

A MONOGRAPH OF THE BIRDWING BUTTERFLIES. Volume I, parts 1–3, the subgenera *Aetheoptera*, *Ornithoptera*, *Schoenbergia*; Volume II, parts 1–2, the genera *Trogonoptera*, *Ripponia*, *Troides* (partim), by J. Haugum and A. M. Low. Vol. I. 308 pp., 12 plates. Vol. II. 240 pp., 12 plates. Scandinavian Science Press, Ltd., Klampenborg, Denmark. 1978–1984.

No other group of butterflies has attracted as much attention or interest as the birdwing butterflies. In this two-volume set, the authors provide the most detailed analysis of these showy butterflies to date. The first part of Vol. I, for example, on *Aetheoptera*, deals with only two species, yet numbers 84 pages; and Vol. II, part 1, which describes three species, numbers 104 pages. The text of this work will complement the beautiful illustrations in the recently published *Birdwing Butterflies of the World*, by B. D'Abrera.

Volume I covers the genus *Ornithoptera*, Volume II, *Trogonoptera*, *Ripponia*, and *Troides*. The genera and species are introduced with descriptions and notes on biology, followed by keys. However, no keys are given for most subspecies, which means that most (as with so many subspecies of butterflies) must be determined by geographic locality. Each species and subspecies is described in detail, and notes are given on the phylogenies of each taxon. Several illustrations, including distribution, accompany the description of each taxon. The authors tend to recognize almost every described taxon, and include descriptions of several "forms" or aberrations. Even though the authors recognize that formal names given to such infraspecific forms are not nomenclatorally valid, I find it annoying to see several new names applied to these forms.

A group as well known and as popular as the birdwing butterflies is bound to generate controversy in the literature, and such is the case here. I found the authors to be particularly critical of D'Abrera, often disagreeing with what is said in his volume. For example, D'Abrera recognizes only two subspecies of *Ornithoptera goliath*, Haugum and Low, five. D'Abrera considers *O. richmondia* and *O. urvillianus* separate species from *O. priamus*, not so Haugum and Low. *Ripponia* is used for *hypolitus*, but D'Abrera considers it a *Troides*.

For all the detailed analysis given for each subspecies, I find it disappointing that no quantitative data were used to back up the authors' assertions that these taxa are, indeed, taxonomically distinct. Most of the diagnostic comments are qualitative, as two examples will show: Males of *O. tithonus* "*waigeuensis* may be recognized by having a narrow HW [hind wing] with a notable reduction of the apical area; the wing is even further modified and less angular at the apex than in subspecies *misresiana* and *tithonus* . . .," and "The male HW [of *T. amphrysus ruficollis* f. loc. *euthydemus*] tends to be more rounded than in *ruficollis* on average, also the FW [fore wing] may be broader . . .," which means to the reader that geographic locality will still be the only way to identify subspecies.

Puzzling also is the uneven treatment of "Material examined." For some species, a detailed listing is given, for others, the data are incomplete, as for *O. goliath atlas*: "photographs of a further series of E. Weyland Mts. imagines" [how many?]. The locations of types are, unfortunately, not addressed for all taxa. No cladistic analysis was carried out on this group, although I hope the authors may consider this in their final volume.

The books are handsomely bound, the printing, layout, and illustrations are good, but, alas, errors in typography and syntax abound. The color photos of Vol. I are excellent, but those of Vol. II have a white halo within the marginal black areas of the wings figured.

Despite their shortcomings, these volumes represent the best compilation of data for these magnificent butterflies. As one who is fascinated by these gorgeous insects, I heartily recommend this work for every lepidopterist interested in Old World Papilionidae.

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