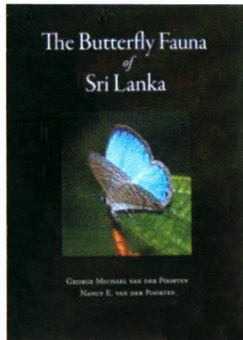


The Butterfly Fauna of Sri Lanka. George Michael van der Poorten and Nancy E. van der Poorten. Lepodon Books. 2016. vi+418 pp; hardback; approx. ~A4 sized. ISBN 978-1-77136-189-7. a. ~AUS \$97 incl. postage

Reviewed by Kelynn L. Dunn



The Indian subcontinent is a biogeographic region I have not explored and because of that, Sri Lanka, an intriguing island only 30 km off shore, has escaped my field attention – at least beyond those ‘armchair encounters’ romanced of during perusals of older works when the island was known as Ceylon. On skimming the detailed species accounts in this new butterfly book, I recognised one small lycaenid I had seen once, somewhere! It was not a splendid insect that I should remember her well, and I paused to think as to where and when. My digitised field diaries quickly revealed that archived account. It was during a mid-afternoon stroll at

Kandawgyi Lake, Mingala Taung Nyuat, a parkland area in Yangon, that I chanced upon this curious miletine with its remarkable flight, quite unlike any species I had seen previously in Myanmar (formerly Burma) or elsewhere in southeast Asia. Video-cam in hand, I recorded a short sequence of her activity, mystified at the time as to the butterfly species involved. She fluttered about a chenopod, marked by a botanical plaque identifying it as *Bassella rubra* Linn, whereupon she would almost jump at the stems with her wings closed and long abdomen extended. It was nearly 1600 h and shortly after first sighting her active in sunshine, this sombre adult then oviposited under a leaf before departing to rest close by on a piece of wood. At the time, in January 2005, I had supposed that the chenopod would be the larval food plant, but later discovered that the caterpillars of this particular species, *Spalgis epius*, are carnivorous! They eat mealy bugs – a very different life history to any butterfly in Australia; and I learnt too, that this species is known as the Apefly because the pupa looks like a monkey’s head! The van der Poorten’s tome on the butterflies of Sri Lanka discusses the Apefly as well as other species one might encounter more broadly in Asia. This excellent work has drawn this tiny island – once fancifully described as ‘The Pearl of the Indian Ocean’ – into focus again after an entomological quiescence since 1950 (when the last academic treatise on its butterflies appeared).

Aesthetically adorned with a basking sky-blue Cerulean on the cover, the work immediately impresses with the grandeur it deserves. The van der Poorten’s achievement has evidently been a labour of love and one that will certainly provide that needed stimulus for a visit someday by naturalists who share their passion for these delightful creatures. Even if that opportunity should pass me by (and I hope that it would not), the hours I have spent reading the accounts of the 247 species, carefully studying the illustrations of each, and contemplating their varied behaviours, their life



histories and their larval hosts (listed for 89% of these species) has enlightened me. Some may wonder what the Australian enthusiast or expert might glean from this work on a remote island, far afield, off the southern tip of India! Essentially, much – if only because some larval hosts newly reported from Sri Lanka occur more widely in the Asia-Pacific region. Indeed, that knowledge of usage elsewhere now offers wisdom to the field worker who may seek similar potential among allied species and genera in northern Australia.

The first chapter informs generally about Sri Lanka, highlighting its topography and dual-monsoonal climate, and examines the origin of its fauna and overviews the history of the study of its species. Although endemism is low overall, an area in the southwest of the island that has no pronounced drought (unlike the rest of the island) shows a remarkable concentration of endemic species (21 of the 31 endemic species occur there). In addition, isolation from the mainland since the Pleistocene has differentiated the local species into some 84 subspecies (as recognised in the work) and still others show fine ecological specialisation in terms of host plant preferences. The life cycle of the butterfly, described in the next chapter, covers many aspects of butterfly anatomy and structure, their habits and behaviours (including migration, courtship and oviposition), as well as factors influencing their survival (with focus on predatory avoidance and the various escape-mechanisms employed to enhance their longevity). Readers will be astonished at how a caterpillar of one swallowtail, whose two large eyespots, together with its everted osmeteria (which resembles a forked tongue), mimics the head of a hemotoxic green tree viper, a group of snakes that are widespread in Asia. The caterpillar even has a white rim just like the White-lipped Pit Viper, a serpent that inflicts a wound that creates extreme pain and necrotises within minutes.

The third chapter outlines seven impediments to the conservation of invertebrates and raises the need to conserve butterflies on the island outside of reserves. Human settlement, as the main threat to butterflies, has necessitated extensive clearing of native vegetation over the past 175 years. Today only 22% of the island remains vegetatively intact, and in one of the four climatic zones 90% of the original habitat is now gone. Decried by concerned naturalists as far back as the early 1920s, that long-term plundering of its forest resources is more than obviously at the species level – almost half the butterfly fauna is facing extinction to varying extents, with 59 species now listed as endangered (some critically so). As a small offset against this irreplaceable loss, the authors promote the value of butterfly gardening in urban areas; they point out how a bare plot of ground in a city hospital complex (where no butterflies resided) soon supported 40 resident species within two years of planting a garden of appropriate larval hosts and adult nectar sources!

The species accounts (Chapters 5-10 – with the layout expanded upon in Chapter 4) overview the fauna sequentially on a family basis, starting with the skippers and ending with the metalmarks. Each species occupies a page or two, and each contains a



number of images of live adults (with few exceptions), often enhanced by a selection of images of the early stages, the habitats occupied, and occasionally larval host plants (where known), including foliage with flowers to ease their recognition. Some accounts include other aspects of their biology: a sequence of 12 photos for one skipper (the Black Flat), as one example, shows the construction of a larval shelter cut from and then sewn onto the leaf. Most if not all the images are superb, none looks seriously manipulated. Adding a sense of realism, images of road kill display a few species that rarely open their wings; apart from revealing these adults worse for their experience, they serve to highlight the plight of many butterflies nowadays, even in those high-level reserves aimed to protect them. Captions of others sometimes explain unusual circumstances thereby improving the visual story of their photography, something charming in itself (p. 33 includes a poignant example of finality).

Many faunal works focus on the adult stage and this book certainly equals those in that aspect. It expands on this, too, with an impressive and invaluable array of life history photographs (Appendix F), presented stage by stage, and sequentially by common name (followed by the species name for larvae but not the eggs or pupae). It also includes a series of larval heads for selected skippers. An excellent memory for local butterfly names will assist the user to compare the juvenile stages of similar species more speedily and so appreciate features in common between more closely or even distantly related groups (even where not on the same page as the case is more likely to be). The list of larval host plants (Appendix C), another comprehensive resource, adopts a similar arrangement, with hosts listed alphabetically by botanical name (albeit unordered by family), and includes the dependent butterflies listed by common names. An international audience which may wish to hone in generically to sense that knowledge and utilise it where required will need to consult the index more often than not.

The annotated species list (Appendix A) provides the nomenclatural authorities for technical names and the years of description. It also inventories the conservation status of each species and their adult abundances in each of the four zones (where applicable) using a tripartite categorisation of probability defined by 'very likely', 'likely' or 'unlikely' to be seen during a four to five hour visit in each zone. Another Appendix (B) provides an annotated list of cornerstone scientific volumes and important historic papers dealing with the island's fauna across its entomological history for further reading. Still another (D) lists known nectar sources but these are unlinked to butterfly species, except for a few cases where mentioned in the individual species accounts. Linking these to the list of species in Appendix A (if coded by number) would have enhanced this inventory given that few lists for flowers and the butterfly species that utilise them are available. Indeed, the authors explain that the length of the proboscis of various species may mechanically restrict or promote their use of some tubular flowers enabling certain groups to capitalise on different resources in the same habitat and avoid direct competition. Similarly, for butterflies that are not aposematically coloured, particular flowers may be visited at



more restricted times of the day to avoid predation when the local birds are most actively feeding. The historical accounts of migration (Appendix E) is another fascinating archive, one that reveals that adult butterflies were far more numerous on the island decades ago than they are today. The book closes with a Glossary, the References, and the index of scientific and common names, followed by a short list of abbreviations used in the text.

I found just a few imperfections and typographical errors, which I mention only in the tradition of fairness, having done so in previous reviews. The year is missing for the paper by Rocha et al. (listed on p. 408) published in the journal *Science* in 2014, and the acronym NHM (Natural History Museum of London, England) appears after its second usage (p. 4). The scientific name of *Cepora nadina* is incompletely italicised on the final letter of its specific epithet (p.7), and the subfamily name, Limenitiinae, is misspelled in an appendix (pp. 353-354). Some have argued since 1995 that the genus *Virachola* is a synonym of *Deudorix*. In addition, the introductory text asserts that the male butterfly carries the female during nuptial flights (p.32) but this applies specifically to the family Pieridae and the nymphaline subfamily Danainae; the female is the consistent carrier in some families and, in certain groups, the favoured carrier may actually vary according to species or within species linked to circumstances. Finally, the Common Nawab referred to as *Charaxes athamas* is likely to be *Polyura bharata*; the status of that genus and species was revised in 2015 (research possibly published after the completion of the manuscript).

Overall, the work is an astonishing accomplishment by a dedicated couple. It stands, without question, as a milestone in the study of the butterflies of this island and more broadly for the South Asian region for which there are few texts to this level of scholarly excellence and scientific detail. I recommend it as an essential addition to the library of those interested in the biology of the butterflies of Asia. I anticipate too, that it will lure much interest from Australian enthusiasts given that 56 (23%) species (and 22 of the remaining genera) from that island also occur in political Australia. Those with an interest in butterfly food plants and their early stages will be delighted with the work's coverage, which exceeds expectations.

