



## Short communication

# A new compsocid booklouse from the Cretaceous amber of Myanmar (Psocodea: Troctomorpha: Amphientometae: Compsocidae)



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## ABSTRACT

*Paraelectrentomopsis chenyangcai* gen. et sp. nov. from the Cretaceous Burmese amber is characterized, described, illustrated and its position is discussed. This fossil taxon is the second compsocid barklouse to be described from the Burmese amber and constitute one of the earliest records of the family. A checklist of known Compsocidae is given. Identification keys of all known Compsocidae are provided. A palaeobiogeography scenario is proposed.

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## 1. Introduction

The Psocodea (Psocoptera and Phthiraptera) is an order with more than 10,000 valid extant species. The earliest fossil that could be assigned to psocodeans (*Westphalopsocus pumilio* Azar et al., 2013, in Nel et al., 2013) is from the Moscovian in the Pennsylvanian. During the last decade, the fossil record of psocids has considerably increased due to numerous discoveries of insectiferous amber and lacustrine deposits from all over the World.

Until recently, the precise age of the Burmese amber (Burmite) has been vague. The history of this amber has been reviewed by several authors (Zherikhin and Ross, 2000; Grimaldi et al., 2002; Cruickshank and Ko, 2003; Ross et al., 2010) but recently an absolute age of earliest Cenomanian (approximately 99 Ma) was given by Shi et al. (2012).

To date, several psocodean have been described from the Burmese amber and many are still waiting to be studied.

The Compsocidae Mockford, 1967, is a very small troctomorphan psocodean family belonging to the Amphientometae group. They comprise two extant genera (*Compsocus* Banks, 1930; *Electrentomopsis* Mockford, 1967) and a fossil monospecific genus (*Burmacompsocus* Nel et Waller, 2007), the latter (*Burmacompsocus perreai* Nel and Waller, 2007) being described from the Burmese amber (see Table 1). It is important to note that *Psyllipsocus banksi* Cockerell, 1916, originally assigned to Psyllipsocidae by Cockerell (1916), has been tentatively transferred to the genus *Burmacompsocus* Nel et Waller, 2007, within the Compsocidae by Mockford

**Table 1**

Checklist of known Compsocidae Mockford, 1967.

Taxa	Distribution
<i>Compsocus elegans</i> Banks, 1930	Panama, Mexico
<i>Electrentomopsis variegatus</i> Mockford, 1967	Mexico
† <i>Burmacompsocus perreai</i> Nel et Waller, 2007	Burmese amber
‡ <i>Paraelectrentomopsis chenyangcai</i> gen. et sp. nov.	Burmese amber

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et al. (2013) for the great similarity between the wing structures of these two taxa. We agree with Mockford et al. (2013), for the familial and generic transfer but it is not possible to go further in the specific placement of *P. banksi* because of the very little preserved parts of the fossil. Moreover, we have in our possession around 60 specimens of psocids that can be attributed to several taxa within the Compsocidae which will be subject of future investigation, thus we have excluded *P. banksi* from the checklist and identification keys given further.

Herein we describe *Paraelectrentomopsis chenyangcai* gen. et sp. nov. from the Burmese amber and we attribute it to the Compsocidae. This is the second compsocid barklouse to be described from this material and constitute, together with *Burmacompsocus perreai* Nel et Waller, 2007, the earliest record of the family.

## 2. Material and method

The studied material comes from Hukawng Valley in the northern state of Kachin, Myanmar (locality in Kania et al., 2015: fig. 1). The amber piece containing the inclusion was cut, shaped, polished, then boiled in Canada balsam and vacuumed to facilitate the Canada balsam to spread into amber cracks and decrease their mirror-effect (enabling as such a better visibility of the inclusion). Finally the amber piece was embedded between two coverslips and in a Canada balsam medium, as described in Azar et al. (2003). The specimen was examined with a Nikon SZ10 stereomicroscope and a Leitz Laborlux-12 compound microscope, both equipped with camera lucida for line drawings and cameras. The type material is

deposited in the in the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences (NIGPAS), Nanjing, China. Palaeogeographic map reconstruction was performed by using an equidistant cylindrical map project of the ODSN Plate Tectonic Reconstruction Service (available online at <http://www.odsn.de/odsn/services/paleomap/paleomap.html>).

The fossils described in amber are often well preserved for permitting precise study and detailed comparison with the modern representatives of the group. The works of Smithers (1972, 1990) are followed herein for the systematics, the wing venation nomenclature and terminology of body.

## 3. Systematic palaeontology

Suborder Troctomorpha Roesler, 1944

Family Compsocidae Mockford, 1967

Genus *Paraelectrentomopsis* gen. nov.

Type species: *Paraelectrentomopsis chenyangcai* gen. et sp. nov.

*Diagnosis.* Macropterous female. Head with frontal suture; antennae 15-segmented; flagellomeres with secondary annulations; tarsi 3-segmented; row of denticles present on anterior carina of first femur; distal tarsi with claw with two preapical teeth; forewing with closed pterostigma; M1 branching directly on M; presence of M2+M3 fork distal to the branching of M1; presence of two anal veins; A1 and A2 joining distally; micro-vestiture of forewing membrane in form of short points; hindwing with basal section of Rs absent; M forked; subgenital plate with evanescent T-shaped sclerite.



**Fig. 1.** Photograph of habitus of *Paraelectrentomopsis chenyangcai* gen. et sp., holotype specimen number NIGP 164488, female. Scale bar = 0.5 mm.

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