

of the original Russian book is indicated by marginal numbers. The quality of the production of the book is good.

I was generally disappointed with the book, not in the translation or the production, but in the general state of Soviet mammalogy, which this book conveys. The original book in Russian was published in 1977, three years after the First International Theriological Congress, held in Moscow. I attended that meeting and was surprised and disappointed by the level and interest of Soviet mammalogists. I came away feeling that overall, there was a large gap between their interests and mine. Most Soviet mammalogists were at a very classical, descriptive level, due primarily to their long isolation from western influences. This book leaves me with a similar impression. Although I hope that the taxonomic sections will be valuable, I find that the parts on the ecology and population biology of voles that should have interested and enlightened me did not. That is, in the final section, Polyakov shows a view quite different from mine. He seems interested in broad overview patterns with vague, descriptive explanations.

For example, Polyakov writes of the population changes in the Azerbaidzhanian region. He explains all changes in density—with authority—based on changes in weather, food, and reproductive activities of the voles. He is very short on referencing many of his comments and very short on specific data. I, on the other hand, feel that he has really told me very little about the mechanism of changes in density in these populations, yet Polyakov seems to be writing as if he has a complete understanding of all of the nuances of density changes in voles. So, for me, the descriptive portions of the book that should have added to my understanding of vole biology simply enforce the feeling that I got in 1974 that there is a wide gap between the level of mammalogy being done in the former Soviet Union and in the West.

Thus, it is hard for me to know who might really benefit from this book. As I mentioned, there is a good deal of information on taxonomy and a fair amount on ecology and physiology of the microtines. Although the book is dated simply because the information in it is already 15 years old, it is also dated by the classical approach of the authors, who seem to represent mainstream Soviet mammalogy. Perhaps everyone interested in microtine biology should read

through it just to verify that there is no great gap in his or her knowledge and to glean any information that may be of value; in the process, we should thank Douglas Siegel-Causey and Robert S. Hoffmann for a job well done.—ROBERT H. TAMARIN, *Biology Department, Boston University, Boston, Massachusetts 02215.*

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Musser, G. G., and L. R. Heaney. 1992. PHILIPPINE RODENTS: DEFINITION OF *TARSOMYS* AND *LIMNOMYS* PLUS A PRELIMINARY ASSESSMENT OF PHYLOGENETIC PATTERNS AMONG NATIVE MURINES (MURINAE, MURIDAE). *Bulletin of the American Museum of Natural History*, No. 211, 138 pp., 79 figs., 8 tables. ISSN 0003-0090. Price (paper), \$12.75.

The rats of southern Asia and the Papuan and North Australian region present a great complexity of forms whose relationships to one another can be determined only with difficulty. As in many other highly evolved and complicated groups of animals, convergence and parallelism have so greatly obscured the phylogenetic picture that working out the true affinities of these Muridae is found to be a highly intricate problem.

Those words were written by G. H. H. Tate (1936) in a work with such a modest and unassuming title that it quite possibly escaped the notice of many researchers. Tate set out to summarize the state of knowledge of Southeast Asian Muridae, with some exceptions. The problem with Tate's work, from a contemporary perspective, is that the conceptual taxonomic framework of his work, through no fault of Tate, was flawed. Many of the species included by Tate among *Rattus* have since been separated from that wastepaper basket genus. Another problem, or rather, an omission, is that Tate disregarded much of the Philippine material available at the time.

Fifty-six years after Tate's words were written, the problem remains much the same, but the conceptual taxonomic framework for Southeast Asian murids does not. The two people most responsible for that change have produced a work on native Murinae of the area overlooked by Tate. History repeats itself in that again we are presented with a modest and unassuming title that may be overlooked by many; by any stretch

of the imagination, the work is much more than it presents itself to be. The authors are well acquainted with the rodent (and other) fauna of the Philippines: Heaney has worked almost exclusively on the fauna of that area (in the field and three museums). Musser embarked on Philippine rodents as a tangent: in order to illuminate the patterns and processes at work in the Sulawesi rodent fauna, the taxonomy of the Philippine rodents had first to be elucidated. Thanks to Musser's aside, and the work of Heaney (37 of the 88 literature citations are authored or co-authored by one or the other, or both), a clearer, crisper picture of Philippine rodents now is coming forth, setting the stage for more detailed (and much needed) studies of systematics and zoogeography of a fascinating and neglected fauna.

In the work under consideration, Musser and Heaney express two objectives. The first is to focus "on the definitions and descriptions of two genera and three species endemic to the island of Mindanao . . ." The second is to ". . . try to place the results in zoogeographic and evolutionary context by assessing possible phylogenetic relationships of *Tarsomys* and *Limnomys*, and explaining the significance of their insular and elevational distributions as part of the small flightless mammal fauna on Mindanao." Additional questions subsumed within the second objective include: how many species are native to the Philippine Islands and how can these be morphologically defined; what are the phylogenetic relationships among the Philippine species; and finally, where does the Philippine murine assemblage fit within the zoogeographic context of Malasia.

The authors succeed quite well in accomplishing their goal with respect to the first stated objective. *Tarsomys* (*T. apoensis* and *T. echinatus* sp. nov.) and *Limnomys* (*L. sibuanus*) are presented, defined, and described with exacting detail and attention to minutiae. This section occupies 47 of the 126 pages (37%) of substantive material (excluding literature cited and preliminary material). When the reader is done with this section, he is intimately familiar with the minutest detail of these species. It is refreshing that established researchers such as Musser and Heaney should take to heart Mayr and Ashlock's (1991:359) statement that "the redescription of poorly described forms is an extremely important element of revisional and other taxonomic work. In the present state of knowledge about

many animal groups, it is of greater importance than is the description of new forms." It is a historical reality that glaring errors and a lack of attention to detail often are the result of considering species descriptions as merely a race to be won by numbers. The only shortfall I could discern in this section is the lack of ecological information on *Tarsomys* and *Limnomys*. This is explained by the fact that the specimens of these rare taxa on which the work is based were collected with scanty data between 1904 and 1964, and the authors have been unable to see "live examples of the species or [trap] them in their native habitat." Only 21 specimens of the two *Tarsomys* species, and five specimens of *Limnomys*, are known.

The remainder of the work ("*Tarsomys* and *Limnomys* in phylogenetic context") is dedicated to answering the second, more ambitious, objective. In my review, I sought the answer to the basic question stated at the onset, that is, how many species are native to the Philippine Islands. The answer to that question is not explicitly stated anywhere in the text. One can go through each of the subheadings, but all the species of each genus are not listed within the body of the text; alternatively, it is possible to count the species listed in Table 8 (which is inconveniently mentioned in the text on p. 56, but found on pp. 130–132). The (temporary) answer to this dynamic question appears to be 44. For now. Perusal of Table 8, with line items such as *Crateromys* sp., *Batomys* sp., *Apomys* sp. A and sp. B., and "new genus and species," clearly indicates to the reader the amount of work still to be done (I know of at least two additional new species of rodents currently being described).

The authors succeed as well in outlining the morphological characteristics of each genus as they did in defining *Tarsomys* and *Limnomys*. In contrast, I found the section on insular and altitudinal restrictions no more than adequate: given the wealth of such data published by Heaney and his co-workers (Rickart et al., 1991, and references therein), there could have been somewhat more detail included. These sort of data soon grow to monographic proportions, however, and perhaps the outline presented is better left as is. The ecological portraits of the species are barely sufficient, but one should not impugn the authors for this, given their work's reliance on other collectors' specimens. As a final criticism, and bearing in mind that I am not as in-

timately familiar with the literature as I should be, there appears to be a skewed aspect to the literature cited ($g_i = -1.8163$; $P \ll 0.001$). Sixty-three of the eighty-eight citations are from after 1971, including nine alone from 1991. Whilst commendable to be up to date in the literature, it should not be at the expense of the classic literature on rodents of Southeast Asia. An example that comes to mind is in the interesting discussion of *Rattus everetti* (sensu lato) as a constituent member of the New Endemics of the Philippines (p. 121). It was already pointed out by Tate (1936:555) that *everetti* was part of the "residual" fauna of the Philippines; however, Tate's work is not cited. I am sure there are other works about which I am not aware, that deserved inclusion but were omitted.

Nor is the question of phylogenetic relationships among species strictly answered. The relationship among genera is examined in some detail, and some valuable conclusions are advanced. In most instances, rather than making hard and fast pronouncements, the authors advance alternative hypotheses of relationships to be tested by future work. I, for one, have always sought certainty; to be faced, in this date and age, with a phylogenetic picture like this is at once disquieting and exhilarating.

With the wealth of detail, and the almost overwhelming amount of information tendered by the authors in this work, it is easy to expect more than is presented. After having read the work, I found I had to remind myself of the context: the

authors stated quite clearly that they were only trying "to place [their] results in zoogeographic and evolutionary context by assessing possible phylogenetic relationships of *Tarsomys* and *Limnomys*, and explaining the significance of their insular and elevational distributions as part of the small flightless mammal fauna on Mindanao." The minor criticisms I have done are due, no doubt, to forgetting this premise. Having read this work, it becomes easy to see where the natural progression of research in the area should go. If any graduate students do not have a particular thesis or dissertation project in mind, even a cursory perusal of the conclusions will provide a lifetime of labor. This work is an outstanding summary of the state of our knowledge of the Philippine murids. I recommend it wholeheartedly, not only for its face value, but also as an example of how detailed systematic work should be conducted.—LUIS A. RUEDAS, *Section of Mammals, Department of Vertebrate Zoology, Cincinnati Museum of Natural History, Cincinnati, Ohio, 45202-1401.*

LITERATURE CITED

- MAYR, E., AND P. D. ASHLOCK. 1991. Principles of systematic biology. McGraw-Hill, Inc., New York, xx + 475 pp.
- RICKART, E. A., L. R. HEANEY, AND R. C. B. UTZURRUM. 1991. Distributional ecology of small mammals along an elevational transect in southern Luzon, Philippines. *Journal of Mammalogy*, 72:458–469.
- TATE, G. H. H. 1936. Some Muridae of the Indo-Australian region. *Bulletin of the American Museum of Natural History*, 72:501–728.