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New fossil Osmylopsychopidae (Neuroptera) from the Early/Middle Jurassic of Kyrgyzstan, Central Asia

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Abstract

Four genera and four species of Osmylopsychopidae are described from the Jurassic of Kyrgyzstan, Central Asia: *Oligophlebiopsis biramosa* **gen. et sp. nov.** (Early Jurassic of Sogyuty); *Osmylopsychoides anteromedialis* **gen. et sp. nov.**, *Psychostoechotes undulatus* **gen. et sp. nov.** and *Osmylopsychostoechus sogulensis* **gen. et sp. nov.** (all from the late Early to early Middle Jurassic of Sai-Sagul). By their poorly-developed outer gradate series of crossveins, these taxa (except *O. anteromedialis* **gen. et sp. nov.**) are more similar to Triassic genera than to the Middle/Late Jurassic Osmylopsychopidae (particularly from Daohugou, China). Two isolated hind wings from Sai-Sagul (i.e., *Osmylopsychostoechus* sp. and Osmylopsychopidae gen. et sp. indet.) are preliminarily assigned to this family.

Key words: Neuroptera, Osmylopsychopidae, Jurassic, Sai-Sagul, Sogyuty

Introduction

The diversity and abundance of neuropterans with broad, densely-veined wings (i.e., psychopsoids) is a characteristic feature of the Mesozoic. Psychopsoids were absent in the Permian; they first appeared in the Triassic, and had become rare in the Cenozoic. It is now clear that the family Osmylopsychopidae was the dominant group among psychopsoids during the Mesozoic (Peng *et al.* 2015). This family was described by Martynova (1949) as Osmylopsychopsidae based on the type genus *Osmylopsychops* Tillyard, 1923 from the Late Triassic of Australia and *Actinophlebia parallela* Handlirsch, 1939 from the Early Jurassic of Germany. Riek (1955) independently erected the new family Osmylopsychopidae assigning to it (besides *Osmylopsychops*) *Archepsychops* Tillyard, 1919 from the Late Triassic of Australia and *Mesopolystoechus* Martynov, 1937 from the Early/Middle Jurassic of Tajikistan. Subsequently, several other Mesozoic genera were added to Osmylopsychopidae: *Protopsychoptis* Tillyard, 1917 and *Petropsychops* Riek, 1956 from the Late Triassic of Australia by Riek (1956); *Kagapsychops* Fujiyama, 1978 from the Early Cretaceous of Japan by Fujiyama (1978); the Late Jurassic to Early Cretaceous genus *Pterinoblattina* Scudder, 1885 (and *Mesopsychoptis* Handlirsch, 1906 as its synonym) by Ponomarenko (1986); *Angaropsychops* Martynova 1949 from the Early Cretaceous of Transbaikalia, Russia by Ponomarenko (1990); the Early Jurassic genera *Actinophlebia* Handlirsch, 1906 and *Parhemerobius* Bode, 1953 by Ponomarenko (1996). Ansoerge (1996) synonymized the two latter genera, but assigned them to Brongniartiellidae, another poorly-defined psychopsoid family.

Makarkin & Archibald (2003) discussed the family composition of Osmylopsychopidae and its characters as compared with the polystoechotid genus *Palaeopsychops* Andersen, 2001. Makarkin & Archibald (2005) showed that the correct family name is Osmylopsychopidae, not Osmylopsychopsidae. Jepson *et al.* (2009) concluded that the Cretaceous genera *Grammapsychops* Martynova, 1954, *Embaneura* Zalessky, 1953, and *Pulchroptionia* Martins-Neto, 1997 may belong to Osmylopsychopidae. Lambkin (2014) re-examined all old osmylopsychopid species from the Australian Triassic, added new material to these, and described the new genus *Gayndahpsychops* Lambkin, 2014 from the Middle Triassic of Gayndah. Recently, Peng *et al.* (2015) described five new genera and