

BOOK REVIEW

The Genus Adelpha: Its Systematics, Biology, and Biogeography (Lepidoptera: Nymphalidae: Limenitidini). By Keith R. Willmott. Scientific Publishers, Gainesville, FL. 2003. viii + 322 pp., 15 color plates, 8.5 × 11 inch paperback. \$65.00 (\$45.00 for members of the Association for Tropical Lepidoptera). ISBN: 0-945417-96-9.

The nymphalid genus *Adelpha* is sufficiently speciose and abundant throughout the Neotropical realm, from sea-level to 3000 meters and across a wide range of habitats, ranging from degraded scrubland to primary forest, that not even the most inexperienced ecotourist could fail to notice these striking, orange, white and black butterflies. Anyone who has actually collected Neotropical butterflies can also attest to the bewildering array of wing pattern subtleties exhibited by *Adelpha*, and the enormous difficulty in sorting them to morphospecies, let alone trying to correctly identify them. Indeed, in his treatment of the Costa Rican butterfly fauna, DeVries (1997) echoed earlier authors in saying "the butterflies that compose the genus *Adelpha* . . . are the most difficult and trying taxonomically of all the nymphalids". But help is now at hand, with the first comprehensive revision of the genus since the Seitz volumes nearly 90 years ago (Fruhstorfer 1913-20). At a time when most monographs of aesthetically pleasing Nymphalidae are little more than the lepidopterological equivalent of stamp albums, Keith Willmott's *Adelpha* revision is refreshingly modern and intellectually rigorous, broad and thorough in scope, and well written and illustrated.

The early portion of the book is divided into five chapters, an Introduction, Methods, Systematics, Biology, and Biogeography and Conservation, the last of which is the longest and most detailed. The Methods chapter quickly reveals the magnitude of

the effort that was required to produce this book. Nearly 21,000 *Adelpha* specimens were examined, including all known extant types, from numerous museums and private collections across Europe and the Americas, and nearly two years of field work was conducted across the Neotropics (mainly in Ecuador) to gather precisely labeled material, record ecological observations, and assess the limits of intraspecific variation. The Systematics chapter covers the history of classification of *Adelpha*, and provides diagnoses for the genus and the newly proposed species groups, and a key to all species. It is important to note that an exhaustive study of morphology and character evolution in the genus, with the generation of reasonably well-resolved phylogenetic hypotheses, has been published separately (Willmott 2003). Willmott recognizes 85 species in *Adelpha*, five of which were described as a part of the project, although only one species (and several subspecies) is actually described in the book. His synonymic checklist of 366 described names and 209 taxa includes 127 taxonomic changes, and thus represents a substantially revised classification, built for the first time on clearly elucidated, modern concepts of species and subspecies. In cases where phenotypically similar, closely related taxa occupy allopatric geographic ranges, Willmott almost always lumps them together to create often large polytypic species, dubbed "biogeographical species" in the clearly influential treatment by Tyler et al. (1994) of the American swallowtail butterflies. This approach has had the effect of slightly decreasing the number of *Adelpha* species recognized compared to the arrangements of previous authors. When treating mimetic butterflies, I agree that recognizing subspecies is necessary and useful, for the reasons outlined by the author, but I personally would not have taken quite such a fine-

