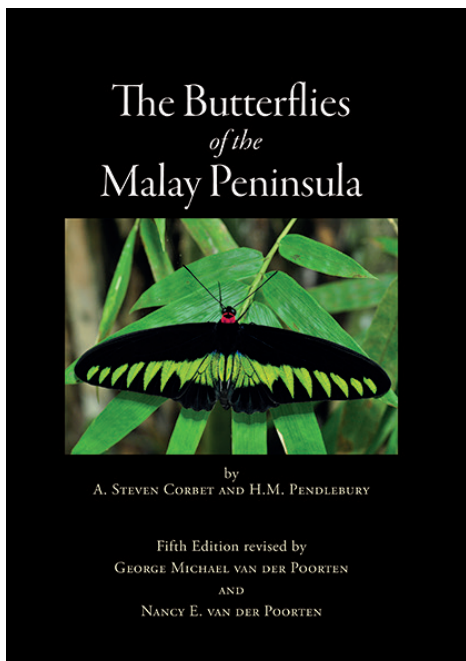


BOOK REVIEW

The Butterflies of the Malay Peninsula by A. Steven Corbet and H.M. Pendlebury. Fifth edition. Revised by George M. and Nancy E. van der Poorten. Southdene Sdn. Bhd. Kuala Lumpur, Malaysia. 2020; xiii + 492 pp, 138 colour plates. Price from the publisher (hsbar@hotmail.com or misssallylee@yahoo.com), \$US60 plus postage and handling. See also (https://www.mothsofborneo.com/C&P5_flyer_medRes.pdf). ISBN: 978-983-44886-3-5 Hardback.



This is the fifth revision of the classic handbook, *The Butterflies of the Malay Peninsula* by A.S. Corbet and H.M. Pendlebury (C&P), first published in 1934.¹ In assessing the present volume, it is important to be aware of its antecedents, and understand how subsequent revisors have striven to retain much of the flavour and intent of the original volume while continually updating it as our knowledge increases, as well as adding to its usefulness as an identification guide.

The first edition of C&P was not the first significant book on Malaysian butterflies. In 1882–86 W.L. Distant published the large format *Rhopalocera Malayana* with 44 lavish chromolithograph plates of exceptional quality figuring the 503 known species.

However even by 1934 this was well out of date, unwieldy and difficult to obtain.

The first edition of C&P added nearly 300 species to the known fauna, but was nevertheless very limited in its detailed species coverage. It had only two colour illustrations, (both oil paintings of birdwings), and a very selective treatment of species illustrated by black and white photographs. For example, of 63 species of ‘*Amblypodia*’ (mainly=*Arhopala*) then known, just one was discussed and illustrated. Recalling his early days collecting in the 1930s, Col. John Eliot, in his preface to the third (1978) edition, states ‘*It was not comprehensive enough to enable me to identify many of the butterflies I was catching*’. In fact, the first edition did not aim at being an identification guide so much as an introduction to the science of Lepidopterology. It discusses collecting techniques, biology and genetics. Its checklist of 801 then known species includes cross references to

¹ See <https://digitalgems.nus.edu.sg/shared/colls/blsea/files/ButCor.pdf>

illustrations of almost all species in Adelbert Seitz's Indo-Australian Rhopalocera volume of *Macrolepidoptera of the World*. The English edition of this volume had appeared in 1927 and in 1934 it was still reasonable to expect it might be available in good libraries.

A second edition was delayed by the death of Steven Corbet in 1948, but it eventually appeared in 1956, with expanded species accounts and keys, and a species tally of 898. On my first collecting trip to Malaysia in 1974 I found it an essential reference but quite challenging to use, as identification was largely dependent on unillustrated keys. Then in 1978 the third edition revised by John Eliot appeared. This greatly improved volume included 35 plates, most of them in colour, and listed 1008 species. Because peninsular Malaysia and Borneo share almost 90% of their fauna this, and the later 1992 fourth edition also revised by John Eliot (with 69 plates, mainly in colour, and 1031 species), became key reference works for me in my butterfly research while living and working in Brunei during the 1990s. In particular both included extensive genitalia plates, redrawn and added to from the second edition, that were critical for resolving the identity of some of the more intransigent lycaenids and hesperiids.

So, what does this new revision bring? To begin with, its jacket is adorned with a perched, living male *Trogonoptera brookiana*, as opposed to the dead museum specimens that appeared on the second, third and fourth editions. This is a pleasing change in keeping with modern sensibilities, and dare I say it, my own. Also, the text is laid out at two columns per page, and subheadings are in bold, both features that enhance its readability compared with older editions. However, the changes are more than skin deep. Although the introductory chapters follow exactly the same arrangement as the fourth edition and swathes of Corbet's and Eliot's text are repeated verbatim, a close reading at once reveals many important additions and amendments.

To begin with, the revisors introduce the modern redefined family level phylogeny of the butterflies first presented by Heikkilä et al. (2011) and subsequently verified and refined by various authors. This completely overturns our traditional understanding of butterfly phylogeny and leads to a revamped account of the subdivisions of butterflies. Then throughout the introductory chapters there follow numerous small improvements: 'External anatomy' has a helpful new drawing clarifying the terminology of wing morphology; the chapter on distribution updates the species counts of butterflies according to their centre of origin and also discusses changes in weather patterns in the past 30 years, including recent as well as historical rainfall records for various localities; 'Butterfly populations' includes a discussion on the effects of *Wolbachia* bacteria and their potential effect on sex ratios; "A history of butterfly studies in the Malay Peninsula" adds recent significant collections that have been acquired by the Malaysian and Singaporean national museums, as well as noting important advances in our knowledge of ecology and life histories; "Making and studying the collection" includes two important changes—instructions are provided for preparing specimens suitable

for DNA analysis, and the formula given in earlier editions for protecting dried specimens from mould and pests is declared carcinogenic and alternatives are suggested. In short, the introductory chapters have been updated where necessary while preserving as much of the original as possible.

The second, and by far the larger part of the book is the systematic treatment of the fauna. Classification and nomenclature are substantially revised at every level. Two families, the Nymphalidae (11 versus 7 subfamilies) and Lycaenidae (7 versus 5 subfamilies) follow a different arrangement of subfamilies from that used in the fourth edition. For Nymphalidae a modern molecular phylogeny is also provided. At the generic and species level there are many widely accepted changes of status. Thus, *Pachliopta coon doubledayi* in the fourth edition is listed as *Losaria doubledayi*; *Graphium* and *Papilio* are treated as single genera (as opposed to *Graphium* + *Pathysa* and *Papilio* + *Chilasa* respectively in the fourth edition). These changes are based largely on recent molecular analysis and reflect a modern consensus; there are numerous other examples. The total number of species is now 1051, 20 more than in the fourth edition. Keys to all taxa are provided and the extensive rearrangement in classification and addition of species means many of these too have had to be revised. In keeping with Eliot's keys a few Bornean and Sumatran species are also included. The species accounts are also revised to accommodate new hostplant and distribution records and this has been done well.

Throughout the text are numerous helpful line drawings showing details of wing venation, legs, labial palps and androconial scales. Most of these are copied directly from the previous editions and total 136 individual drawings in the species accounts of both the fourth and fifth editions. However, pen and ink style drawings (in some cases edited digitally) of 15 larvae and 14 pupae, showing examples from every family and some subfamilies, are redrawn with improved accuracy and clarity. Not only are the new drawings cleaner and more attractive; they are more lifelike. As an example, the larva of *Hebomoia glaucippe* in previous editions is clearly drawn from a 'blown' museum specimen. The new version is drawn from life, or at least from a photograph of a living larva. They are a great improvement.

The fourth edition included 455 drawings of genitalia, mainly male, representing all families, arranged in 25 separate plates with facing legends. These are well executed and are invaluable in identifying many lycaenids and hesperiids. The revised edition presents these in considerably more compact form and adds four species to the total. Otherwise, the plates are almost identical, with the exception of *Pieris canidia*, for which the non-descript female genitalia are replaced by male genitalia.

The main text is supplemented by no fewer than seven meticulously compiled, scholarly appendices. These are A: a full checklist with distribution codes within the area and cross references to illustrations in Fleming (1983), B–D: Notes on omitted species, questionable records and species new to the checklist and notes

on endemism, E: Taxonomic and distribution notes, with nomenclatorial changes explained, F: Tabular census of species group taxa at the tribal level (with 61 tribes in total), and G: Larval foodplants of Malayan butterflies. Taken together the appendices provide an excellent summary and source of information which is at once highly accessible and avoids cluttering the main text.

The main text and appendices are supported by an extensive bibliography of over 1000 publications. Numerous references have been added since the fourth edition, and the considerable literature on molecular phylogeny that has appeared in the last 15 years is particularly well represented.

One entirely new feature that distinguishes this edition from its predecessors is the inclusion of six colour plates of immature stages, showing the egg, larva and pupa of five species per plate, or 30 species in total. While this is very welcome, I was a little disappointed not to see, for example, the striking brown and yellow larvae of *Delias pasithoe*, which bred on a mistletoe (*Dendrophthoe* sp.) in my garden in Brunei, or the unusual strings of eggs of *Papilio demolion*. If finances had permitted, at least 12 plates would have done more justice to the wonderful variety of forms and behaviours that occur among the early stages of Malaysian butterflies.

However, these minor misgivings are more than compensated by the new adult plates. The fourth edition included 69 plates of adult butterflies, mainly in colour. The present revision has 132 entirely new full colour plates, comprehensively illustrating the adult fauna. By using half wing illustrations, rather than entire specimens, the revisors have managed to show the upper and underside of both sexes of most species, thus providing far more information than the fourth edition. For the first time we have a comprehensive visual guide to the butterfly fauna of the Malay Peninsula.

Another slightly negative aspect of the book, and Eliot's revisions, is the missed opportunity to amend text carried over from the second edition. All revisors have apparently accorded the original authors undue deference. For example, the naïve, unaltered account of structural colour (p.5) ignores the vast strides in this subject that have been made in the past 25 years; among Malaysian species the mechanism of colour production by *Papilio palinurus* is the subject of at least three important papers (e.g. Vukusic *et al.* 2000). The subject has grown too vast and esoteric to receive more than passing mention in a book of this sort, but this situation could have been explained. Another surprising anomaly repeated in this revision, is the poorly substantiated claim that *Hypolimnys misippus* and *Danaus chrysippus* are Müllerian mimics (p. 31), whereas it is widely accepted that the former is a Batesian mimic of the latter (Smith, 1973, Gordon *et al.* 2010); indeed, the association is regarded as a classic example of Batesian mimicry and there is a wealth of evidence from across the species' vast areas of sympatry supporting this. It was also surprising to read of the genus *Delias* (p. 75): "The seventy odd species {worldwide}...". There are in fact a conservative 235 species currently recognised, more than a fifth of all Pieridae, and over 200 species were known

at the time of the second edition when this error was introduced, then copied uncritically into subsequent revisions. Given the degree of authority the book carries in the region it is important to avoid perpetuating such misconceptions.

Despite these few criticisms, which are mostly not specific to this revision, I consider that the revisors have done a magnificent job. Their task can not have been an easy one, especially given the need for the book to retain the essence of its predecessors. This they have achieved with skill. The plates alone represent a prodigious undertaking and are superbly executed, but one must also appreciate and admire the amount of work required to bring the text up to date. The wonderfully readable blend of elegant prose remains, but having consulted previous editions extensively, I can state categorically that this is by far the most user-friendly edition, and it retains its status as the definitive scientific authority on butterflies for the region. I strongly commend this book to all serious students of butterflies, even if you already possess the fourth edition. To enthusiasts residing in Malaysia, it is a 'must have'. The book retains the same crown quarto format of its previous editions and is a sizable and quite heavy tome, suitable for travel, but not intended for use in the field. That said, it travels well in the back seat of a car ready for rapid consultation while out collecting. The sorry state of my third edition is testament to this!

The revisors have informed me that since going to press they detected various corrigenda. These, plus recent addenda may be found at: http://www.lepodonbooks.com/corrigenda_C&P5.html

References

- FLEMING, W.A. 1983. *Butterflies of West Malaysia and Singapore. Revised edition.* Singapore and Kuala Lumpur.
- GORDON, I.J., EDMUNDS, M., EDGAR, J.A., LAWRENCE, J. and SMITH, D. 2010. Linkage disequilibrium and natural selection for mimicry in the Batesian mimic *Hypolimnys misippus* (L.) (Lepidoptera: Nymphalidae) in the Afrotropics. *Biological Journal of the Linnean Society* **100**: 180–194.
- HEIKKILÄ, M., KAILA, L., MUTANEN, M., PEÑA, C. and WAHLBERG, N. 2011. Cretaceous origin and repeated tertiary diversification of the redefined butterflies. *Proceedings of the Royal Society (B)* **279**: 1093–1099.
- SMITH, D. 1973. Batesian mimicry between *Danaus chrysippus* and *Hypolimnys misippus* (Lepidoptera) in Tanzania. *Nature* **242**: 129–131.
- VUKUSIC, P., SAMBLES, J. and LAWRENCE, C. 2000. Colour mixing in wing scales of a butterfly. *Nature* **404**: 457.

Reviewed by Albert Orr