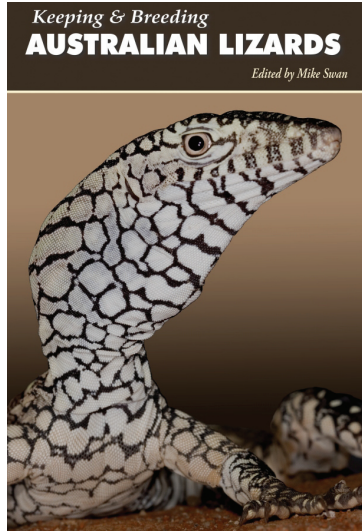

BOOK REVIEWS

Keeping and Breeding Australian Lizards

Edited by MIKE SWAN

Mike Swan Herp Books, Lilydale, Australia. 2008

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Australia has long been famed for its unusual and unique wildlife, particularly its reptiles and amphibians. In turn, this has generated global demand for its herpetofauna among zoos and private collectors. Although there have been many popular and technical articles written on the herpetoculture of Australian species,

there are few books which truly provide detailed and comprehensive accounts capable of advancing herpetocultural knowledge and practice (e.g., Swan, 2007; Hitz et al., 2004; Hausschild and Bosch, 2000; Vincent and Wilson, 2000). Sadly, the majority of books written to date on the husbandry and captive reproduction of Australian lizards have been limited to dumbed-down, pet shop books intended for a beginner audience (e.g., Goulding and Green, 2007; Purser, 2006; Raffery, 2003; de Vosjoli and Mailoux, 2001; Turner, 2001; Green, 2001; Green and Larson, 2001; Walls, 1996). Given this void in the herpetocultural literature, books which discuss the care and breeding of Australian lizards in detail and promote innovative approaches to herpetoculture are much needed among both amateur and professional herpetoculturists.

Keeping and Breeding Australian Lizards is the latest herpetocultural title published by Mike Swan Herp Books, presenting an array of current and up to date information on the husbandry and breeding of Australian lizard taxa presently maintained in Australian collections. The book is organized in a similar fashion to the publisher's earlier title, *Keeping and Breeding Australian Pythons* (2007), with several authors contributing sections based on their areas of expertise or taxonomic specialization. The book

features over 1,000 color photographs and is divided into several main sections.

The book begins with a brief overview of lizards, discussing lizard diversity, morphology, physiology and ecology, followed by an introduction to the lizard diversity of Australia. The subsequent chapter provides a general overview of lizard husbandry, discussing specimen selection, housing ratios, handling, enclosure design and construction, substrates and enclosure furnishings, heating and temperatures, lighting, feeding, water, sloughing, and record keeping. The following chapter on lizard breeding includes brief discussions of sex determination, reproductive phenology, winter cooling, mating, egg development, oviposition, incubation, and the care of lizard offspring. These sections are generalized in their scope of coverage, and leave remarks on specific taxa for the species accounts appearing later in the book.

The following section by Rob Porter covers the rearing of insects for food. Here, the author discusses techniques used to culture a variety of insects including domestic crickets (*Acheta domesticus*), wood cockroaches (*Nauphoeta cinerea*), mealworms (*Tenebrio molitor*), giant mealworms (*Zoophoba morio*), wax moth larvae (*Galleria mellonella*), silkworms (*Bombyx mori*), and migratory locusts (*Locusta migratoria*). Also discussed is the practice of dusting prey items with vitamin and mineral supplementation. Next, is a chapter on the diseases and disorders of Australian lizards by Fransiscus Scheelings. This chapter is divided into several smaller sections, covering nutritional disorders, metabolic bone disease, periodontal disease, reproductive disorders, parasitism, trauma and dysecdysis. Also included are important considerations for quarantining new animals, and a useful formulary of anesthetics, analgesics, antibiotics, and antiparasitic drugs. The section is well-referenced, with literature citations appearing at the end of the chapter.

Making up the bulk of the book's 613 pages are the species accounts. These accounts are arranged

taxonomically, with five main sections based on the major Australian lizard groups: the gekkonids, pygopodids, scincids, agamids and varanids. Each section begins with an introductory chapter on the taxonomy and natural history of the group, with color photographs depicting representative species, as well as general information regarding captive management such as housing, diets, temperature and environmental conditions, breeding, egg incubation, and quarantine of new specimens. Individual chapters within each major section are arranged according to genera, individual species, closely-related taxonomic groups (e.g., “mulga monitors”), or ecologically-defined groups (e.g., “water monitors”). Each chapter begins with an overview of the natural history of the species, genus or group, with corresponding distribution maps and color photographs for all Australian representatives and their corresponding habitats. Detailed accounts on captive husbandry, breeding, incubation and rearing of offspring follow, with color photographs depicting captive specimens, enclosures, courtship behavior, eggs, and captive bred offspring, concluding with accompanying tables presenting useful breeding data for each species such as egg and hatchling morphometrics, gestation and incubation periods, and incubation temperatures. Although not exhaustive, all chapters are well-referenced, with citations appearing at the end of each chapter.

Following the species accounts is a final chapter on color and pattern aberrations, discussing the various Australian lizard species which have been line-bred for specific color and pattern mutations in captivity, descriptions of several common mutations, and a brief overview of mendelian genetics and its applicability to reproducing these traits in captivity. Completing the book is a brief glossary of terms followed by an index searchable by species.

Since this review is appearing in a specialized varanid publication, it is important for me to discuss the *Varanus*-related material contained within this book. Authored by Australian varanid herpetoculturists Grant Husband and Matthew Bonnett, the 100 page section devoted to monitor lizards is divided up into eight individual chapters: spiny-tailed monitors (*V. acanthurus*, *V. baritji*, *V. primordius* and *V. storri*), pygmy desert monitors (*V. brevicauda* and *V. eremius*), terrestrial monitors (*V. giganteus*, *V. gouldii*, *V. panoptes*, *V. rosenbergi* and *V. spenceri*), mulga monitors (*V. bushi*, *V. gilleni*, *V. caudolineatus*), rock monitors (*V. glauerti*, *V. glebopalma*, *V. kingorum* and *V. pilbarensis*), tree monitors (*V. kiethhornei*, *V. prasinus*, *V. scalaris* and *V. tristis*), water monitors (*V. mertensi*, *V. indicus*, *V.*

semiremex, *V. mitchelli*), and lace monitors (*V. varius*). The general overview of the genus in the introductory chapter is brief and concise, covering an assortment of topics pertaining to natural history, ecology, morphology and reproduction.

The authors provide detailed husbandry information, data, and recommendations gathered from their own first-hand experiences, personal communications with other varanid herpetoculturists, and consultation of primary and secondary literature sources. In addition to providing useful breeding data for each species such as gestation and incubation periods, and incubation temperatures, the authors address several important topics which have been viewed among varanid herpetocultural circles as controversial. For example, the practice of housing monitors in enclosures with 24 hour exposure to lighting and heat, as promoted by some North American varanid keepers, is strongly contested and argued against, reminding readers that a normal photoperiod as would be experienced in the wild, has its health advantages and reduces the risk of animals “burning out” in captivity. Another topic which is thoroughly discussed throughout the book is the importance of vitamin and mineral supplementation and exposure to ultraviolet light, particularly for specimens maintained indoors without access to natural sunlight.

Focusing the majority of my attention on the introductory chapters and the varanid species accounts, I have very few criticisms of this book; all of which I consider to be minor and shouldn't affect its overall resourcefulness and value to the reader. Perhaps my biggest criticism is the way in which the authors grouped several non-related varanid species together into ecologically-defined groupings such as “water monitors” and “tree monitors”. Species grouped together within these two particular categories belong to different subgenera and differ substantially in both their ecologies and captive husbandry. For example, under the category “tree monitors”, the authors chose to group two members of the subgenus *Odatria*, *V. tristis*, an inhabitant of woodlands, sub-humid tropical woodlands, and rocky ranges and outcrops across most of Australia (Pianka, 2004), and *V. scalaris*, an inhabitant of savannah woodlands across northern Australia (Smith et al., 2004), together with *V. prasinus* and *V. kiethhornei*, both members of the subgenus *Euprepiosaurus* and inhabitants of humid monsoon, rain and palm forests, mangrove swamps and cocoa plantations (Greene, 2004) in New Guinea and far north Queensland, Australia. Aside from their taxonomic, biogeographic and ecological differences, they also vary considerably in their care and upkeep

in captivity (pers. obs.), having different thermal and hydric demands, and requiring different humidity levels, cage furnishings, and refuge sites. The same can be said about *V. indicus* grouped together with *V. mertensi*, *V. mitchelli* and *V. semiremex* as “water monitors”. I feel that it would have been more appropriate to assign these species (*V. prasinus* and *V. keithhornei*; and *V. indicus* respectively) their own groupings and corresponding chapters.

To date, I have yet to encounter any book which organizes its varanid species accounts based on phylogenetic relationships (for current varanid phylogenies, see Ast, 2001; Fitch et al., 2006; Ziegler et al., 2007) rather than the typical alphabetized species listings seen in previous titles (e.g., Pianka and King, 2004; Bennett, 1998; De Lisle, 1996; Eidenmueller, 2007). As far as could be determined, this book represents the only current title which groups varanid species accounts along the lines of phylogenetic relationships. By grouping related species together, this allows for interspecific comparisons in which the information presented for one species may also be applicable to similar species. For this, I commend the authors, and hope that future titles written on *Varanus* are organized in a similar fashion.

The only other notable criticism I have of this book is the quality of the color photographs. The book itself is chock-full of more than 1,000 color photographs, however their colors appear to be faded and inaccurate, exhibiting a washed-out or sepia-like tone. For example, when looking at images of lush Queensland rainforest, it is easy to see that the greens are quite faded and not representative of the natural coloration of the foliage. Likewise, the colors of lizard taxa depicted in this book may not be accurate representations of their actual coloration. In speaking with other owners of the book, these color issues appear to be consistent in all first-run copies, and are not limited just to my book. This of course is not a major issue, for I assume this can easily be resolved in future printings of the book.

Minor criticisms aside, I feel that this book presents the most comprehensive and up to date compilation of information available on varanid husbandry and breeding. The written and photographic documentation in this book are superb and second to none. Having been written by knowledgeable and experienced herpetoculturists with repeated success in the captive breeding of several species of monitor lizard, this book

offers information and advice that will undoubtedly improve readers’ understanding of the demands and requirements of monitor lizards in captivity, and help advance the hobby. While the book pertains exclusively to Australian taxa, much of the information presented on monitor lizards may also be applicable to the husbandry and breeding of non-Australian varanid species.

Although this review is heavily *Varanus*-oriented, it is important for me to point out that the section on monitor lizards makes up only about 20% of the book’s species accounts, and that there is also a myriad of detailed accounts on gekkonids (by John McGrath), pygopodids (by Rob Porter), scincids (by Greg Fyfe) and agamids (by Kieran Aland). Although my lack of familiarity with the herpetoculture and natural history of many of these species prevents me from being able to adequately critique or review these sections, it appears that the same level of care and attention was put into their preparation as the section on *Varanus*, with each chapter presenting detailed information and breeding data, with pertinent literature citations, and plenty of color photographs. Therefore, there is no reason for me to believe that these sections would be any less valuable to the herpetoculturist than other sections of the book. The information and photographs packed within the 140 page gekkonid, 42 page pygopodid, 129 page scincid, and 93 page agamid sections, will undoubtedly make this book a significant contribution to the herpetoculture of any of these major lizard groups.

In conclusion, Swan and the sectional authors have done a superb job of setting the bar for what herpetocultural books should look like and present, rather than the watered-down regurgitations that many good-intentioned herpetocultural books often become. Whether you’re a private keeper, breeder, zoo keeper or herpetological enthusiast, this book will make an invaluable addition to the personal library.

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