Book review

VALAKOS, E.D., P. PAFILIS, K. SOTIROPOULOS, P. LYMBERAKIS, P. MARAGOU & J. FOUFOPOULOS, 2008. The amphibians and reptiles of Greece. Edition Chimaira, Frankfurt.
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Photos by the author

There are not many books devoted specifically to the herpetofauna of Greece, although one in German was published last year (TRAPP, 2007). Since I have a keen interest in that particular subject, I found the new book, *The Amphibians and Reptiles of Greece,* a very promising title.
This book is written by six Greek herpetologists, most of them representing the younger generation. Being more or less 'surrounded' by the rich Greek herpetofauna, they had excellent opportunities to study the amphibians and reptiles in detail and to communicate some of their results in this work.
The authors start out with a very brief introduction to the geography and climate of Greece, and continue with a few hints on finding reptiles. These hints focus primarily on selecting an altitude with the right climate that should be neither too warm nor too cold. The section about the geography might be a bit too complex and also confusing for those who do not speak Greek. Firstly, spelling can be challenging because of the Greek alphabet (which is, in my opinion, not that hard to learn). The potential for puzzlement may be illustrated in the authors' denotation of the second largest island of Greece on two physical and political maps (figs. 1-2) as "Evvoia (Euboea)". It is fair enough that they show us two different spellings of this important Aegean island. However, throughout the text of the book the authors inconsistently use three spellings: Evia, Euboea and Euboia. You cannot blame the authors for the extremely variable spelling of geographical units in that country. Nonetheless, I find it incomprehensible that four different spellings of one island are found in this book and they are never properly correlated for the reader. Moreover, it is striking that a fifth spelling, though apparently not used in this book, is very common: Evvia.
Secondly, the division of Greece into regions was changed about two decades ago and it would have been appropriate to have our Greek colleagues explain and define these properly. Instead the six authors further confuse the reader. When it comes to larger geographical units, a novel system of thirteen major peripheries was implemented in 1987 as shown on the political map (fig. 2). Peripheries are official regional administrative divisions of Greece. They subdivide into 51 prefectures or *nomoi* (singular *nomos*), which have been commonly used for many years. The two general maps of *The Amphibians and Reptiles of Greece* do not present the prefectures, although to a great extent prefectures are mentioned in the text, for instance Attica and Evros. These *nomoi* should certainly have been presented on a proper chart. To be quite honest, I find all of these errors and omissions relating to the geography of Greece to be slovenly work.

In the next chapter, five overall habitat types are briefly described, based mostly on altitude. This brief chapter is very useful. Many pages in this chapter are devoted to habitat and/or landscape photos. Generally, I find habitat pictures useful to supplement good descriptions in the text. Additionally, the habitat photos in the book remind me of the pleasant memories I have of my field trips in Greece. In spite of this, for the purpose of a herpetological book, nearly half of them (17 out of 40) have very limited value to the reader as there is no mention of

species or of the herpetological communities occurring in these habitats. In addition, these photos are not referred to in the text. One extreme example is fig. 16, which is accompanied by the following text: “Salt-pans (like these on Milos Island) host an impressive reptile biodiversity”. But which reptile species live in this salt-pan habitat? There is no indication of what reptiles form part of this impressive biodiversity. Moreover, two landscape photos (figs. 4 and 7) are blurred and should have been discarded.

The next three chapters deal with biogeography, conservation, and amphibians and reptiles in Greek culture. It is very appropriate that the authors emphasise the serious problems caused to numerous natural habitats in coastal zones by mass tourism – either through direct habitat destruction from so-called development projects (hotels and other buildings), or drainage issues resulting from excessive freshwater consumption. However, a few well-chosen words in a book will not affect this tragic development. I really hope that our Greek colleagues will use the only effective tool, i.e. present cases to the European Commission, highlighting several violations of the EU Natural Habitats Directive, for which the Greek government should be held responsible.
Although much space in the individual species accounts has been dedicated to informing us about the conservation status of each species, the legal implications of this status have not been dealt with in any way. More than half of the Greek amphibian and reptile species enjoy the strictest protection, the Annex IV status under the Habitats Directive. It is extremely important to keep in mind that this includes habitat protection! I would postulate that the majority of amphibian and reptile habitats in Greece are covered, since several widely distributed species occurring in very diverse habitats have been Annex IV listed, e.g. *Hyla arborea*, *Rana graeca*, *Triturus carnifex*, *Triturus karelinii*, all five terrestrial and freshwater chelonians, *Pseudopus apodus*, *Lacerta trilineata*, *Lacerta viridis*, *Podarcis erhardii*, *Podarcis muralis*, *Podarcis peloponnesiaca*, *Podarcis taurica*, *Natrix tessellata*, *Platyceps najadum*, *Telescopus fallax*, and *Zamenis situla*.
It is often beneficial to treat national authorities and local landowners with much respect, but from experience I know that the best results, when rules are not adhered to, are achieved by properly using legal methods. So far, the European Commission has carried out very few cases against Greece. In two cases the European Court of Justice has announced judgement against the Greek Government for failing to fulfil their obligations to implement effective and strict protection for *Caretta caretta* on Zakynthos (Case C-103/00 from 2002), and for failing to establish and implement a strict protection system for *Macrovipera schweizeri* on Milos (case C-518/04 from 2006). I very much hope that herpetologists and NGO's in Greece are involved or will become involved in actively protecting the nature and wildlife via the Habitats Directive.
The conservation statuses given in the species accounts are faulty. For each species the very essential Annex IV status has been provided, however, for eleven Annex IV species that status has not been mentioned: *Caretta caretta*, *Chelonia mydas*, *Dermochelys coriacea*, *Mediodactylus* (or

Lacerta trilineata, unstriped juvenile, near Kefalari (NE Peloponnese).

Cyrtopodion) *kotschyi*, *Eryx jaculus*, *Dolichophis caspius*, *Eirenis modestus*, *Hierophis viridiflavus*, *Zamenis longissimus*, *Zamenis situla*, and *Vipera ammodytes*.

After these introductory chapters, we come to the bulk of the book, i.e. the parts dealing with the individual species. Identification keys to adult amphibians, amphibian eggs and larvae, and reptiles are provided. One striking mistake is the omission of *Rana temporaria*, even though this relatively new member of the Greek herpetofauna has been included in the species accounts.
In recent years taxonomy and nomenclature of numerous groups of amphibians and reptiles have frequently been reviewed and discussed. It does not really make sense to claim which proposed phylogenies are 'right', and which are 'wrong' at this stage. In general, the authors have chosen novel nomenclatural arrangements that I fully respect. However, it might be prudent to use the new name *Lithobates catesbeianus* instead of *Rana catesbeiana* for the American Bullfrog. The lacertid revision by ARNOLD et al. (2007) was apparently published too late for their generic re-assignments to be taken into consideration. ARNOLD et al. (2007) proposed the genera *Hellenolacerta* for *Lacerta graeca*, and *Anatololacerta* for *Lacerta anatolica* and *Lacerta oertzeni*. I think the gender of the genus *Podarcis* is still subject to discussion as briefly touched upon by ARNOLD et al. (2007), who advocated the feminine gender, which is in line with the choice made in this book.
As the six Greek authors have adopted the novel generic names for several colubrid species, they have changed the suffix of *situla* to *situlus* because the genus *Zamenis* is masculine. Unfortunately that is incorrect since *situla* is a noun that is not inflected. As well, the six authors are guilty of inconsistency regarding this taxon, as the name *Zamenis situla* is used several times throughout the book.
Generally, I find the layout of the species accounts attractive. The utilisation of space is poor as there are many blank spaces at the end of the individual accounts - some 30-35 pages have been wasted! Moreover, there are many factual errors and important information is missing. Superficiality and inaccurate information are also problematic. Below, I have included a description of several examples of these errors.

- The defensive posture of *Bombina bombina* and *Bombina variegata*, the well-known unken reflex, is described in a peculiar way: “It turns on its back flashing its bright belly, while covering its eyes with its palms (pp. 87 and 91). It is rare indeed that they turn themselves fully upside down: these species usually do not 'turn on their back', but almost always remain on their bellies while arching the back with the head and posterior part of the body elevated to display their brilliantly coloured undersides. Actually, this behaviour is nicely illustrated in the book (figs. 70 and 74), but the description is inaccurate.
- Six species of the genus *Pelophylax* ('Green Frogs') have been included. They are morphologically very similar, although the three species of the Aegean islands are truly allopatric and thus there is actually no doubt about their identity in the field. Nevertheless, the

Pelophylax kurtmuelleri (Strofilia Forest, NW Peloponnese).

text indicates that there are certain differences in their advertisement calls but there is no further description or illustration of these calls. Particularly in western Greece, where *Pelophylax kurtmuelleri* and *Pelophylax epeiroticus* are sympatric, it is very useful to know their calls (that of *P. epeiroticus* consists of a long series of very brief pulses, which makes it somewhat 'rattling' as compared to that of *P. kurtmuelleri,* which consists of pulse groups and is more '*ridibundus*-like' and perhaps more me-

lodic). By the way, the original name of *Pelophylax epeiroticus* is not *Rana epeiroticus*, but *Rana epeirotica* (mentioned as a synonym of *P. epeiroticus* on p. 110).

- Another difficult ranid assemblage is the group of the Brown Frogs. We find three species in Greece: *Rana dalmatina*, *Rana graeca*, and *Rana temporaria*. Not only has *R. temporaria* been omitted from the identification key (see above), but the description is also very superficial. Important characters like the facial mask and the size and form of the metatarsal tubercle are not mentioned, which may increase the risk of confusing this species with *R. dalmatina*. I have the impression that the authors do not have any experience with this species as it is newly registered in Greece.
- For *Testudo marginata,* a particularly important and unique character has been ignored, possibly due to the authors' lack of experience with tortoises: The triangular dark spots on the plastron, which are symmetrical around the plastral mid-line. If one uses the flaring posterior carapace margin as a diagnostic character, as recommended in the book, you may mis-identify large individuals of *T. graeca* as *T. marginata*. This already happens regularly and regrettably.
- To distinguish *Anguis cephallonica* from *Anguis fragilis*, the wavy line on the neck of the former is a good character. It is very easy to use in the field with only a few exceptions known. But that character is ignored in the book, as only the well-defined borders between the different ground colours have been mentioned.
- There is simply way too much incorrect information about *Chamaeleo africanus* in this book. The indicated total body length is too low, the information on coloration is misleading (bright blue/yellow is only seen in undisturbed pregnant females), inaccurate information about ground level activity (males move over the ground in search for females, and females bury their eggs), the breeding season does not start in July but in August, the number of eggs per clutch is not 15-40 but an average of 40, the eggs are not laid *on* soft substrate but *in* the substrate (to a depth of approx. 35 cm), and the eggs do not hatch after eight months, but after approximately eleven months. The brief comment "No special measures exist for the conservation of this species" followed by a recommendation for urgent conservation management of the small Peloponnesian population is inappropriate considering the efforts to protect its tiny habi-

Anguis cephallonica (Mani peninsula, South Peloponnese). The wavy line on the neck is generally a good character to distinguish this species from *A. fragilis.*

Young *Chamaeleo africanus*, photographed in early morning when everything, including the chameleon, is still covered in dew.

tat that have been headed by the Hellenic Ornithological Society. Up to fifty helpers per year participate in different ways, including protecting nests, and this project has been running for eleven years. Much better information on *C. africanus* can be found in the book by TRAPP (2007). There are several herpetologists – Greek as well as foreign – with a fine knowledge of *C. africanus* in Greece. Why were they not consulted by the authors of this book?

- The generic name of Kotschy's Gecko has changed often; the authors use *Cyrtopodion kotschyi*. But nowadays there is general consent for using *Mediodactylus* as the genus name (MACEY et al., 2000; SPEYBROECK & CROCHET, 2007).
- The two Greek species of the genus *Algyroides*, *Algyroides moreoticus* and *Algyroides nigropunctatus*, are known for a unique reproductive behaviour: the male performs a post-copulatory bite on the female for a very long duration. It was first demonstrated by IN DEN BOSCH (1983, 1985) in captivity and later described based on field observations. Although a few comments on reproduction in *A. moreoticus* and *A. nigropunctatus* are provided in the book, they are very superficial, which is unnecessary as good information is available. This applies to the reproduction of many other lizards discussed in this book and is a pity.
- On p. 254 there are two photos of green lizards, allegedly "*Lacerta agilis bosnica* gravid female" and "*Lacerta agilis*" respectively. Both are definitely females, but they look very different from Greek *L. agilis* or other *L. a. bosnica*. I will judge them as *L. viridis*. However, I am aware that, e.g. female *Lacerta agilis grusinica* from Georgia may be similar to *L. viridis* (BISCHOFF, 1988; IN DEN BOSCH & BISCHOFF, 2004) although it would have been very inappropriate to include that subspecies.
- Another strange mistake has been made for two other green lizard photos. Figs. 269-270 on p. 279 are claimed to depict *L. viridis meridionalis* from the Gulf of Amvrakia. However, according to the photographer Johannes Hill (pers. comm.) these two individuals are not Greek, but are from Lower Austria. Additionally, the subspecies *L. v. meridionalis* does not occur in that area (western Greece), but it has a north-eastern distribution in Greece.
- It is noted under Identification that young and subadult *L. trilineata* have "3-5 light streaks on the back" whereas young and subadult *L. viridis* have 2 or 4 light stripes. The wording "3-5" for *L. trilineata* is unfortunate and should have been "3 *or* 5" as that species will never have 4 stripes. If juveniles are striped, this character is indeed excellent for use in distinguishing the two species (odd number in *L. trilineata*, even number in *L. viridis*), however, juveniles of both species may very well be unstriped.
- In areas of sympatry, *L. trilineata* and *L. viridis* are easily confused and it would have been useful if more attention had been paid to the differences between the two species. A character which is easily used in the field is the ground colour of the skin between the scales of the body: In *L. trilineata* it is dark and in *L. viridis* it is generally light (NETTMANN & RYKENA, 1984a, 1984b). If you keep a wild adult in your hands, it will twist its body fiercely in an attempt to escape and then this ground colour will become exposed.

- Figure 271 is a close-up photo of *Podarcis erhardii* with this text: "The nasal scale does not reach the nostril in *Podarcis erhardii*, as shown in this specimen." Firstly, this is a *contradictio in terminis* as the nasal by definition is a scale recognised by the presence of the external naris! Secondly, I cannot distinguish scales properly in this picture. It is likely that the authors have been referring to the rostral that is excluded from the nostril.
- One photo of *L. trilineata* on p. 273 has apparently been turned 90 degrees – at least the lizard looks strange in that position!
- The authors have apparently misunderstood the taxonomic history of the two Greek members of the current whip snake genus *Dolichophis* as they write: "In the past *Dolichophis jugularis* was considered a subspecies of *D. caspius*" (p. 348). However, it was the opposite with the former genus name *Coluber* as *caspius* was actually a subspecies of the species *C. jugularis*, i.e. *Coluber jugularis caspius* and *Coluber jugularis jugularis*.
- *Vipera berus*: Five photos of this rather atypical member of the Greek herpetofauna are in the book (including one under habitat and landscape photos). Among these are individuals with a zigzag pattern and one that is nearly melanistic. The latter is from Bosnia and I presume that the former is also extralimital. I have never seen or heard of such patterns in individuals from Greece as these normally have a dorsal pattern of basically dark transverse bars. Since there are many good photos of Greek *V. berus* (including one in the book), it is superfluous or even inappropriate to include individuals from other parts of its distribution.
- Under Identification of *V. berus* we read that "the eyes separated by a single row of small scales". Separated from each other? Or separated from what? The only row of small scales in contact with the eye that I can think of, are the suboculars (which separate the eye from the labials). Often there is indeed just a single row of suboculars, but that applies especially to the nominate subspecies, whereas the Balkan populations (*V. berus bosniensis,* which is known from Greece) usually has two rows of suboculars. The distribution map of *V. berus* is also erroneous, but I will discuss this further in a later section.

Post-copulatory bite in *Algyroides moreoticus* (April 23, 1995 near Souli, NE Peloponnese).

For each species, there is a small distribution dot map of Greece with black dots representing specific record localities. I like this very precise method of illustrating distributions, but it is definitely a demanding and time-consuming task as it requires that you scrutinise all existing and relevant records. The creator has to judge how old records should be included and to what extent unpublished data should be used. In just three lines the criteria for making the maps are explained. They have been made "from the literature published in relevant scientific journals, after critically revising them to the best of our current knowledge" (p. 77). Is that all? I presume our six Greek colleagues have a wealth of hitherto unpublished records that could make the maps much more complete.

Naturally, the amount of space devoted to describing, e.g. single records, is limited, but if totally new records (in new areas) are published for the first time in this book, they

surely should be described briefly.
As I went through the individual maps, I found many of them quite surprising. A dominating trend is that numerous localities seem to be missing. The list of bibliographic references at the end of the book contains publications with lots of well-documented records that appear to have been entirely omitted from the maps. For widespread and ubiquitous species, there are large blank areas on the maps where they are well known to occur, for example, for *Bufo bufo*, *Hyla arborea*, *Lacerta trilineata* and *Ablepharus kitaibelii,* which the authors would probably also have found throughout these blank areas.
Even several records mentioned in the book itself were left out. There are, for instance, two photos of *Emys orbicularis* from Gialova (SW Peloponnese), one photo of *Ablepharus kitaibelii* from Meteora (C Greece), and one photo of *Lacerta trilineata* from Mt. Olympos (C Greece), but these records have not been represented by dots on the maps.
Another example is the map for *Coronella austriaca*. This species "is very common in Epirus, Macedonia, Thrace", but the map has only five dots from that huge northern Greek range whereas there is a higher density of dots in the south where the species is stated as "found rarely"!
The distribution map of *Vipera berus* is really wrong or at least extremely inaccurate. To my knowledge the only records known in Greece are those published by IOANNIDIS & BOUSBOURAS (1989) and that reference has been included in the book. However, these localities do not at all fit with the dots on the map of the book. Three dots are shown in lowlands (one even in the town of Thessaloniki!) and they are definitely wrong.
One surprising dot is on the map of *Mesotriton* (or *Ichthyosaura*) *alpestris* in the Rhodope Mountains. Nothing about that occurrence is mentioned in the text, and I do not think that there are any references giving that record. Was that dot placed in error?
These dot maps should have been prepared much more carefully. If the authors did not want to spend more time on that task, it would probably have been more appropriate to use the more simplified and less ambitious range maps where entire ranges are given another colour or different appearance, such as crosshatching.

Throughout the book, there is a lack of consistency in the taxonomic level used for the amphibians and reptiles. More specifically, especially in the photo captions, the authors uncritically state them as either species or subspecies. The inconsistency is notably for polytypic species that are only represented by a single subspecies in Greece. For example, there are four photos of *Pelobates syriacus* (fig. 115-118). In one photo the individual is named *Pelobates syriacus*, but the three others are *Pelobates syriacus balcanicus*. Does that imply that attempts have been made to identify these four individuals to subspecies level? The same inconsistency applies to several other species.
A 29-page reference list and an overview of Greek taxa of amphibians and reptiles complete the book. It contains many useful references, but a number of important ones are missing, a few of which I have already mentioned earlier in this review. As well, I think the authors could have benefitted from some old standard works like WERNER (1938) and CYRÉN (1941), especially because some of these two herpetologists' earlier works have been included. A few references in the text were omitted from the literature: BATISTA et al. (2006) and STÖCK et al. (2006) in the *Pseudepidalea* (or *Epidalea*) *viridis* account, and SCHMIDTLER (1997) in the *Ablepharus kitaibelii* account.

In spite of the numerous errors, I might use *The Amphibians and Reptiles of Greece* on occasion, but indeed very carefully and critically. I rather prefer TRAPP's (2007) book, although it is restricted to mainland Greece and does not have any distribution maps. In conclusion, I must say that I cannot really recommend this new book. Multi-authorship should benefit from the strengths of all authors, especially when professional herpetologists are involved. This book has, unfortunately, failed to meet my expectations.

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