

THE
FOSSIL
WEEK

ABSTRACT BOOK

5TH INTERNATIONAL
PALAEOONTOLOGICAL
CONGRESS

From July 9th to 13th, 2018
France



Hidden secrets of Mimarachnidae planthoppers (Hemiptera: Fulgoromorpha)

Tian Jiang*†¹, Bo Wang², Jacek Szwedo³

¹ China University of Geosciences (Beijing) – 29 Xueyuan Rd, Haidian, Beijing, 100083, China

² State Key Laboratory of Palaeobiology and Stratigraphy, Center for Excellence in Life and Paleoenvironment, Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences – 39 East Beijing Road, Nanjing, 210008, China

³ Laboratory of Evolutionary Entomology and Museum of Amber Inclusions, Department of Invertebrate Zoology and Parasitology, Faculty of Biology, University of Gdańsk – 59, Wita Stwosza St., PL80-308 Gdańsk, Poland

The Hemiptera is one of the "Big Five" insect orders presenting the highest taxic diversity and morpho-ecological disparity. Planthoppers (Fulgoromorpha) is one of the hemipteran suborders displaying enormous diversity, with 30 extant and extinct families currently recognized and with fossil record reaching the Permian. Until now, the extinct family Mimarachnidae Shcherbakov, 2007 was known exclusively from compression/impression fossils in sedimentary deposits of Buryatia (Russia), Japan and Spain (some not formally described taxa come from Mongolia and probably also from Brazil), which restrict the family distribution to the middle to high latitudes probably with the seasonal alteration (Szwedo and Ansoerge 2015). Recently, Shcherbakov (2017) reported the first representative of this group from Burmese amber, representing the record from a tropical palaeoequatorial region, and indicating that this family can also live in the tropical forest, with a worldwide distribution. Here, we report the more representatives of the family preserved as inclusions in the mid-Cretaceous Burmese amber. Surprisingly, the taxonomic and morphological disparity of these fossils exceed far beyond the richness of fossils already known. Several eco-morphological traits present among modern planthoppers are to be observed also among representatives of Mimarachnidae from Burmese amber. Also taxonomic diversity of these fossils preserved as inclusions allow us to erect a number on new taxa of specific, generic and higher levels. Mimarachnidae seems to be an endemic family for the Cretaceous period, but its disparity is comparable to modern planthoppers leading to the questions of tempo and mode of eco-evolutionary adaptations on one hand, and reasons for rapid origination and extinction of this group on the other. Also relationships of the Mimarachnidae within the Fulgoromorpha clade are not fully elaborated, and recent discoveries contest the already proposed relationships of Mimarachnidae with Cixiidae-like lineage of the Fulgoromorpha. The recent discoveries of particular Mimarachnidae with peculiar venation, hardly comparable with modern planthoppers put a set of new questions and possibility of new explanations of the Fulgoromorpha phylogeny and relationships. Inclusions in amber also allow for the detailed study of genital elements of both females and males of Mimarachnidae. It seems these structures only hardly match to the model presented by modern planthoppers.

* Speaker

† Corresponding author: jiangtian@cugb.edu.cn

S1 - Ancient ecosystems trapped in amber

Keynotes

Leyla Seyfullah // Ambers and resins, past and future	10
Bo Wang // Cretaceous Burmese amber biota	11

Oral communications

Tong Bao <i>et al.</i> // New mordellid-like beetles from Upper-Cretaceous Burmese amber and their ecological implications	12
Cédric Chény <i>et al.</i> // Myrmicine ant (Hymenoptera: Formicidae) diversity in Miocene amber of Zhangpu, China.....	13
Suryendu Dutta <i>et al.</i> // Molecular composition of fossil and extant dammar resins: insights into molecular taphonomy of plant terpenoids	14
Romain Garrouste <i>et al.</i> // The Lowermost Eocene Oise amber: new data, new methods.....	15
Edmund Jarzembowski and Daran Zheng // Cretaceous dragonflies (Insecta: Odonata) preserved in amber	16
Tian Jiang <i>et al.</i> // Hidden secrets of Mimarachnidae planthoppers (Hemiptera: Fulgoromorpha)	17
Marta Konikiewicz and Joanna Makol // Ectoparasites of arthropods in amber forest – the case of terrestrial Parasitengona mites.....	18
Wieslaw Krzemiński <i>et al.</i> // Where were the mosquitoes? Differences and similarities between the Eocene Baltic amber and Recent fauna of Diptera Nematocera	19
Chunxiang Li <i>et al.</i> // A mid-Cretaceous tree fern of Thyrsopteridaceae (Cyatheaales) in Myanmar amber ...	20
Renate Matzke-Karasch <i>et al.</i> // Ostracoda in Miocene amber from Chiapas, Mexico.....	21
Ricardo Pérez-De La Fuente <i>et al.</i> // Trash-carrying green lacewing larvae from Early Cretaceous Lebanese amber	22
Vincent Perrichot <i>et al.</i> // The age and paleobiota of Ethiopian amber revisited.....	23
Mario Schädel <i>et al.</i> // Marine life captured in amber - exceptional preservation of small aquatic isopod larvae in Cretaceous amber from France	24
Agnieszka Soszynska-Maj <i>et al.</i> // Diversity of the scorpionflies (Mecoptera) in fossil resins and its implications for evolutionary research	25
Jiajia Wang <i>et al.</i> // The Amphiesmenopteran fossils from Asia offering important information for the early evolution of this group	26
Qi Zhang <i>et al.</i> // Hymenoptera in Burmese amber: new families and a review of the fauna.....	27
Qingqing Zhang and Bo Wang // Brachyceran flies in mid-Cretaceous Burmese amber: diversity and ecological significance.....	28
Weiting Zhang <i>et al.</i> // Bristletails from Myanmar amber provide phylogenetic insight into the evolution of Archaeognatha (Insect).....	29