

The Eastern Screech Owl which, in Texas, brings live Texas blind snakes to its nest to eat the soft-bodied larvae of insects attracted to pellets, fecal matter, uneaten food, and occasional dead nestling accumulated in the cavity. The Burrowing Owl, which produces a sound remarkably like a rattlesnake's rattling buzz — a sound that may have evolved to deter predators such as badgers and weasels from entering nest holes. It has also, the author writes with a twist of humour, "definitely proven effective on occasion in discourag-

ing ornithologists from reaching blindly into burrows."

Owls, the book clearly communicates, are fascinating earth residents with unique skills and adaptations that equip them for important ecological roles. As such, they deserve admiration, respect, and help in reversing the habitat loss from which virtually all owl species suffer.

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## The Tree of Life: A Phylogenetic Classification

By Guillaume Lecointre and Herve Le Guyader. 2006. The Belknap Press of Harvard University Press, Cambridge, Massachusetts. 560 pages. 39.95.USD.

Here is a textbook to usher in the 21st Century based on the use of cladistics and the steadily increasing data from molecular biology. These have been gradually changing systematic biology over the past 30 years. It may not be the last word in this dynamic field but it certainly is in the current mainstream. It presents a genealogical approach to classification of the diversity of all life on earth through the phylogenetic analysis increasingly promoted by many researchers as the successor to the Linnean System. The latter was outlined for plants in 1735 and for all organisms in 1758 and thereafter long universally adopted and taught throughout the world. The Linnean system accepted the concepts of its time — divine creation and the Great Chain of Being, each individually created group of organisms, from single celled to human, conceived of as progressively "higher" with *Homo sapiens* as the culmination. After a hundred years, in 1858, Charles Darwin outlined descent with modification by natural selection which showed how evolution could occur. Shortly after, in 1866, Ernst Haeckel coined the term phylogeny but it was nearly a hundred years later before Willi Hennig outlined the comprehensive application of an objective cladistics approach (phylogenetic systematics) published in German in 1950 and in English in 1966.

*The Tree of Life* outlines major groupings for the present estimated 1 749 577 described and currently recognized organisms. After a preface and introduction there are 15 chapters. The initial one on "Life" is followed by Eubacteria, Archaea, Eukaryotes, Chlorobionta, Embryophyta, Metazoa, Protostomia, Mollusca, Eurarthropoda, Deuterostomia, Sarcopterygii, Mammalia, Primates, Actinopterygii. Some group names are familiar from traditional classifications, some will be new and strange to most naturalists. Abolished are familiar classification categories (Kingdom, Class, Order, Family) to be replaced by dia-

grams (dendrograms) depicting relationships. Also vanished are what are now regarded as mixed groupings such as reptiles and fish.

Each chapter is subdivided and a chart presented of the relationships of the included forms discussed. Each grouping has line drawings of example organisms and features, a brief general description of included forms and sections on ecology, some unique derived features, and examples of included forms. A sidebar gives number of species, oldest known fossils, and current distribution.

The book concludes with 13 Appendices of "trees" showing the cladistic view of relatedness, and including "Where are they" giving the new positions of major traditional groups of both one-celled and multi-celled life, Sequenced Genomes (listing organisms for which the genome is entirely sequenced or almost so as of January 2006), a one-page General Bibliography, a Glossary of 70 entries from Alignment to UPGMA (Unweighted Pair Group Method Using Arithmetic Average), Index of Common Names and Index of Latin Names.

The intent of the volume is to move this phylogenetic approach to classification out of its currently restricted academic position and bring it into the mainstream to replace the traditional teaching now rendered archaic, at least in the view of the presenters. The authors are well suited to the task, thoroughly immersed in the modern concepts and teaching. Lecointre is Professor and Research Scientist at the Museum National d'Histoire Naturelle and Le Guyader is Professor of Evolutionary Biology at the University of Pierre and Marie Curie, both in Paris, France. The book was originally published as *Classification phylogenetique du vivant* (third edition, Editions Belin, Paris, 2006) and translated by Karen McCoy. It is illustrated by Dominique Visset.

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