

diversity of amphibians and reptiles, probably more so than before the cultivation of the land and certainly more so than after agricultural reform. Regrettable as it may be, future work on the amphibians and reptiles of Portugal will probably show a reduction in species densities and, perhaps, ranges. Malkmus' book and the data on which it is based will prove invaluable in analyzing the causes and pattern and process of decline.

## References

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Bitz, A., Fischer, K., Simon, L., Thiele, R., Veith, M., Eds. (1996): Die Amphibien und Reptilien in Rheinland-Pfalz. Fauna und Flora in Rheinland Pfalz, Beiheft 18/19. Published by the "Gesellschaft für Naturschutz und Ornithologie Rheinland-Pfalz". 864 pages. In German. ISSN 0938-7684. Price DEM 98.-.

The first impression of the two volumes (together 2.3 kg weight) is amazing. The authors have compiled the most extensive and complete survey of a regional herpetofauna so far published in Europe. On 864 pages, and supported by 1668 figures (including a very large number of colour photos of high printing quality), they publish the results of a ten years-long mapping project in the region Rheinland-Pfalz (Rhineland-Palatine), Germany. The first volume (pp. 1-312) contains the introduction and the chapters on the 17 species of amphibians, whereas the second volume (pp. 313-864) covers the nine species of reptiles and, extensively, aspects of ecology and conservation. Each chapter was written by a separate author or team of authors. For each species, detailed analyses of sympatry, phenology, occurrence in natural (biogeographic) areas and biotope types, and altitudinal distribution are given. The accounts on taxonomy, distribution, ecology and biology do not only provide local data, but also extensive reviews of the situation in Germany and Central Europe. The literature list, which is merged for all chapters at the end of the second volume, contains about 1000 references.

As any such enormous multi-author project, the work contains some minor errors, inconsistencies and carelessly treated subjects. A few of these should be mentioned here. The captions to all six figures of colour anomalies in amphibians use uncritically the word "albino", although many of the figures clearly do not show real albinos but flavistic or only light coloured specimens. The *Rana ridibunda* specimen shown on page 292 certainly does not display a natural "deathfeigning" behaviour but simply remained motionless and rigid after having been turned onto his back. Results of stomach content analyses in one amphibian community are given twice — in the species chapters as well as in a separate chapter in the second volume —, and they are not adequately related to the size of the corresponding specimens. So, it is stated that food of *Rana kl. esculenta* consisted for 30% of collemboloes (page 805), but only in one of the following sentences it is clarified that a large number of juvenile frogs were pooled together with adults for this analysis. The number of studied specimens of *Hyla arborea* is given as 220 on page 244 and as 125 on page 804.

The colour photos often illustrate important aspects, for example the diagnostic differences in colour and extension of nuptial pads in male *Rana temporaria* and *R. dalmatina* on page 267, or comparative views of ventral pattern in female *Triturus vulgaris* and *T. helveticus* on page 113. Often, however, the photos are not employed properly. So, the greenfrog chapter does not only fail to differentiate between distribution of *Rana lessonae* and *R. kl. esculenta*; moreover, the authors do not even show comparative pictures of typical representatives of both taxa. Although all photos were made in Rheinland-Pfalz populations (Veith, pers. comm.), only very few are accompanied by date and locality. This constitutes a handicap for anyone who wants to study, for example, geographic variation of colour patterns.

As a conclusion from the points mentioned above, some aspects of the book give the impression of a non-parsimonious use of resources. The book would not have lost impact if it was printed on less glazed paper, contained fewer and smaller photos and a more tightly written text. The money thus saved could well have been spent more efficiently, e.g. for specific biotope conservation measures.

But this criticism should by no means detract from the enormous merit of this work. It provides a comprehensive overview of the Rheinland-Pfalz herpetofauna to all interested naturalists as well as an indispensable data basis for ecologists. Simultaneously, it is also a detailed handbook of amphibian and reptile conservation for all local administrations and conservation authorities. Especially in this last respect, the book can also be recommended to a wider public, although the consistent use of German language (no English abstracts) is clearly an important restriction.

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Lanza, B., Caputo, V., Nascetti, G., Bullini, L. (1995): *Morphologic and genetic studies of the European plethodontid salamanders: taxonomic inferences (genus Hydromantes)*. ISSN 1121-7545, ISBN 88-86041-10-1. 366 pp., 36 tables, 124 figs, half of them in colour. Hard cover. Monografie XVI. Museo Regionale di Scienze Naturali Torino, Torino. Price Lit. 150 000, equalling approx. DM 130.-.

The genus *Hydromantes* from California, France and Italy has attracted a great deal of attention due to its unique position as the one group of plethodontid salamanders with palearctic (i.e., non-American) representatives. Prof. Lanza and his colleagues have now collated their data and that of others in a monograph 'Morphologic and genetic studies of the European plethodontid salamanders: taxonomic inferences (genus *Hydromantes*)', which volume was published in a series of the Natural History Museum of Turin. The brief introductory chapters deal with the taxonomic position of the genus *Hydromantes* within the family Plethodontidae and with a critical evaluation of the various hypotheses that are around to explain its particular distribution. The nomenclatorial confusion surrounding this group of salamanders is clearly laid out. The chapter on 'material and methods' describes the morphological and genetic techniques that are applied and the large sample on which most of the research is based. The key to the identification of seven recognized European species is peculiar because range, and not phenotype, is taken as the prime diagnostic criterium. This strategy must give rise to circular arguments. Just a warning that the key must be used with caution may not suffice. The problem of course is that the three closely related eastern Sardinian species, as well as the three from the continent, are difficult to distinguish from morphology alone. However, the seven taxa are genetically rather different from one another, with Nei genetic distances of 0.2 or 0.3 or more between them. The biochemical key at the very end of the book illustrates that all seven taxa are clearly diagnosable on account of their enzyme phenotypes.

The species accounts follow almost exactly the format as laid out for the 'Handbuch der Amphibien und Reptilien Europas', with detailed descriptions of morphological and geographical range, but with little or no attention to development, ecology, behaviour or conservation biology. The tables with morphometric and distributional data fill well over 100 pages and the good quality colour photographs, showing the extensive variation in colouration between species, subspecies and populations, fill another 20 pages. The monograph aims to provide an alpha-taxonomic treatment of European *Hydromantes* and the authors have done an excellent job at that. Personally, I would have liked to see more analysis, either fresh or in review, and less undigested detail. The morphometric and photographic data remain largely unexplored. Interesting evolutionary questions remain unaddressed and the promise of taxonomic inferences expressed in the title remains largely unfulfilled. Some taxa that were only recently recognized as species appear to be sister-groups with parapatric distributions. What is the species concept adhered to? Are studies underway to test for reproductive isolation, not only to the further description of genetically differentiated forms within *Hydromantes genei*, but also among formally recognized species? Is there evidence of hybridization and hybrid breakdown in contact zones? Under what ecological and paleogeographical conditions these cave salamanders are likely to have diverged? Is the observed morphological variation in the locomotory apparatus and in the meristic characters of the skull, that differentiates