

Abstract

Phylogenetic relationships for the Arctiidae are proposed based on a cladistic study of morphological features of larval, pupal, and adult stages. A taxonomic history of the Arctiidae and its suprageneric groupings to establish the rationale for selecting exemplars, out-groups, and character systems traditionally of interest, as well as indicating previous authors' hypotheses of relationships within the Arctiidae, are presented.

Forty arctiid species and eight out-group species were examined. The data set consisted of 66 characters, both traditional and new. The cladistic analysis resulted in eight equally parsimonious trees, with a consistency index of 29 and a retention index of 63. Arctiidae are monophyletic as are the three arctiid subfamilies recently proposed by others: Lithosiinae, Syntomini (with tribes Syntomini and Thyretini), and Arctiinae (with tribes Arctiini, Callimorphini, Pericopini, Phaegopterini, Ctenuchini, and Euchromiini). Two of the arctiid tribes are paraphyletic as normally constituted. We restrict the concepts for Arctiini (*sensu stricto*, revised status) and Phaegopterini (*sensu stricto*, revised status) to monophyletic groups and give synapomorphies for each, although we also give diagnostic characteristics for the broader concepts of these two tribes. The *Euchaetes* group, previously placed in the Phaegopterini, is now left *incertae sedis* within the Arctiinae.