

James P. Tuttle 2007: The Hawk Moths of North America. A Natural History Study of the Sphingidae of the United States and Canada. – The Wedge Entomological Research Foundation, Washington, DC. – ISBN 978-0-9796633-0-7. xviii + 253 pp., 23 pls. US\$ 90.00.

Sphingids are among the most easily recognized moths. The adults are among the largest and fastest flying lepidopterans and they are well known for hovering at flowers. Sphingids received considerable attention in pre-Linnean times already by Maria Sibylla Merian (1705) as well as 150 years later by the founders of evolutionary theory, Charles Darwin (1862) and Alfred Russel Wallace (1867), which undoubtedly stimulated subsequent research on the group. Today, sphingids belong to the best studied groups of Lepidoptera. Much anatomical and physiological knowledge on the order has been made available by studies on one of the most famous laboratory animals, *Manduca sexta* (Linnaeus, 1763). Also, a recent revisionary checklist of the 1,272 world species (Kitching & Cadiou 2000) and detailed identification books for all continents are available, including for North America (Hodges 1971). The book published by James P. Tuttle focuses on the natural history of North American sphingids. It starts with an introductory chapter on historical literature, taxonomy, and structure of the book. Part one focuses on general biogeography, morphology, life history and ecology, natural enemies, collecting and rearing, and is illustrated with line drawings and black and white photographs. Part two, the main chapter of the book, contains the species accounts, which start with an introduction for each genus. The species treatments are structured into general comments, distribution (including a map illustrating the distribution in North America), habitat, adult diagnosis, variation, biology, immature stages, and rearing notes. Drawings of the pupae and black and white photographs of larvae and adults are added for some species. The middle of the book contains the colour plates of photos of pinned and spread adults as well as live larvae. The book is completed by an appendix of sphingid parasitoids, an alphabetical index of institutional collections, a list of cited references, as well as entomological and botanical indices. Having reared nearly all of the species himself, James P. Tuttle describes in detail the life histories of the 125 North American sphingids, including their larval host plants. Applying the biological species concept (BSC), he found that *Erinnyis domingonis* (Butler, 1875) is conspecific with *E. obscura* (Fabricius, 1775) and *Protambulyx carteri* Rothschild & Jordan, 1903 with *P. strigilis* (Linnaeus, 1771). Based on adult characters and life histories, Tuttle re-establishes the genus *Lintneria* Butler, 1876 and transfers 21 species of the “*Sphinx eremitus* species group” into it, and he supports several taxonomic changes introduced by former authors. European Lepidopterists will find some familiar species in the book: *Hyles galli* (Rottemburg, 1775) and *H. lineata* (Fabricius, 1775), which are native to North America, and *H. euphorbiae* (Linnaeus, 1758), which was introduced into North America as a biological control agent for *Euphorbia* species (Euphorbiaceae). Several genera, such as *Sphinx* Linnaeus, 1758, *Hemaris* Dalman, 1816, *Smerinthus* Latreille, 1802, and *Proserpinus* Hübner, 1819 have representatives in the Nearctic and Palaearctic regions, and some of these are so conspicuously similar in morphology that they should be compared in more detail to assess their relationships: *Ampelophaga rubiginosa* Bremer & Grey, 1853 from the eastern Palaearctic and *Darapsa* Walker, 1856 from the Nearctic, and *Phyllosphingia dissimilis* (Bremer, 1861) from the eastern Palaearctic and *Amorpha juglandis* (Smith, 1797) from the Nearctic. With this book, Tuttle might have set a further stimulus in order for sphingids to become once more a model group of Lepidoptera, in studies of Holarctic biogeography, and as a good example of what can be added to our mainly morphology-based taxonomic knowledge, when studying life histories and applying the BSC. Beside sphingid collectors and taxonomists, I recommend the book to anybody interested in holarctic biogeography and the BSC.

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