

THE FIRST RECORD OF THE GENUS *BRACHYCERCUS* IN CHINA WITH DESCRIPTION OF A NEW SPECIES (EPHEMEROPTERA : CAENIDAE)

ZHOU Chang-fa^{*}, GUI Hong and SU Cui-rong

Department of Biology, Nanjing Normal University, Nanjing 210097, China

(Received Mar. 15, 1999; accepted Mar. 7, 2000)

Abstract A new record genus from China, *Brachycercus* Crutis (1834), is reported and the male adult of a new species *Brachycercus parviforcipis* sp. nov. is described in detail. The characters of this species distinguished from the other species in the same genus are discussed.

Key words new species, *Brachycercus parviforcipis*, Caenidae, Ephemeroptera

1 INTRODUCTION

There are 19 named species in genus *Brachycercus* Crutis (1834) of the world. Most of them distribute in North America and Europe (Needham *et al.* 1935; Edmunds *et al.* 1976; McCafferty 1997; Soldan 1986), 3 species in Russia (Tshernova *et al.* 1986) and 1 in Japan (Gose 1980). Bae *et al.* (1994) reported a species in Korea but did not name it. In June 1996, a new species was collected in Yunnan Province of China. It is the first record of the genus *Brachycercus* in China. The type specimens are deposited in the Department of Biology, Nanjing Normal University.

2 DESCRIPTION

Brachycercus parviforcipis sp. nov. (Figs. 1—3)

Male adult (in alc.): Length: body 7.0 mm, caudal filaments 14.0 mm, foreleg 2.5 mm, forewing 5.0 mm. Head pale to yellowish, compound eyes black, ocelli with conspicuous black basal ring. Antennae pale, scape and pedicel unicolorous, flagellum whitish; the pedicel 3.0 times longer than scape, the lateral margins of antenna pedicel convex (Fig. 1). Notum black brown. The base of fore femur black, the other parts of fore legs whitish yellow, ratio of femur tibia tarsus of fore leg = 0.8 1.0 0.8, the formula of fore tarsus: 2, 3 = 4, 5, 1, tarsus with two similar blunt claws; ratio of femur tibia tarsus of middle leg = 0.6 0.4 0.3, the formula of tarsus: 4, 3, 2, 1; ratio of femur tibia tarsus of hind leg = 0.8 1.0 0.8, tarsal joints in proportion rank 4, 3 = 2, 1. The middle and hind legs yellowish, unicolorous, with two different claws, one blunt, one sharp; wings whitish and hyaline (Fig. 2). Abdomen yellowish brown, the first two and the last two abdominal segments and posterior margin of each terga dark gray; forceps yellowish, shorter by 1/4 than the penis, penis fused on midline, unicolorous, the posterior surface flat, lateral margins concave (Fig. 3). Three caudal filaments whitish.

Female adult and nymph unknown.

Material: Holotype: 1 adult; paratypes: 3 adults, collected at Song-Hua-Ba

^{*} Present address: Department of Biology, Nankai University, Tianjin 300071, China.

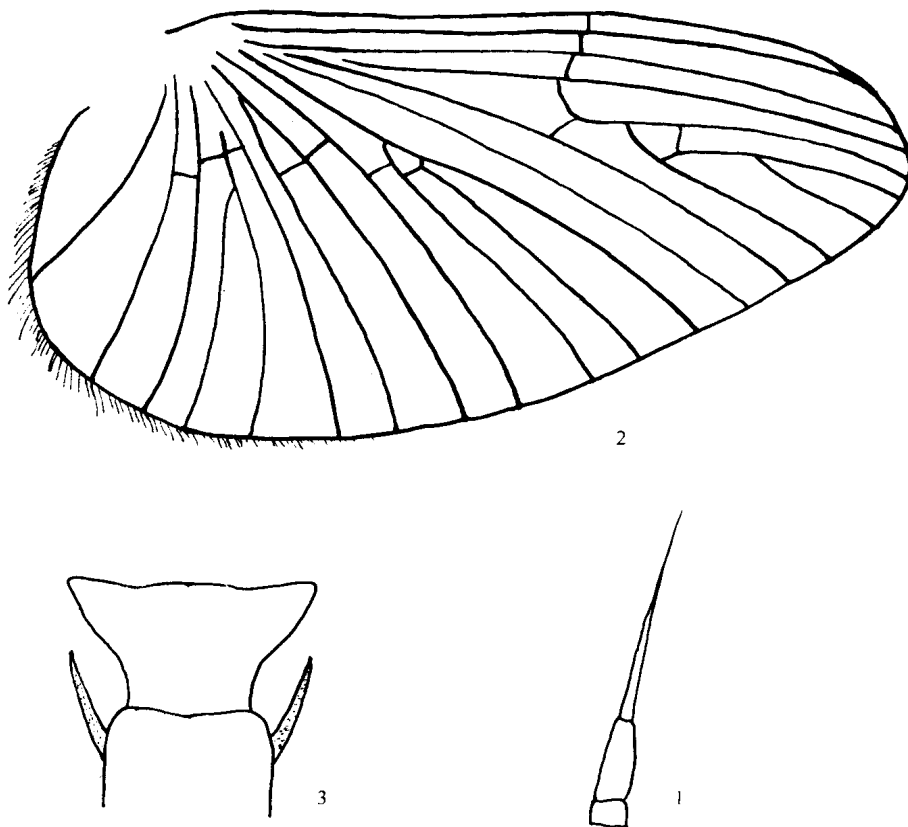
Reservoir, Kunming, Yunnan Province, China; VI-2-1996, by Zhou Chang-fa and Wang Beixing.

3 ETYMOLOGY

The term *parviforcipis* was composed by the Latin words *parvi-* (means small) and *forcipis* (means forceps). It refers to the small forceps of this species.

4 DIFFERENTIAL DIAGNOSIS AND DISCUSSION

Brachycercus parviforcipis sp. nov. can be distinguished from other species of the genus *Brachycercus* by the following combination of characters: (1) antennae unicolorous, pedicel three times longer than scape; (2) notum black brown, the base of fore femur black and abdomen yellowish brown, the first two and the last two abdominal segments and posterior margin of each terga dark gray; (3) the forceps of all known species in the genus *Brachycercus* are longer than the penis, but those of *B. parviforcipis* sp. nov. are shorter than its penis.



Figs. 1—3 : *Brachycercus parviforcipis* sp. nov. Male adult.

1. Antennae; 2. fore wing; 3. genitalia.

Acknowledgments We are very grateful to Dr. John C. Morse (Department of Entomology, Clemson University, South Carolina, USA) for partly funding us to collect this species. Thank Dr. Y. J. Bae (Department of Biology, Seoul Women's University,

Korea) for sending us the useful papers.

References

- Bae, Y. J., L. B. Yoon and D. J. Chun 1994 A catalogue of the Ephemeroptera of Korea. *Entomological research Bulletin* (KED). **20**: 31-50.
- Edmunds, G. E. Jr., S. L. Jensen and L. Berner 1976 The mayflies of North and Central America. St. Paul: University of Minnesota Press, 330pp.
- Gose, K. 1980 The Mayflies of Japan. *Aquabiology*. **2** (6): 454 (In Japanese).
- McCafferty, W. P. 1997 Ephemeroptera. In: R. W. Poole and P. Gentili (eds.). *Nomina Insecta Nearctica*, a checklist of the insects of North America. Volume 4: Non-holometabolous orders. Rockville, Maryland: Entomological Information Services. 89-117.
- Needham, J. G., J. R. Traver and Y. C. Hsu 1935 The biology of mayflies with a systematic account of North American species. Ithaca: Comstock Publ. Co., 758pp.
- Soldan, T. 1986 A revision of the Caenidae with ocellar tubercles in the nymphal stage (Ephemeroptera). *Acta Universitatis Carolinae* (Biologica **5-6**, 1982-1984): 289-362.
- Tshernova, O. A., N. Y. Kluge, N. K. Sinitshenkova and V. V. Belov 1986 Order Ephemeroptera. In P. A. Lera (ed.). *Identification of Insects of Far East USSR*. Leningrad: Leningrad Press, 1: 99-142. (in Russian).

短尾蜉属 (蜉蝣目: 细蜉科) 在中国的首次发现及一新种记述

周长发* 归 鸿 苏翠荣

南京师范大学生物系, 南京 210097

本文报道短尾蜉属 *Brachycercus* Crutis (1834) 在中国的首次发现, 并对该属一新种小钺短尾蜉 *Brachycercus parviforcipis* sp. nov. 的形态特征作了详细描述, 模式标本采自云南省昆明市松花坝水库。正模: 成虫, 副模: 3 成虫, 采集时间: VF2-1996, 采集人: 周长发和王备新, 保存在南京师范大学生物系。

综合利用小钺短尾蜉雄成虫的下列特征, 可将它与同属已知的 19 种区别开来: 1) 触角色浅单一, 梗节长度是柄节的三倍以上; 2) 胸部背板棕色, 前足腿节基部黑色, 第一、第二、第九、第十节的腹部背板全部及其它每节背板的后缘为棕黑色, 其他部分为淡黄色; 3) 与同属其它种相比, 小钺短尾蜉的尾钺短小, 不超过阳茎长度。

关键词 新种 小钺短尾蜉 细蜉科 蜉蝣目

* 现在地址: 南开大学生物系, 天津 300071