

新疆准噶尔盆地侏罗纪的几种昆虫化石*

张海春 王启飞 张俊峰

(中国科学院南京地质古生物研究所 南京 210008)

提要 新疆准噶尔盆地中生代陆相地层产有丰富的昆虫化石, 已研究报道的计有 8 属 19 种, 归于 4 目 5 科。其中, *Protorthophlebia strigata* Zhang, 1996 和 *Orthophlebia exculpta* Zhang, 1996 产自乌苏上三叠统小泉沟群; *Mesohagla xinjiangensis* Zhang, 1996, *Protorthophlebia latipennis* Tillyard, 1933, *Orthophlebia latebrosa* Sukatsheva, 1985, *Orthophlebia colorata* Zhang, 1996, *Mesopanorpa brodiei* (Tillyard, 1933) Martynova, 1948, *Mesopanorpa kuliki* Martynova, 1948, *Mesopanorpa obscura* (Martynov, 1925) Martynov, 1927, *Mesopanorpa densa* Zhang, 1996, *Mesopanorpa monstrosa* Zhang, 1996, *Fletcheriana jurassica* Zhang, 1997, *Plachutella exculpta* Zhang, 1997 和 *Pseudocossus strenus* Zhang, 1997 产自克拉玛依下侏罗统八道湾组; *Ovivagina longa* Zhang, 1997, *Ovivagina propinqua* Zhang, 1997 和 *Ovivagina proluxa* Zhang, 1997 产自沙湾县八道湾组; *Ovivagina immediata* Zhang, 1997 产自克拉玛依中侏罗统西山窑组。

根据产自准噶尔盆地下侏罗统的同翅目昆虫盖翅标本, 建立 3 新种, 即产自沙湾县南安集海八道湾组的 *Procercopis shawanensis* sp. nov., 产自克拉玛依吐孜沟八道湾组的 *Procercopina delicata* sp. nov., 以及产自吉木萨尔县西大沟三工河组的 *Eofulgoridium tenellum* sp. nov.。前两种归入原沫蝉科, 最后一种归入短足蜡蝉科; 这是 *Procercopis* Martynov 和 *Procercopina* Martynov 在中国的首次记录。 *Procercopis shawanensis* 与 *P. longipennis* Becker-Migdisova 相似, 区别在于新种 R 脉近末端有一短分支, R_s 脉分叉一次, R_s 与 M 脉之间只有一条横脉; *Procercopina delicata* 与 *P. asiatica* Martynov 的区别在于新种横脉 r_{rs} 和 r_m 没有在一条线上, R_s 脉分为 2 支, M 脉后支简单; *Eofulgoridium tenellum* 与 *E. kisykiense* Martynov 的区别在于后者 Sc 脉在 C 脉与 R 脉的中间, M 脉三分支, CuA 脉在 R 脉主干分为 R 与 R_s 脉之前分叉。

关键词 昆虫纲 同翅目 新种 下侏罗统 准噶尔盆地 新疆

SOME JURASSIC HOMOPTERAN INSECTS FROM THE JUNGGAR BASIN, XINJIANG, CHINA

ZHANG Hai-Chun, WANG Qi-Fei and ZHANG Jun-Feng

(Nanjing Institute of Geology and Palaeontology, the Chinese Academy of Science, Nanjing 210008)

Abstract Three new species are described herein based on tegmina from the Lower Jurassic of the Junggar Basin in Xinjiang, China. They are *Procercopis shawanensis* sp. nov. (from the Badaowan Formation of Shawan County), *Procercopina delicata* sp. nov. (from the Badaowan Formation of Karamay City) and *Eofulgoridium tenellum* sp. nov. (from the Sangonghe Formation of Jimsar County).

Key word Insecta, Homoptera, new species, Lower Jurassic, Junggar Basin, Xinjiang

收稿日期: 2002-01-20

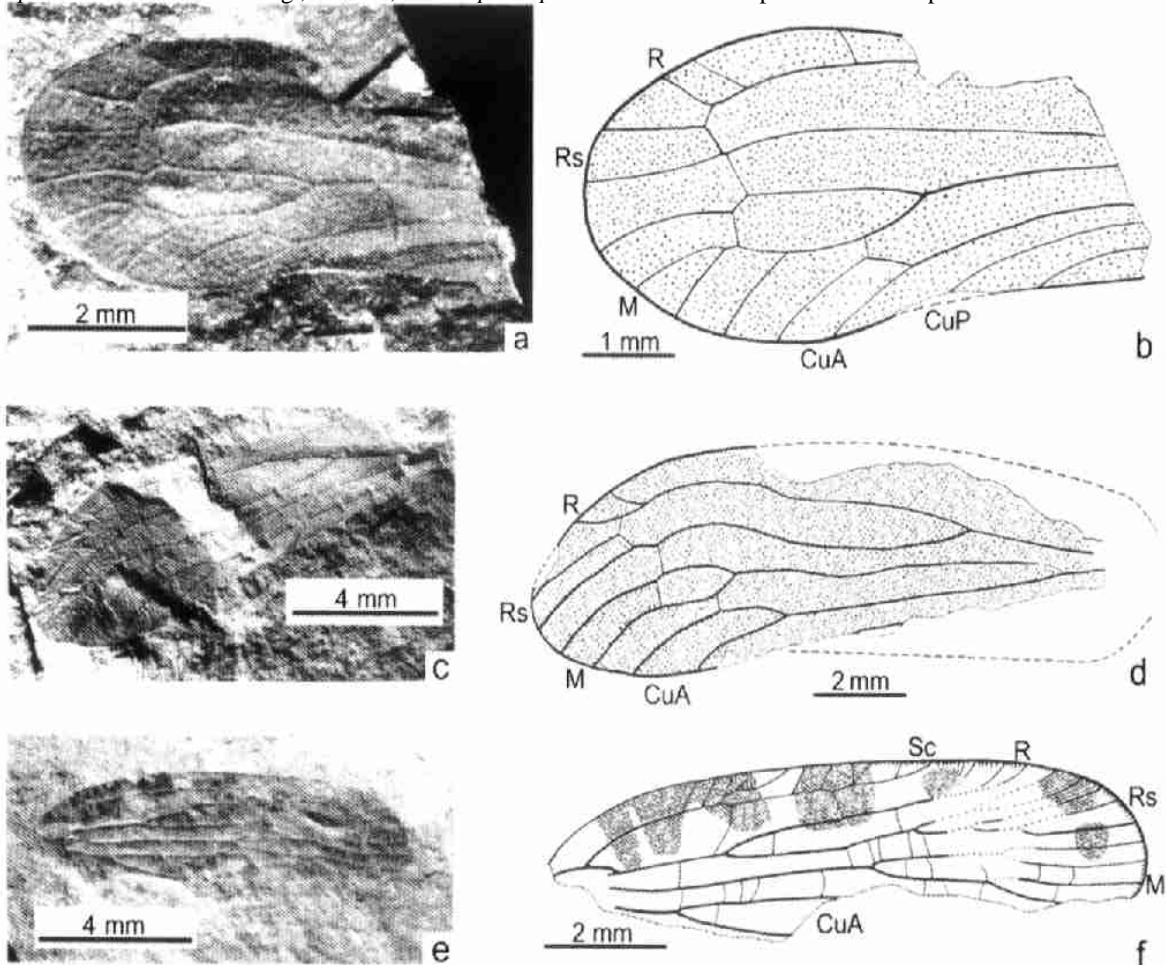
*The study was financially supported by the grant-in-aid for University and Society Collaboration (Grant NO. 1179102 for Matsukawa, 1999-2001), the Japanese Ministry of Education, Sports and Culture (Monbusho).

1 INTRODUCTION

Study of fossil insects from Xinjiang began in 1935 when Ping described 4 species from the Jurassic of Turpan (Ping, 1935). Since then, only several reports about fossil insects from this area have been published (Demoulin, 1954; Hong, 1983; Lin, 1992; Zhang, 1996a, b, 1997a, b). So far about 40 species of fossil insects have been described and almost half of them are from the Junggar Basin: *Protorthophlebia strigata* Zhang, 1996 and *Orthophlebiaexculpta* Zhang, 1996 from the Upper Triassic Xiaoquangou Group of Wusu, *Mesohagla xinjiangensis* Zhang, 1996, *Protorthophlebia latipennis* Tillyard, 1933, *Orthophlebia latebrosa* Sukatsheva, 1985, *Orthophlebia colorata* Zhang, 1996, *Mesopanorpa*

brodiei (Tillyard, 1933) Martynova, 1948, *Mesopanorpa kuliki* Martynova, 1948, *Mesopanorpa obscura* (Martynov, 1925) Martynov, 1927, *Mesopanorpa densa* Zhang, 1996, *Mesopanorpa monstrosa* Zhang, 1996, *Fletcheriana jurassica* Zhang, 1997, *Plachutella exculpta* Zhang, 1997 and *Pseudocossus strenus* Zhang, 1997 from the Lower Jurassic Badaowan Formation of Karamay, *Ovivagina longa* Zhang, 1997, *Ovivagina propinqua* Zhang, 1997 and *Ovivagina prolixa* Zhang, 1997 from the Lower Jurassic Badaowan Formation of Shawan, *Ovivagina insculpta* Zhang, 1997 from the Lower Jurassic Sangonghe Formation of Shawan, and *Ovivagina immediata* Zhang, 1997 from the Middle Jurassic Xishanyao Formation of Karamay (Zhang, 1996a, b, 1997a, b).

Three species of homopteran insects are described



Text-fig. 1 a, b. *Procercopsis shawanensis* sp. nov. NIGP 130409, holotype, a tegmen with basal half missing and costal area partly damaged; b. camera lucida drawing of NIGP 130409; c, d. *Procercopina delicata* sp. nov., NIGP 126537, holotype, a tegmen with base and anterior margin damaged and anal area missing; d. camera lucida drawing of NIGP 126537; e, f. *Eofulgoridium tenellum* sp. nov., NIGP 130410, holotype, a tegmen with base slightly damaged, anal area and posterior margin missing; f. camera lucida drawing of NIGP 130410.

herein based on 3 tegmina from the Lower Jurassic Badaowan Formation of Tuzigou in Karamay and Nan 'anjihai in Shawan, and the Lower Jurassic Sangonghe Formation of Xidagou in Jimsar, respectively. They are now deposited in the Nanjing Institute of Geology and Palaeontology, the Chinese Academy of Sciences.

2 SYSTEMATIC PALAEONTOLOGY

Order Homoptera Leach, 1815

Family Procercopidae Handlirsch, 1906

Genus Procercopsis Handlirsch, 1906

Procercopsis shawanensis sp. nov.

(Text-fig. 1 a, b)

Etymology Species epithet comes from the location yielding the type specimen.

Material Holotype NIGP 130409, a tegmen with basal half missing and costal area partly damaged.

Description R convex, terminating at anterior margin near tegminal apex with 2 short branches; 1st far from its end and 2nd a little basad of its termination. Rs convex almost as strongly as R, branching into 2 near its termination with anterior branch connected to R by short crossvein $r-rs$. M dividing basad of level of first branch of R with anterior branch simple and connected to Rs by short crossvein $r-m$ just basad of bifurcation of Rs, posterior branch 3-branched; a crossvein present between anterior and posterior branches of M slightly distad of $r-m$. CuA oblique, dividing into 2 branches slightly distad of level of first bifurcating of M and connected to posterior branch of M by a short crossvein. CuP running nearly parallel to CuA. A parallel to CuP. Tegminal surface finely tuberculated. Tegmen, as preserved, length 6.2 mm, width 3.1 mm.

Remarks and comparison *Procercopsis* Handlirsch is the type genus of the family Procercopidae containing several genera from the Mesozoic of Germany, Kirghiz and China (Handlirsch, 1906, 1939; Martynov, 1937; Evans, 1956; Becker-Migdisova, 1962; Hong, 1982, 1983; Carpenter, 1992; Ren *et al.*, 1995). It has been known that *Procercopsis* Handlirsch consists of 5 species: *P. alutacea* Handlirsch, *P. jurassica* (Geinitz, 1884) Handlirsch, *P. liasina* Handlirsch, *P. similis* Handlirsch and *P. longipennis* Becker-Migdisova (Handlirsch, 1906, 1939; Evans, 1956; Becker-Migdisova,

1962; Carpenter, 1992), of which *P. jurassica*, *P. liasina* and *P. similis* are respectively represented by a hindwing and they might belong to other groups of Mesozoic Homoptera. So this genus includes only 2 undoubted species, *P. alutacea* from the Lower Jurassic of Germany and *P. longipennis* from the Upper Triassic of Kirghiz.

Although based on an incomplete tegmen, the new species can be assigned to *Procercopsis* Handlirsch and is very similar to *P. longipennis* except for the following characteristics: R bearing a short branch near its end, Rs branching once, and only one crossvein present between Rs and M.

Locality and horizon Nan 'anjihai, Shawan County, Xinjiang; Lower Jurassic Badaowan Formation.

Genus Procercopina Martynov, 1937

Procercopina delicata sp. nov.

(Text-fig. 1 c, d)

Etymology Species epithet is Latin for delicate.

Material Holotype NIGP 126537, a tegmen with base and anterior margin damaged and anal area missing.

Description R convex with a short branch just before its termination. Rs convex almost as strongly as R, branching into 2 slightly beyond level of branching of R, with anterior branch connected to R by a short crossvein $r-rs$. M branching into 2 greatly distad of tegminal midlength with a crossvein present between anterior and posterior branches, and just distad of crossvein $r-m$ (between Rs and anterior branch of M). CuA oblique, branching into 2 distinctly basad of branching of M; CuP simple, inclined. Crossvein $m-cu$ (between posterior branch of M and anterior branch of CuA) slightly distad of branching of M. Tegminal surface finely tuberculated. Tegmen, as preserved, length 12 mm, width 4 mm.

Comparison Differs from *P. asiatica* Martynov in that crossveins $r-rs$ and $r-m$ are not arranged in a line, Rs branches into 2 and the posterior branch of M is simple.

Locality and horizon Tuzigou, Karamay City, Xinjiang; Lower Jurassic Badaowan Formation.

Family Lophopidae Stål, 1866

Genus Eofulgoridium Martynov, 1937

Eofulgoridium tenellum sp. nov.

(Text-fig. 1 e, f)

Etymology Species epithet is Latin for delicate.

Material Holotype NIGP 130410, a tegmen with base slightly damaged, anal area and posterior margin missing.

Description Sc subparallel to C, ending at basal three-fifths of tegminal length, distinctly closer to C between C and stem R and slightly between C and R, with 8 branches; 3rd branch subdividing into 3, others simple. R 4-branched distally. Rs dividing slightly basad of level of termination of Sc, 5-branched. M branching into 2 slightly beyond tegminal midlength, with anterior and posterior branches subdividing into 2. CuA dividing into 2 branches distinctly basad of bifurcation of stem R into R and Rs. Crossveins developed. Surface clothed with some dark-brown speckles near costal margin and apex. Tegmen, as preserved, length 10.2 mm, width 2.7 mm.

Comparison The genus *Eofulgoridium* Martynov, ever referred to Fulgoridae (Martynov, 1937; Hong, 1982) or Fulgoroidea (Evans, 1956), is considered to be a member of Lophopidae (Becker-Migdisova, 1962; Carpenter, 1992). This genus consists of 3 species, *E. kisyliense* Martynov based on a tegmen from the Lower Jurassic of Kirghiz, *E. proximum* Martynov based on a hind wing from the Lower Jurassic of Kirghiz, and *E. chanmaense* Hong based on a tegmen from the Lower Cretaceous of Gansu (Martynov, 1937; Hong, 1982).

The tegmen is incomplete with some characters unknown. However, the tegminal venation is in favour of assigning this species to *Eofulgoridium* Martynov. The new species is alike to *E. kisyliense* Martynov but differs in the latter having a tegmen with Sc just midway between C and R, M 3-branched, and CuA branching slightly basad of bifurcation of stem R into R and Rs.

Locality and horizon Xidagou, Jimsar County, Xinjiang; Lower Jurassic Sangonghe Formation.

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