

## Book Review

**Nancy L. JACOBSON & Susan J. WELLER.** *A cladistic study of the Arctiidae (Lepidoptera) by using characters of immatures and adults.* 98 pp. Thomas Say Publications in Entomology: Monographs. Published by the Entomological Society of America. Price: members US\$ 35.00, non-members: US\$ 43.75. ISBN 0-9385-2294-9.

Phylogenies of organisms are essential not only for understanding the systematic relationships within a group, but also as a necessary template for the study of the evolution of behavioural, ecological or physiological characters. Due to their aesthetic appeal the Arctiidae have long attracted broad interest among lepidopterists. Moreover, they frequently serve as model organisms for the study of chemical ecology, behavioural physiology or mimicry. Thus, a better understanding of their phylogeny is in urgent need. Historically, the higher classification of arctiid moths has undergone manifold changes, and uncertainties persist. Today most approaches to resolve phylogenetic relationships resort to molecular markers – which are expensive to study and notoriously difficult to obtain from older collection materials. In the present booklet, for the first time an attempt is made to rigorously infer the phylogeny of the Arctiidae using cladistic methods, but using more ‘classical’ morphological characters. By combining 66 characters of larvae, pupae and adults sampled over 40 arctiid and 8 outgroup species, the authors provide a series of cladograms using maximum parsimony methods. Three monophyletic subfamilies can be recognized (*viz.* Lithosiinae, Syntominiinae and Arctiinae). Other well-known groups need to be redefined to attain the status of monophyletic groups, while again others emerge as clearly polyphyletic. All characters used and their scorings are extensively documented in photographs and drawings. Similarly, all data matrices and relevant trees for subgroups are presented, which makes the study a most valuable source also for further analyses. The appearance of the numerous scanning electron micrographs could have been improved through printing on a high-quality glossy paper. Also not all line drawings are of the highest quality, yet they suffice to show the relevant information. In view of the large diversity of the Arctiidae this booklet is just a step towards elucidating the phylogenetic history. A more complete taxon-sampling (in particular with regard to early stages) will result in better resolution. The price of the booklet seems to be high for a slender volume printed and bound in a rather modest way. Nevertheless, for the time being I clearly recommend this booklet to all those interested in Arctiidae phylogeny and evolution. It is also reassuring to see that a combined usage of morphological characters from adults and immatures still can contribute a lot to phylogenetics. Thus, the booklet by Jacobson and Weller hopefully stimulates further such studies in under-explored Lepidopteran taxa – molecular systematics is not always the single best choice in the 21<sup>st</sup> century.