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ABSTRACTS

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The planthopper family Mimarachnidae (Hemiptera: Fulgoromorpha) and its diversity in Burmese amber

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Planthoppers (Fulgoromorpha) display enormous diversity with 30 extant and extinct families currently recognized. Mimarachnidae Shcherbakov, 2007 is one of the extinct families, characterized by its simplified venation, setigerous metatibial pecten, and spider-like dark silhouette with black eyespots of tegmina (Shcherbakov 2007). Mimarachnidae were already well known from compression/impression fossils in sedimentary deposits of Buryatia (Russia), Japan and Spain (some taxa that are not formally described have been found in Mongolia and probably also in Brazil). In addition, some representatives of this family are preserved as inclusions in mid-Cretaceous Burmese amber, discussed in recent studies (Szwedo 2008; Szwedo & Ansoerge 2015; Emeljanov & Shcherbakov 2018; Jiang, Szwedo & Wang, 2018; Zhang, Ren & Yao 2018). The distribution of the family is from the Early to mid-Cretaceous, and spreading from regions of high latitude to tropical paleoequatorial regions according to the latest fossil records.

Moreover, the taxonomic and morphological diversity of fossil Mimarachnidae found in Burmese amber far exceeds that of all the compression/impression mimarachnid fossils recovered elsewhere. The recent described genera have already displayed significant morphological disparity, with derived features like an elongated head in *Jaculistilus* Zhang, Ren & Yao, 2018, giant size in *Dachibangus* Jiang, Szwedo & Wang, 2018, and a rostrum reaching beyond the abdomen in *Burmissus* Shcherbakov, 2017. Taxonomic diversity of these fossils allows us to erect a number of new taxa at specific, generic and even higher levels. However, the relationships of the Mimarachnidae within the Fulgoromorpha clade are not fully understood. Although our

recent discoveries contest the findings of earlier studies regarding the relationships between Mimarachnidae and Neazoniidae, a set of new questions has arisen, and the possibility of new explanations for the Fulgoromorpha phylogeny and interrelationships will require further study.

This extinct family also offers an unprecedented opportunity to observe morphological adaptations for sophisticated camouflage, with ecomorphological traits like flatoidinisation and laternarisation present in some modern planthoppers as well. The study of Mimarachnidae provides exceptional and unexpected insights into not only the evolution of Cretaceous planthoppers, but also their eco-evolutionary adaptation.



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