Owls of the World, 2nd ed.

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Owls of the World, 2nd ed.—Claus König and Friedhelm Weick. 2009. Yale University Press, New Haven, Connecticut. 528 pp., 72 color plates, distribution maps, line drawings. ISBN 9780300142273. Cloth, $75.00.—Advertised as "the most comprehensive and advanced book ever published on owls," this second edition describes 250 species, 37 more than the first edition (König et al. 1999), 12 of which are new to science. The introductory chapter provides information on owl morphology, anatomy, and topography that both novice and experienced owl researchers should find useful. This chapter also provides brief sections with general information on owl food habits, hunting, behavior, breeding biology, and vocalization, and closes with an informative section on systematics and taxonomy. Here the authors reveal their adherence to the biological species concept defined by Ernst Mayr; they recap the split of Old World scops owls (*Otus*) and American screech owls (*Megascops*), including the assignment of the American Flammulated Owl to *Psiloscops* (*P. flammeolus*); and they present information to justify the split of *Glaucidium* into two genera, *Glaucidium* and *Taenioglaux*, the former having an "occipital face" consisting of two dark eye spots on the hindneck, the latter with streaked head and nape. The line drawings in this introductory chapter are impressive and informative. Clearly, the line drawings of the feet of a selection of owls will help readers visualize distinguishing characteristics described in the systematics section. The structure and a majority of the content of the chapter, however, are virtually identical to that of the first edition; a notable change is the addition of line drawings of head plumage of adult and natal owls of 16 species with distinct diagnostic characteristics.

The next two sections, "How to Study Owls" and "Conservation," are new additions. The first is extremely brief, less than a page in length, and limited in content. It provides basic, tried-and-true, common-sense advice for owl researchers (e.g., "Owls are most vocally active at the beginning of the reproductive period. . . . Owl studies are therefore best timed to coincide with these periods. . . . All observations should be routinely recorded for later evaluation, noting date, time and weather conditions. . . . Numerous droppings, remains of prey and pellets under certain perches indicate the vicinity of an occupied nesting site."). Other than a brief narrative on the use of playback of conspecific calls to survey owls and the value of recording owl calls on tape, there is no mention of technologically advanced research methods that are now commonly employed to study owls (e.g., radiotelemetry, time-lapse and real-time videography, stable isotope analysis, DNA analysis, etc.). All owl researchers, however, should take note of the basic methods covered in this section and pay close attention to the emphasis placed on becoming familiar with owl activity.

The "Conservation" section provides a short paragraph on threats to owls (e.g., destruction of habitat); describes the fitting use of nest boxes for several owl species; illustrates, and thus promotes, methods of supplemental feeding to help owls through the hard times; and lists species that are globally threatened, near threatened, or in significant decline. Granted, over the past 50 years, artificial nest structures have been used as a management tool to augment various avian populations. Nest boxes have been employed in economic and ethological research as well. However, as König indicates in his discussion of the reintroduction of locally extinct populations of Eurasian Eagle Owl (*Bubo bubo*) and Eurasian Pygmy-owl (*Glaucidium passerinum*), nest boxes are successful only if "given the right environmental conditions." Before employing nest boxes, agencies charged with conservation efforts should determine whether deployment of nest boxes is an appropriate conservation strategy. The area should first be surveyed to assess prey availability and to verify the existence of suitable cover, and the circumstances surrounding the population decline should be evaluated to develop a plan to alleviate the detrimental influences. The paragraph on supplemental feeding represents a slippery slope that I see more as "feel good" behavior for humans than a conservation strategy for owls. I would be particularly

concerned about the creation of an artificial system in which owls become dependent on supplemental feeding. But, if "undertaken locally," supplemental feeding may be an appropriate short-term management approach for some species.

Wink et al.'s contribution of a chapter on molecular phylogeny and systematics of owls is a substantial addition to the second edition. The methods and analysis are sound and the references current; 40% of the references are original studies published since the printing of the first edition (König et al. 1999). The mitochondrial cytochrome-*b* gene database was increased from 270 to 700 individuals, representing 150 taxa. The revised analysis also includes sequence data from the nuclear recombination activation gene (RAG-1) and the lactate dehydrogenase-B intron (LDH-B intron). Results from the combined data sets of ncDNA and mtDNA provide a sound basis for the taxonomic restructuring proposed. In summary, Strigiformes are divided into two families: Tytonidae and Strigidae. Tytonidae consist of two subfamilies: Tytoninae and Phodilinae, each with one genera, *Tyto* and *Phodilus*. Strigidae are more complex than Tytonidae and have been subdivided into three subfamilies, Striginae, Surniinae, and Ninoxinae. Striginae consist of six tribes: Bubonini with genera *Bubo* (including the former *Nyctea*, *Ketupa*, and *Scotopelia*); Strigini with genera *Strix* and *Jubula*; Pulsatrigini with genera *Pulsatrix* and *Lophostrix*; Megascopini with genera *Megascops* and *Psiloscops*; Asionini with genera *Asio* and *Ptilopsis*; and Otini with genera *Otus* and *Mimizuku*. Surniinae consists of two tribes: Surnini with genera *Surnia*, *Glaucidium*, *Taenioglaux*, *Athene*, and *Micrathene*; and Aegolini with genus *Aegolius*. Ninoxinae (formerly considered Ninoxini in the subfamily Surniinae) consist of three genera, *Ninox*, *Uroglaux*, and *Sceloglaux*. This phylogenetic structure differs considerably from that of the first edition, which recognized six tribes. Wink et al. wrap up the chapter with a discussion of owl evolution, in which they cite two key studies (Fain and Houde 2004, Ericson et al. 2006) that support the hypothesis that owls are more closely related to diurnal raptors than they are to nightjars, a view that was previously proposed and questioned by taxonomists (Mayr and Amadon 1951, Cracraft 1981, Sibley and Ahlquist 1990).

There is a noticeable difference in the tone quality of the revised color plates, with more distinct contrast and richer colors, and the distribution maps that now accompany the color plates are a welcome addition. It seems that the authors took note of reviewers' comments of the first edition (e.g., "colors are often washed out . . . plumage of many species are much duller than they should be" [Marks and Barrowclough 2001:811]) and made appropriate changes. I, too, was less than impressed with the plates in the first edition. However, I can honestly say that the revised illustrations are impressive and informative, with subtle differences in plumage color tones evident.

The addition of "first description" information to the section on systematics is most appreciated; any species account in a taxonomic review should include historical references. Other than that, the structure and format of the systematics section is identical to that of the first edition. Each account includes information on identification, vocalizations, distribution, movements, habitat, description, measurements and weight, geographic variation, habits, food, breeding, status and conservation, remarks, and references. The Bibliography increased from 831 to 1254 citations; only 75 citations postdate the printing of the first edition some 10 years ago. Here again it seems that the authors took note of reviewers' comments of the first edition (e.g., "As an information source on the ecology and biology of owls, this book falls far short of summarizing current knowledge for many of the species." [Marks and Barrowclough 2001:811]) and strived to make appropriate changes. With the exception of information provided on new species, however, little has changed in the species accounts; each section provides the same general information that was in the first edition. All the information given is invaluable, but the number of references from the primary scientific literature remains minimal. I also noticed a bit of disconnect between authors. For example, while König remarks that "The Western Screech Owl is in need of a taxonomic revision with respect to the large number of described subspecies," Wink et al. are referencing work that addresses that exact issue (see Proudfoot et al. 2007). Given this, the second edition cannot be considered bibliographically thorough or up-to-date.

The meat of the second edition is in the molecular analysis and the assignment of new species in the systematics section. The number of *Tyto* species increased from 17 to 25. Most of the "new" *Tyto* are endemic island populations, split because of their isolated distributions. On the basis of allopatric distribution and differences in vocal patterns, *P. assimilis* (Sri Lanka Bay Owl) was split from *Phodilus badius* (Oriental Bay Owl). The number of species of scops owls (*Otus*) and American screech owls (*Megascops*) increased from 67 to 79, *Bubo* increased from 20 to 25, *Strix* increased from 21 to 24, *Ninox* increased from 20 to 25, *Athene* increased from 4 to 6, and *Asio* increased from 7 to 8. The number of species of *Glaucidium* decreased from 30 to 25 because of the resurrection of *Taenioglaux*. Some of the generic changes include the split of American Flammulated Owl from *Otus* and the resurrection of *Psiloscops*, the joining of *Scotopella* (fishing owls) and *Nyctae* (snowy owl) with *Bubo*, and the split of *Megascops* from *Otus*. In 2003, the AOU recognized the split of Old World scops owls (*Otus*) and American screech owls (*Megascops*) (Banks et al. 2003). Many of the proposed splits, generic and specific, are based on vocal differences. Some accounts note differences in sonograms, but in most cases supporting peer-reviewed references are lacking and comparative sonograms are not provided. I am not suggesting that the splits are invalid, just that verification may be required before some of the proposed splits are openly accepted by the ornithological community. Clearly, sonograms, with accompanying comparative data and references, would have strengthened proposed splits in which vocal differences are used to elevate species to generic status or subspecies to species status.

Despite my criticisms, I concur with the publisher's promotional advertisement of this second edition and consider *Owls of the World* "the most comprehensive and advanced book ever published on owls." I encourage everyone interested in owls to add a copy to their library.—Glenn A. Proudfoot, *Biology Department, Vassar College, 124 Raymond Avenue, no. 351, Poughkeepsie, New York 12604, USA; e-mail:glproudfoot@vassar.edu*

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