

growth and needs are converting Latin America to "Manscapes" with low carrying capacity for forest-related species of migratory birds. At the same time, North America has recovered somewhat from its forest destruction phase of the late 1800s and early 1900s, when "stumping the trail" described the habit of politicians delivering speeches from ever-present tree stumps. The best sources of information on NTMBs are still the recent books such as *Ecology and Conservation of Neotropical Migrant Landbirds* and the action-oriented popular approach in *Bring Back the Birds* (Greenberg and Reaser, 1995).

I urge that anyone interested in the conservation and management of migratory songbirds and other passerines read this book and assess its faults too. I also hope the "annual review" idea continues and will immediately incorporate a focal-species approach, with broad geographical comparisons of intraspecific variation in breeding habitat and extrapair behavior, nesting success, and return and recruitment rates. Tropical data needed are outlined well in Chapters 4–6. Hopefully, in the near future new methods of tracking large numbers of individuals over the distances and time periods required will produce studies of the dispersal and recruitment processes necessary for effective conservation and management, and for good basic science. Community ecology is badly in need of such experimental tools.—EUGENE S. MORTON, *National Zoological Park, Washington, D.C. 20008, USA.*

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The Taxonomy and Species of Birds of Australia and its Territories.—Leslie Christidis and Walter E. Boles. 1994. Royal Australasian Ornithologists' Union Monograph No. 2. iv + 112 pp. ISBN 1-875122-06-0. Paper, \$18.00.—Species lists are important parts of documenting a nation's biodiversity. They provide a summation of that country's biological patrimony and a framework for further inventory effort. They also are one step—albeit a simple one—toward placing biological research within a larger geographic or taxonomic context and for supporting sustainable-use activities such as tourism. Species lists, finally, provide a basis for examining the systematics of the included species.

This small volume by two of the more active systematic ornithologists in Australia is an attempt to update the avian species list of Australia and its territories (including Christmas, Lord Howe, and Norfolk islands, among others). It has a short Introduction that discusses taxonomic methods and species limits;

this is followed by the species list itself arranged at the ordinal and family levels, along with common names. The bulk of the book (about 46 pages) comprises a discussion and review of the systematics of these groups from species-level to that of orders; the volume ends with an extensive and useful compilation of references.

Given that this is a species list, one might expect the authors to adopt a particular species definition. They really don't do this. In the Introduction they discuss the competing species concepts—biological versus phylogenetic—at some length, but make no operational decision about which they will apply. Unfortunately, their discussion of the phylogenetic species concept (PSC) is muddled inasmuch as they take it to be a cladistic, lineage concept. From this perspective they conclude that "To avoid potential instability in classifications, it may be premature to fully adopt a species concept based on phylogeny when robust phylogenies for Australian birds are scant" (p. 3). That certainly would be true if, in fact, the PSC were based on phylogeny. It isn't. As has been pointed out by many, the PSC is not inherently cladistic; it just so happens some cladists, but not all, promote it. The PSC, like the BSC, is simply a definition used to partition character variation into taxonomic entities called species. Those entities, in turn, are hypotheses about how nature is divided, and the resulting units can be used to explore other biological questions, such as those associated with taxonomic differentiation, biogeography, ecology, and the like. It would have been relatively straightforward to have applied the PSC to the Australasian avifauna. It is one thing not to apply a concept with which one disagrees, but not because one misunderstands it.

The musings of Christidis and Boles about species concepts really had little empirical effect on how they arrived at their list because they were fairly eclectic, applying the BSC here (by accepting previous opinions) or the PSC there (by accepting evidence that two former subspecies were actually quite distinct). This is a weakness of this book: They do not discuss subspecies, so it often is difficult to know just how they see species limits. If one accepts a BSC, then that will only be useful to future research if diagnosable versus nondiagnosable subspecies are identified. The authors choose not to do this, and although they do discuss the status of many subspecies, they don't do it for all. In the end, they take a conservative approach that, while neither innovative nor a stimulus for other workers to face the issues presented by alternative species concepts, will probably not get them in much trouble either. For those interested in debates surrounding the AOU Check-list, it is *deja vu* all over again. Another obvious gap in this volume is that distributions are not discussed, although it could be argued that the distributions of the specific and subspecific taxa of Australia are so well known and mapped that this is not a serious omission.

The Discussion is a very good summary of current opinions regarding ordinal and familial relationships. To their credit, they do not accept the results of DNA hybridization without corroboration from other data. Again, they remain conservative and generally accept traditional groupings (e.g. among *Pelecaniformes*). They are not dogmatic and prefer to await better data before rearranging the higher taxa. Bully for them.

A major strength of this work is that the Discussion identifies future research needs. One of the most wrong-headed views among many biodiversity scientists and conservationists is that the systematics of some groups—read birds—is largely settled, so we should move on to other questions. This small volume demonstrates otherwise. Christidis and Boles point out countless questions that need to be addressed. The systematics of birds is a bottomless pit of interesting questions, and they give us a good compendium for this magnificent avifauna.

This is a significant contribution to Australian ornithology if only because it shows how much remains to be done. The next step, it seems to me, is to recruit more young systematists to undertake many of these research questions and to develop a better understanding of the diagnosable taxa present in Australia and their interrelationships.—JOEL CRACRAFT, *American Museum of Natural History, Central Park West at 79th Street, New York, New York 10024, USA.*

biased in favor of the five species found in Eurasia, which are represented by from 31 to 112 individuals each, whereas the remaining 11 species are represented by from 1 to 7 (mean 3.5) individuals. The work is especially valuable in achieving the first goal. As the author points out, there is little available literature for this purpose. Murray's detailed description of differences in the skeleton elements of *Aechmophorus*, *Podiceps*, and *Podilymbus* (*Condor* 69:277–288, 1967) is not mentioned.

Eight of the 35 characters used in the principal components analyses are lengths of bones, and the projection of the taxa on a graph of the three principal components shows evidence of the influence of size on the results. One need look no further than the geese to see that size is not a good character for defining genera or species. Therefore, it can be misleading in the identification of unknown fossils, especially if sexual dimorphism and geographic variation are not considered. In attempting to reconstruct phylogenies, the use of information from as many character sets as possible is important, and Bocheński wisely takes this into consideration in most instances in which his data are not in agreement with the phylogenies based on other information.

The author reaches two major taxonomic conclusions. The first concerns the species *major*, which he places in a new monotypic genus *Podicephorus*. Erecting the new genus is well founded and has been suggested by several authors on the basis of behavior, pattern of the downy young, and the myology and osteology of the wing and pectoral girdle. The new name is constructed from parts of the names *Podiceps* and *Aechmophorus*, combining the Latin root for "rump" with the Greek root for "bearer." Such linguistic mixtures are contrary to the recommendations of the International Commission on Zoological Nomenclature, and this name is singularly inappropriate for a pursuit diver that is particularly streamlined behind.

The second conclusion is the separation of the Old and New World forms of the Red-necked Grebe (*Podiceps grisegena*) into two species. This is based on Bocheński's evidence that the former lacks sexual dimorphism whereas the latter is dimorphic. Sexual dimorphism, particularly in bill measurements, is probably universal in grebes. I have never failed to find it in study skins of forms for which sufficient material from the breeding grounds was available, and in the field, one can often distinguish the sexes of the members of a pair when the birds are together. Skeletons of at least *Aechmophorus* and *Podilymbus* readily can be sexed by examination of the skull and bill. Bocheński's conclusion is based on his sample of the Eurasian birds, which he describes only as most coming "from Europe, some from W. Asia." Fjeldså (*Ornis Fennica* 50:84–98, 1982) has shown that in the parts of northern Europe where the Great Crested Grebe (*Podiceps cristatus*) did not occur, Red-necked Grebes were larg-

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The Comparative Osteology of Grebes (Aves: Podicipediformes) and its Systematic Implications.—Zbigniew M. Bocheński. 1994. *Acta Zoolgica Cracoviensia* 37:191–346, 86 text figures, numerous tables. ISSN 0065-1710.—This paper presents a large amount of information in clearly written English on the form and size of many individual skeletal elements of grebes. The vertebrae and toe bones are not included. It is based on 392 skeletons representing all the living genera, 16 of the known species plus 4 additional subspecies. Fifty-five characters based on the configuration and measurements of the elements studied were recorded. The StatSoft CSS: Statistica package and NTSYS-pc Numerical Taxonomy Analysis System were used in analyzing the characters. The purposes of the paper were to present information that can be used in studies of fossil grebes and to add information potentially useful in tracing the evolutionary history and phylogeny of the family. The sample is strongly