



## Lizards

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# BOOK REVIEWS

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LIZARDS. VOLUME 1: HUSBANDRY AND REPRODUCTION IN THE VIVARIUM, GECKOES, FLAP-FOOTED LIZARDS, AGAMAS, CHAMELEONS, AND IGUANAS. LIZARDS. VOLUME 2: MONITORS, SKINKS, AND OTHER LIZARDS INCLUDING TUATARAS AND CROCODYLIANS. M. Rogner (translation by J. Hackworth). 1997. Krieger Publishing Co., Malabar, Florida. ISBN 0-89464-939-6. 317 p. \$59.50 (Vol. 1). ISBN 0-89464-968-X. 308 p. \$54.50 (Vol. 2) (hardbound). ISBN 0-89464-972-8. \$97.50 (set).—These books are English translations of the original German editions (Eugen Ulmer GmbH and Co.) published in 1992 and 1994. I am ambivalent about them because for the professional herpetologist they offer little, but for the herpetoculturist, for whom they are explicitly intended, they might be of considerable value. In this review, I emphasize the former context but consider briefly the latter.

One cannot begin without commenting on the taxonomic inconsistency of the contents. It is strange, indeed, to have appended sections on tuatara, crocodylians, and amphisbaenians in a work entitled *Lizards*. Why not turtles? Or snakes? In his defense, Rogner notes in the Preface to Volume 2 that these sections were included "at the request of my publishers" whose motivation, one assumes, was to increase marketability by encompassing taxa underrepresented in the herpetoculture literature. However, the intended audience for the books is the amateur hobbyist, not the zoological park, and the former is hardly in a position to maintain tuatara and crocodylians, so I find little to justify this decision.

Taxonomic shortcomings are, perhaps, the most problematic issue for the professional herpetologist. I do not fault Rogner so much for failing to be completely current (by 1992 standards) in his taxonomy, which is, after all, a Herculean task for anyone considering such a diverse group, but rather for his failure to be consistent and scholarly in this regard. There is no apparent rationale for the taxonomies used. No reference is made to a higher-level classification of squamates that would serve to organize the contents. Taxonomic choices seem to be arbitrary and are applied without justification or attribution to appropriate literature [with the sin-

gle exception of Klaver and Böhme (1986), noted below]. For example, Rogner uses the traditional, three-family taxonomy for Iguania (Iguanidae, Agamidae, Chamaeleonidae) rather than the radical, nine-family scheme of Frost and Etheridge (1989), now widely in use. Is this merely an oversight stemming from ignorance of the systematic literature, or does it reflect Rogner's judgment that the traditional taxonomy is preferable, a view vindicated by recent taxonomic and phylogenetic developments (Schwenk, 1994; Macey et al., 1997)? It might reflect a basic taxonomic conservatism in service of the herpetocultural community, potentially confused and annoyed by changes to traditional classifications, but the latter interpretation is belied by Rogner's uncritical application of Klaver and Böhme's (1986) equally radical taxonomy of the Chamaeleonidae (cited, but not listed in the bibliography)!

Both volumes are replete with such inconsistencies and errors. I note here a few that jumped out at me, which given my idiosyncratic knowledge of the systematic literature, suggests that there are many more: some of Moody's (1980) proposed changes to agamid genera are used (e.g., *Acanthosaura* for some species previously assigned to *Gonocephalus*) but not others (e.g., *Stellio* is not adopted for some *Agama* but is noted parenthetically; yet a text figure illustrates differences in tail scalation that distinguish between *Agama* and *Stellio*). Similarly, bearded dragons are referred to *Amphibolurus*, although *Pogona* (Storr, 1982) has been widely accepted for years, even in the herpetoculture literature [*Pogona* is also listed parenthetically, but Storr (1982) is not cited]; *Elgaria coerulea*, *E. multicaerulea*, and *E. kingii* (Good, 1988) are all included in *Gerrhonotus*; *Enyaliosaurus* is listed as a distinct genus, although it has long-since been subsumed by *Ctenosaura* (Etheridge, 1982); this undisputed iguanine is included within the tropidurines (Iguanidae); *Gambelia* is said to be monotypic; amphisbaenians are sometimes referred to as amphisbaenids.

A second serious weakness of these books for the professional is Rogner's parochial review of the literature. Although he has synthesized a great deal of information, it is restricted almost exclusively to German language herpetocultural papers. Relevant natural history literature is virtually ignored. This leads not only to errors of omission, but to factual errors as well, because the herpetocultural data often are not informed

by sound biology. This does a disservice to the hobbyist because a great deal of published, practical information (such as natural diet or reproductive periodicity) is unavailable here. For example, although several herpetocultural sources are cited for information about *Rhacodactylus* (giant geckos of New Caledonia), Bauer's (1985, 1990) work on this rare genus is not mentioned. Nor are Sherbrooke's (e.g. 1981) extensive natural history data for *Phrynosoma* consulted. A quick perusal reveals several errors: stones in lizard stomachs are said to grind food (v.1:ix), but there is no evidence for this or anything other than accidental ingestion; it is implied that tuatara have an intromittent organ when they do not (v.1:x); hypertrophied, extracranial endolymphatic sacs in a gecko are illustrated and referred to (without explanation) as "otoliths" (v.1:57); it is stated that *Phrynocephalus helioscopus* absorbs water through the skin (v.1:171), but it is known, instead, that it transports water through interscalar channels across the skin to the mouth (Schwenk and Greene, 1987); it is stated that virtually nothing is known about the reproductive habits of *Polychrus* (v.1:258), but significant information is provided by Beebe (1944) and Gorman et al. (1969); the common name for *Tiliqua gerrardi* is given as "pink-tongued skink," and it is stated that "The pink tongue is particularly conspicuous" (v.2:182), but a photograph of this species (p. 183) reveals a strikingly blue tongue, as in other species of *Tiliqua* (a possible explanation for this discrepancy can be found in Greer, 1989).

Occasionally, the converse situation arises: some very interesting, possibly original, biological tidbits are mentioned without context, explanation, or citation. For example, it is noted (v.1:171) that the stomach of a recently caught *Phrynocephalus helioscopus* contained mostly black ants up to 1.5 mm long and that the formic acid in the ants may have an effect on the lizard's metabolism. *Corytophanes cristatus* is said to eat only large prey items in captivity (v.1:227), an observation in remarkable accord with Andrew's (1979) study of predation in the wild. For the bizarre skink, *Tribolonotus*, it is cryptically stated, "This is the only lizard with glands below the ventral scales and on the flat of the hands and feet" (v.2:223). Is this true? Who says? I want to know more!

Keys are not given for species identification, except, inexplicably, for the gecko genus *Ptychozoon*. Range maps appear sporadically for the occasional genus or family but with no apparent rationale for their inclusion.

Thus, for professionals these volumes cannot

be relied on to provide accurate or complete biological information. Nor are minimal standards of citation and scholarship maintained so that sources can be checked. For these reasons, *Lizards* will be of little value to most academic herpetologists.

To be fair, however, Rogner's stated aim is to provide "technically sound information" for the herpetoculturist, not the professional herpetologist. Although some of the biology may not be as "technically sound" as it should, the husbandry data of most interest to the herpetoculture community seem to be well reviewed. Thus, these volumes succeed quite well for this audience. They summarize concisely a vast amount of information for any species likely to be kept in captivity. Information is provided for each about enclosures, water and food requirements, humidity, temperature, breeding, and reproduction. The number of species considered is vast and included are many rare or unusual forms for which data are scarce. Useful information is given in the Introduction about light and nutritional requirements of lizards, generally. Many brandname products are mentioned, but many of these items may be unavailable to North American hobbyists. Both volumes are well illustrated with consistently high quality color photographs of many of the species considered. Although dozens of books with similar intent are published for the pet trade, most are much more narrowly focused and few review as much of the herpetocultural literature, particularly the German literature which heretofore has been inaccessible to most North Americans.

Krieger has published a growing number of herpetological titles in recent years, many of dubious scientific value. Flawed as it is, *Lizards* is better than most of these efforts. Although containing more typos than one might expect, the books are handsome and well produced, being printed on glossy, acid-free paper with a binding sewn in signatures that opens flat.

In sum, *Lizards* cannot be recommended as a reference on the biology of lizards, but as a central sourcebook for the care, maintenance and breeding of captive specimens it is a strong contribution. For the amateur hobbyist, or the professional who keeps exotic species in captivity for research purposes, these books will be very useful.

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- KURT SCHWENK, *Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, Connecticut 06269-3043.*  
E-mail: *schwensk@uconnvm.uconn.edu.*
- EUROPEAN FRESHWATER FISHES. Maurice Kottelat. 1997. *Biologia*, Bratislava, Section Zoology, Slovak Academic Press, Bratislava. Volume 52, Supplement 5. Available from Veronique Cabrio, Rue Industrielle 62, CH-2740 Moutier, Switzerland. ISBN 80-85665-87-5. 271 p. \$30.00 plus \$6.00 shipping and handling (paperback).—What sort of person compiles a checklist of fishes? Certainly one who loves both fishes and the history of their names and one who is motivated by a sense of service to fellow students of the discipline. Maurice Kottelat is all of that but is also an ichthyologist with attitude, driven by a sense that sound systematics must underlie urgent conservation and management decisions regarding the rapidly dwindling European fish fauna yet appalled by its incompetent practice, inadequate funding, and neglect as a relevant discipline across Europe. He sadly reckons that poor systematics and poor taxonomy contributed directly to the lack of preservation status and probable extinction of 12 species. In this supplemental volume to *Biologia*, Kottelat has produced a multipurpose work, part primer for nonspecialists, part plea for European systematists to address problems close to home, and part checklist; a working document that raises more questions than it answers.
- Like so many others who find themselves in the midst of unwieldy undertakings, Kottelat at first underestimated the scope of his project. When compiling comparative data on European and Southeast Asian freshwater fish faunas, he needed a reasonably up-to-date checklist of European freshwater fishes to ascertain numbers of species, their distributions and conservation status. Finding none, he decided to review the literature and compile his own list. He surmized the task would not be difficult since European fishes have been studied for more than 450 years and are not especially speciose [215 species west of the Urals, Maitland (1976)]. As he dug into the literature and surveyed museum and university collections, Kottelat was shocked to find an “astonishingly poor state of European fish systematics and nomenclature” in which a patina of nomenclatural stability masked a host of problems. The last reasonably comprehensive bibliography was Gunther’s *Catalogue of fishes* of the 1860s. The systematic literature is extensive but of a very poor quality, dominated by fisheries biologists untrained in systematics and restricted by national borders and language barriers. Species concepts have been applied loosely or not at all, and judicious editorial oversight has often been lacking (e.g., *Fundulus heteroclitus* was described as a new species endemic to Spain and stocks of *Ameiurus nebulosus* were