

## **Giant Silkmoths: Colour, Mimicry & Camouflage**

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## BOOK REVIEW

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**GIANT SILKMOTHS: COLOUR, MIMICRY & CAMOUFLAGE**, by Philip Howse and Kirby Wolfe. 192 pages, 24 cm × 30 cm, soft laminate cover; ISBN 13: 978-1-906506-25-4; £25 (about US\$40); Papadakis, Winterbourne, Berkshire, England; Publication date: November 2011.

There are many books including several new ones that depict beautiful Saturniidae as images of pinned specimens. Even more books or articles show living saturniids as close-ups in their natural resting poses or alarm positions, but normally as only a page or two of images in a book about Lepidoptera or insects. *Giant Silkmotths* gives us dozens of enlarged images of living saturniids courtesy of Kirby Wolfe's now famous photography, and augments them with a very readable and intriguing text, so there really is no other book like this one. It is decidedly not "just another book with pretty pictures of saturniids." More than any other, the book will educate the reader about how saturniids live and interact in their natural ecosystems, with a primary focus on how they avoid predation by vertebrates. This book promises to become an instant classic like Howse's wonderful 2010 book *Butterflies: Messages from Psyche*, also published by Papadakis. Professor Howse is a renowned expert on insect ecology and behavior, with a distinguished career that includes pioneering work in environmentally-friendly pest control. Wolfe has to his credit a long series of sound taxonomic publications on saturniids, always embellished with his marvelous photographs of moths and caterpillars. He taught Spanish at the college level for years in California, and has made many excursions to collect Saturniidae in several countries of Central America and South America. The collaboration here between them has yielded a book that deserves to be widely available in personal and institutional libraries.

It has long been recognized that many saturniid moths have wing patterns that resemble dead leaves, complete with necrotic spots and holes. In others, the ubiquitous eyespots on the hindwings and often also the forewings have been widely accepted as evidence of mimicry of the eyes of vertebrates. It must surely be effective and therefore true, since so many species in almost all of the saturniid subfamilies and on different continents have these features. Even Charles Darwin cited examples of these in *The Origin of Species* to support some of his hypotheses. The text of *Giant Silkmotths* correlates closely with the photographs, usually on the same or adjacent page, making it very

instructive. Employing a writing style that is both engaging and compelling, the authors point out that they are only offering hypotheses instead of trying to force their views upon the users of the book. The book supports some points by providing other images such as a fox, a hare, a lizard, flowers, and some pieces of art. Howse and Wolfe delve into the perception and interpretation of images, whether in the minds of humans or birds or other saturniid predators. They also give information about structure and function of eyes in birds, humans, and other vertebrates. The reader is reminded at critical points that what we humans see and perceive can be very different from what birds see and perceive. Many tantalizing hypotheses are presented, inviting the possibility of controlled quantitative studies by others who might wish to test these. I can envision this book sparking the interest of a future graduate student who will write a thesis on vertebrate predation or insect ecology. The book is that important, and as I already indicated, fills a real gap in literature on Saturniidae.

Maybe I am too gullible or insufficiently skeptical, but when I read the authors' interpretations of what the diverse wing patterns represent on page after page, I said aloud to myself, "Why didn't I think of that?" or "Why couldn't I see that years ago—it is so obvious now?" Of course that is a bat hanging in a tree (p. 62); of course those are fungi growing out of a log (pp. 58–59); of course the forewing spots by the costal margin (stem of a plant) of a luna moth are berries or flower buds attached to it; of course those scalloped yellow markings on the forewings of *Citheronia laocoon* represent the feathers of a bird's wing. The book exposes many more of the remarkable images that are hidden in plain sight on the wings of saturniids. For the caterpillars, Howse and Wolfe have also decoded some secrets, such as a tiny frog sitting atop the thorax of a mature larva of *Bombyx mandarina* and toadstools growing in a row on the larva of *Automeris lauta*. They respectfully counsel us to view moths upside down and with wings folded in resting position, instead of as the standard pinned and spread specimens. For many saturniids, I was always determined to see the forewing apex as the anterior end of the head of a toad or snake or whatever. But look at the forewing of a *Polythysana* in one of your books or on the internet, and you will see, perhaps for the first time, that the bird has a sharp beak pointing toward the thorax, and the outer edge of the forewing is the crest on the head of that bird. Howse and Wolfe have trained me to see the wing patterns of

saturniids in new and exciting ways. However, I discussed this book by telephone with John Cody, a psychiatrist and an artist who paints mainly Saturniidae, and found him to be skeptical of many of these hypotheses.

In some ways, size is critical, which is why smaller moths like the normal geometrids and noctuids do not have eyespots. In other ways, size is not something a foraging bird has the time or capability to process. For example, when I collected and pinned a small gray cerambycid beetle of the genus *Astylopsis* in upper South Carolina many years ago, I was struck that the posterior end looked like the face of a rodent. If that beetle had crawled into a hole in a log, the rear end would look like a tiny mouse peering out of the hole, and one or both of the long antennae would fold back to make the mouse's tail or two. For years I thought it has

to be a mouse mimic, yet it was way too small, but now after reading the book by Howse and Wolfe, I realize it is indeed the image of a mouse (i.e., I was right all along!). All of these things about size, perception, and vision are explained in some detail in the book, with citations for further reading. Wolfe has added a valuable appendix about rearing and photographing moths.

In conclusion, if you buy this book, I guarantee that you will be glad that you did, because this review can only hint at the enjoyment that awaits users of this book.

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