



Old World Monkeys by Paul F. Whitehead; Clifford J. Jolly

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MAMMALS OF THE NEOTROPICS: THE CENTRAL NEOTROPICS. *Volume 3: Ecuador, Peru, Bolivia, Brazil.*

By John F Eisenberg and Kent H Redford; Plates by Fiona A Reid. Chicago (Illinois): University of Chicago Press. \$80.00 (hardcover); \$40.00 (paper). x + 609 p + 19 pl; ill.; indexes of scientific names and common names. ISBN: 0-226-19541-4 (hc); 0-226-19542-2 (pb). 1999.

OLD WORLD MONKEYS.

Edited by Paul F Whitehead and Clifford J Jolly. Cambridge and New York: Cambridge University Press. \$115.00. xii + 528 p; ill.; index. ISBN: 0-521-57124-3. 2000.

This book is a sequel to the innovative volume *Old World Monkeys: Evolution, Systematics, and Behavior* (J R Napier and P H Napier. 1970. New York: Academic Press). Following a brief historical chapter by the editors comparing the two Old World Monkey (OWM) volumes, the book's 18 contributions fall informally into three sections: systematics and population genetics—molecular and morphological approaches (three chapters); comparative functional morphology and fossil history (six chapters); and behavior—socioecology, socioendocrinology, and locomotor (nine chapters). In general, the new volume, like the original, is biased toward the well-known terrestrial OWMs, but does offer contributions aimed at revealing the very specious forest-living guenons, as well as colobines (both African and Asian). But this is just beginning. Much more work on these groups is sorely needed due to their threatened status.

In the first section, a comprehensive overview is given of the molecular phylogeny of the entire group (Disotell). The relationships of forest monkeys and all colobines (besides a broad Asian/African subdivision) are quite uncertain, and are therefore problems ripe for investigation. Clear resolution, however, has emerged for the terrestrial group: Baboons, Geladas, Lophocebus, Mandrills, Cercocebus, and Macaques are related to each other in the following nested groups—(((B,G)L)(Ma,C)Mc). Subsequent chapters recognize these revealed relationships (a credit to the editors), although the primatological literature generally does not. Morphological analyses have traditionally inferred the wrong relationships for this group, and it is no wonder that the morphological-systematics chapter, rather anachronistically, still gets it wrong. Why this is so, is not addressed. Population level genetics (PG) is only known for two genera of OWMs, *Papio* baboons and macaques, the latter species being much better known. Curiously, the PG of macaques is absent from the volume, although a review of *Papio* subpopulations is present (Rogers).

The second section provides a strong evidence-based scenario of OWM evolution (Benefit). The illuminated paleobiology of the extinct sister group to living OWMs, the Victoriapithecidae, has helped to clear wrong assumptions about OWM origins, some of which appeared in the earlier volume. Biphodonty evolved not for leaf-eating, but for eating hard fruits and seeds; a shift to folivory took place only after the differentiation of colobines and cercopithecines; early OWMs showed novelty in their modes of locomotion toward increased semiterrestriality and cursorial behaviors (while contemporaneous apes still moved about in their ancestor's way). Alas, there is a better place for morphological analyses. A proficient and comprehensive review is given of the multiple forces and processes (e.g., mechanical stresses, and allometric and ontogenetic trends) that help build an OWM cranium (Ravosa and Profant). Unfortunately, analyses are still limited to a few well-known species. A chapter on the localities bearing fossil OWMs is presented (Gundling and Hill) for eastern Africa, but ignores localities from southern Africa. Two additional chapters were overly specialized and do not summarize or present significant research findings in OWM research: comparative anatomy of the OWM ethmoid bone, and OWM chewing and swallowing.

The last section is perhaps the strongest, and does the most toward revealing nonterrestrial forest guenons and colobines. Two chapters (Whitten; Bercoitch) offer general discussions of OWM social behavior from the exciting perspective of endocrinology. A few tidbits: there is no physiological signature of a high-ranking male or female as has traditionally been assumed, but physiological state is determined by the social context and the specific behaviors affected. The degree of stress experienced by an individual (indicated by cortisol levels) seems to be greatest in those high-ranking baboons being challenged, rather than in their lower ranking challengers (a situation reversed in vervets). The chapter by Fairbanks illustrates that the common cercopithecine life-history pattern, in which females remain as adult breeders in their natal groups (philopatry), is important in allowing a mother to confer advantages on her daughters, and consequently enhance their reproductive success. Although not discussed because of a lack of data, it is expected that maternal investment will be quite different in OWM species where young females often leave their natal group (e.g., many colobines). Struhsaker's solid contribution, built upon many years of field research, illustrates how differences in predation pressure and quality of ecology at different localities (on continental Africa and on nearby islands of Zanzibar and Bioko) effect social groupings within and between

species. Chapters on social behavior in forest gnomes (Cords), as well as on the socioecology of Asian colobines (Yeager and Kool) strive toward equaling the balance for these poorly understood groups. The detailed analysis and breakdown of locomotor behavior in forest monkeys (Gebo and Chapman) set a new standard for how such studies should be done. It is no longer valid to place or even think about primates as using a single style of locomotion.

Overall, in this new OWM volume there are many strong contributions, particularly (but not only) in the third section. Therefore, it serves as a good update of the original OWM volume. Several chapters are overly specialized and will not be of general interest to OWM researchers, or have very limited conclusions (e.g., the loud-call phylogeny of African colobines). I do, however, recommend the book as a valuable reference, particularly to those with a strong research interest in primate evolutionary biology and diversity, and for those with a particular interest in primate social behavior and ecology.

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AQUATIC SCIENCES

FISHING THE GREAT LAKES: AN ENVIRONMENTAL HISTORY, 1783–1933.

By Margaret Beattie Bogue. *Madison (Wisconsin): University of Wisconsin Press.* \$65.00 (hardcover); \$27.95 (paper). xix + 444 p; ill.; index. ISBN: 0-299-16760-7 (hc); 0-299-16764-X (pb). 2000.

In the author's words, "[t]his book is the first that deals with the fish resources of the Great Lakes considered as a geographic whole, tracing environmental, economic, and policy-making themes from the colonial era of exploration to the Great Depression" (p 331). Bogue has admirably accomplished this goal. Fishing here means commercial fishing, which reigned supreme on the lakes during the focal period. Emphasis is on five premium species: lake sturgeon, lake herring, lake whitefish, lake trout, and Atlantic salmon—the mainstays of the fishery. This story, unfortunately, is of gross overfishing resulting in depletions and even extirpations. Exhaustively documented are the attempts by authorities to curtail the carnage, the political power of the fishery (especially in the U.S.) to thwart controls, and the inability of eight states, the Province of Ontario, and two national governments to overcome parochial interests. Bogue did error in classifying 16 less economically important fishes as

being tolerant to low, at times no, oxygen, and in surmising that fish like northern pike, whose habitat was being destroyed, benefited from depletions of the premium species. Bogue had fishery experts review the manuscript, so why these glitches were not caught is unclear. The book is otherwise meticulously researched, well written, and includes extensive notes, a bibliography, and index. It is an all-too-rare synthesis important enough to be provided to my organization's policymakers and advisors.

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PHYTOPLANKTON DYNAMICS IN THE NORTH AMERICAN GREAT LAKES. *Volume 2: Lakes Superior and Michigan, North Channel, Georgian Bay and Lake Huron. Ecovision World Monograph Series.*

By Mohiuddin Munawar and Iftekhar Fatima Munawar. *Leiden (The Netherlands): Backhuys Publishers.* \$74.00. xx + 253 p; ill.; taxonomic index, subject index (Volumes 1 and 2). ISBN: 90-5782-032-3. 2000.

FRESHWATER ECOREGIONS OF NORTH AMERICA: A CONSERVATION ASSESSMENT.

By Robin A Abell, David M Olson, Eric Dinerstein, Patrick T Hurley, James T Diggs, William Eichbaum, Steven Walters, Wesley Wettengel, Tom Allnutt, Colby J Loucks, and Prashant Hedao. *Washington (DC): Island Press.* \$65.00 (paper). xxiii + 319 p; ill.; index. ISBN: 1-55963-734-X. 2000.

This book is an impressive compilation of geographic, ecological, and biodiversity data aimed at establishing criteria for the proper conservation of freshwater ecosystems and, in some cases, individual habitats in North America (defined as the United States, Canada, and Mexico, but excluding Caribbean and Central American regions). The authors are conservation biologists mainly from the World Wildlife Fund, but their expertise in limnology or other fields of aquatic sciences is not clear from reading the book. The purpose of the volume is to identify sites worthy of conservation based on their biological distinctiveness and threatened status, within a framework of "ecoregions" that comprise 76 different biogeographic units, each of which are similar enough in their ecological conditions and in the species found there. This is a huge challenge, but the authors have made an impressive start on this important task. It is worth mentioning that this book is a companion volume to *Terrestrial Ecoregions of North America: A Conservation Assessment* (T H Ricketts et al. 1999. Washington (DC): Island Press), but the present authors properly apply criteria pertinent to the delineation and conservation of aquatic