer, W., Strijbosch, H. & P. Scholte 1988. Two addenda to the Greek herpetofauna and some new distributional data on mainland Greece. *Amphibia-Reptilia*, 9: 421–422.