

BOOK REVIEW

**Josef Grieshuber, Bob Worthy & Gerardo Lamas (2012).
THE GENUS *COLIAS* FABRICIUS, 1807. JAN HAUGUM'S ANNOTATED
CATALOGUE OF THE OLD WORLD *COLIAS* (LEPIDOPTERA, PIERIDAE)**

Published by Tshikolovets Publications, Pardubice, Czech Republic. x + 438pp., 25 maps, 723 color images (32 color plates), 1 b/w photo, 11 figs. Hardcover with dust jacket, glossy paper, format A4, 21 cm x 30 cm. ISBN 978-80-904900-2-4. Available for 119 Euro or US\$ 149 (plus US\$ 20 economy postage or \$37 priority postage to USA) from Vadim Tshikolovets, Belehradská 271, 53009, Pardubice, Czech Republic; email: tshikolovets@gmail.com, vadimtsh@i.com.ua; <http://sites.google.com/site/tshikolovetsbooks/>.

The butterfly genus *Colias* includes approximately 80 species, distributed in temperate habitats on all continents except Australia and Antarctica. Various species are widespread habitat generalists, while many others occupy specific habitat types, often at high elevations or latitudes. These butterflies are extremely popular among professional and amateur biologists, ecologists and systematists, and as a result, have had many species, subspecies, form and aberration names applied to them over the decades.

This new book provides an annotated catalogue of all available names that have been applied to the Old World *Colias*, and also includes most New World taxa presumably of Beringian origin (e.g., *hecla*, *canadensis*, etc.). Introductory portions of the book include discussions of the history of the classification of the genus, as well as its etymology. Following this is the alphabetic catalogue of names (212 pages). For each name, catalogue entries include: types, type locality, etymology, taxonomic status, and (for some entries) remarks. In most cases, the remarks include taxonomic discussions. For every taxon, the authors attempted to trace the whereabouts of all type material; in the course of their research, many types thought to be lost or destroyed were located in institutional and private collections. Thirteen new lectotypes are designated in the book, for *C. palaeno aias* Fruhstorfer, 1903 (= *C. aias* Fruhstorfer, 1903), *C. staudingeri alexandrina* Verity, 1908, *C. hyale altaica* Bollow, 1930, *C. eogene aphrodite* Verity, 1907 (= *C. arida aphrodite* Verity, 1907), *C. dubia* Elwes, 1906, *C. eos* Herrich-Schäffer, 1848 (= *C. thisoa* Ménétériés, 1832), *C. palaeno europome* (Esper, [1778]), *C. hecla* Lefèbvre, 1836, *C. cocandica hinducucica* Tytler, 1926, *C. palaeno lapponica* Staudinger, 1861, *C. staudingeri maureri* Staudinger, 1901, *C. eogene miranda* Fruhstorfer, 1903 (= *C. stoliczkana miranda* Fruhstorfer, 1903) and *C. chrysotheme sibirica* Grum-Grshimailo, 1893.

Five appendices follow the alphabetic catalogue: Appendix A1, Notes on Grum-Grshimailo (7 pp.); Appendix A2, Grum-Grshimailo's journey through China (9 pp.); Appendix B, Verity, The system in "Rhopalocera Palaearctica" (7 pp.); Appendix C, list of localities (23pp.); Appendix D, Systematic list of names of world-wide *Colias* (modified from Grieshuber & Lamas 2007, 28 pp.). A glossary and acknowledgements follow the appendices, and precede 33 pages of references. Twenty-five distribution maps follow the references, which are followed by 32 color plates depicting 725 *Colias* specimens (almost all in dorsal view), 515 of which are types! The book ends with full label data for all specimens figured on the color plates, and an

index of *Colias* names.

This volume represents the most vigorous taxonomic study performed to date on *Colias*. While the classification of *Colias* remains tentative, as noted by the authors, this book represents a solid foundation, based on the name-bearing types, upon which future revisionary studies will necessarily build. A large number of type localities are clarified, and various taxonomic issues are resolved. As a technical reference to nomenclature, type specimens and type localities, this book completely replaces the popular treatise on *Colias* by Verhulst (2000).

I received my copy of this book halfway through recurating the *Colias* specimens in the collections of the McGuire Center for Lepidoptera and Biodiversity, and it has proven absolutely invaluable in the completion of this process. Thanks to the detailed discussions of type material in the book, I was able to identify many apparent types among our collection

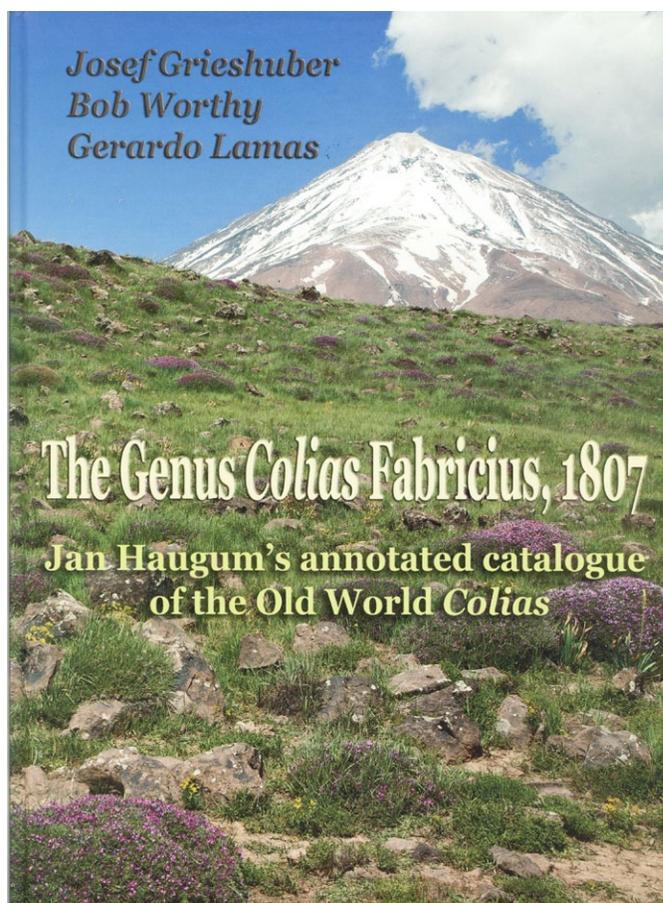


Fig. 1. Front cover.

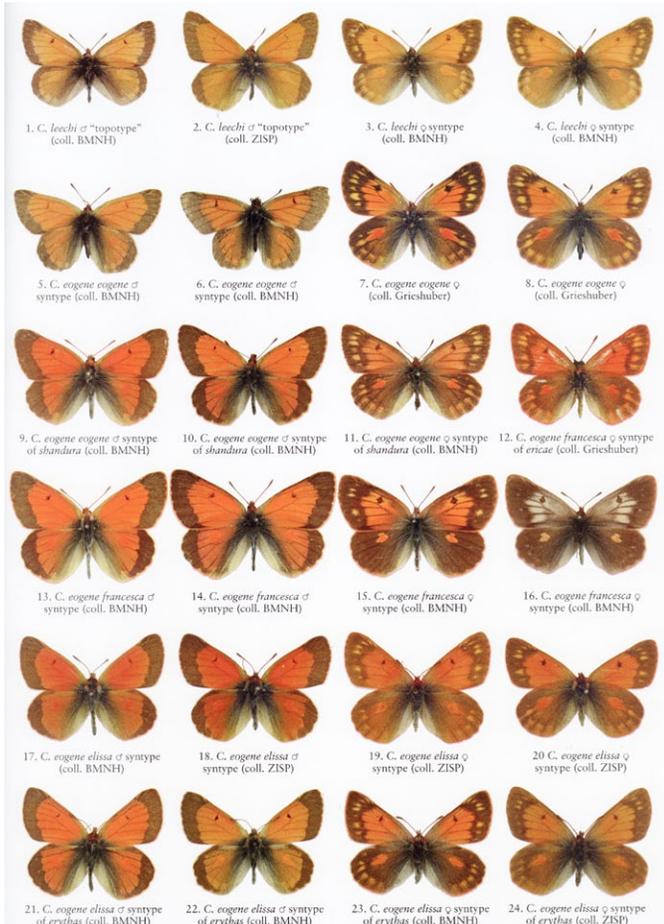


Fig. 2. One of 32 color plates.

that were not clearly identified as such, including five pairs of *C. cocandica tatarica* paralectotypes. In addition to the types listed in the book as being deposited in our collection, the following additional paratype specimens were integrated during the process of curation, which were obtained from the Dietz collection: *C. aurorina kermana* (1 male), *C. chlorocoma aladagensis* (1 male), *C. chlorocoma taleshensis* (1 male), *C. marcopolo afghanipolo* (4 males, 1 female), *C. nastes jacuticola* (1 male), and *C. stoliczkana cathleene* (2 males, 1 female). Various specimens were encountered that are undoubtedly parts of original type series, even though not labeled with paratype labels, including 2 males and 2 females of *C. alpherakyi kohibaba*, and 3 males of *C. cocandica mraceki*; one male of *C. nastes aliaska* (from "9 July/ Ramparts, Alaska") might also be part of the original type series. In addition, one undoubted paratypic male of *C. thisoa irtyschensis* was located among spread material from the Eitschberger collection (potentially remaining papered paratypes have not been searched for). The following clearly labeled Reissinger paratypes of *C. alfariensis* taxa were located (ex Eitschberger collection): *C. a. bergeri* (3 males), *C. a. fontainei* (6 males), *C. a. matalida* (1 male), *C. a. orthocalida* (2 males, 1 female), *C. a. remota* (6 males, 2 females). While the authors noted that paratypes of Hovanitz's *C. thula* reside in our collections, those had all been returned to the California Academy of Sciences (San Francisco) by 1987.

Given the incredible wealth of information provided in this book, and considering the massive amount of specimen-based research that went into its preparation, it is hard to find any serious shortcomings. That said, I would have liked to see twice as many color plates, so that the ventral surfaces of all the specimens could be viewed and studied, together with the dorsal surfaces. However, I realize that the addition of twice as many color plates could well have priced this book out of the range of affordability of many *Colias* fans. Fortunately, the exhaustive list of references provides sources for additional illustrations of adults. A few minor inconsistencies were noticed. For example, catalogue entries discussing *C. palaeno baffinensis* and *C. p. gomofunoveae* treat them as junior subjective synonyms of *C. p. chippewa* and *C. p. arctica*, respectively. However, on the distribution map for *C. palaeno* (map 6), both *baffinensis* and *gomofunoveae* are indicated as subspecies-level taxa.

In summary, this book is a must-have reference for anyone seriously interested in any aspect of *Colias* butterflies, and I highly recommend it to everyone interested in Holarctic butterflies in general. The authors are to be congratulated on their massive and impressive accomplishment! Personally, I am extremely grateful to have such a well-researched resource in hand as I complete the curation of *Colias* in our collections.

REFERENCES CITED

Grieshuber, J. & G. Lamas

2007. A synonymic list of the genus *Colias* Fabricius, 1807 (Lepidoptera: Pieridae). Mitteilungen der münchener entomologischen Gesellschaft 97:131-171.

Verhulst, J. T.

2000. Les *Colias* du Globe. Monograph of the Genus *Colias* (Lepidoptera: Rhopalocera: Pieridae). Goecke & Evers, Keltern. 308pp.

Andrew D. Warren

McGuire Center for Lepidoptera and Biodiversity
 Florida Museum of Natural History, University of Florida
 SW 34th Street and Hull Road, P. O. Box 112710
 Gainesville, FL 32611-2710 USA



Female of *Colias m. meadii* USA, Colorado, Clear Creek Co., Loveland Pass, NW of summit, ca. 11,600', 31-VIII-2011, photo by Andrew D. Warren