

“Diversity of Cretaceous and Paleogene planthoppers of family Achilidae (Hemiptera: Fulgoromorpha) and their importance for the phylogeny of the Fulgoroidea”

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The family Achilidae is one of the less numerous families of planthoppers within the suborder Fulgoromorpha, and is distinguished by a complex taxonomic history. It was previously classified into three subfamilies and two tribes incertae sedis. With regard to the families of Fulgoromorpha, it has the second largest presence in the fossil record, after the family Cixiidae, dating back to the Cretaceous period. The greatest concentration of fossil Achilidae taxa is found as inclusions in Cretaceous amber from Kachin and in Eocene Baltic amber.

The family Achilidae is part of a lineage that also includes two other families, Achilixiidae and Derbidae, which are closely related to it. These families are characterised by many morphological similarities, and the combinations of these similarities make the process of defining them unambiguously very problematic.

The combination of new discoveries of inclusions in Kachin and Baltic ambers with recent molecular studies and the morphological analysis performed has enabled us to propose numerous changes to the classification of the evolutionary lineage containing the family Achilidae and to the classification of the family itself.

The studies included in this dissertation encompass the morphology of all tribes within the family Achilidae, as well as representatives of both subfamilies of the family Achilixiidae, tribes included in the subfamily Breddiniolinae of the family Derbidae, and new fossil taxa from Cretaceous Kachin amber and Eocene Baltic amber.

The results of these studies led to the proposal of a number of higher-level classification changes within this part of the suborder Fulgoromorpha. These include the separation of a new superfamily, Derboidea superfam. nov., a new family, Ipsnolidae fam. nov., and two new fossil tribes: the Eocene Aptyssini trib. nov. and the Cretaceous Myawwatini trib. nov. Other modifications include the dissolution of the subfamily Myconinae of the Achilidae and the transfer of numerous taxa previously included in the subfamily Breddiniolinae of the family Derbidae to the family Achilidae, as well as the reintroduction of the redefined subfamily Cedusinae. Additionally, five new genera and species were described.