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# A new species of the genus *Ctenophora* Meigen (Diptera: Tipuloidea: Tipulidae) from China, with a key to the world species

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## Abstract

One new species of the genus *Ctenophora* Meigen, 1803, *C. fumosa* Men, **sp. nov.** (southern China: Anhui) is described and illustrated. A key to known species along with a checklist of known species of the genus *Ctenophora* are provided. The type specimens of the new species are deposited in the animal specimen room, School of Life Science, Anqing Normal University, Anqing, Anhui Province, China.

**Key words:** Nematocera, crane flies, taxonomy, checklist, China

## Introduction

The genus *Ctenophora* was originally erected by Meigen (1803); the type species of the genus, *Tipula pectinicornis* Linnaeus 1758, was designated by Westwood (1840). It is characterized by the following characters: sexual dimorphism in shape of antenna, male with antenna bipectinate, flagellomeres two to nine with two branches, the basal one distinctly longer than distal one, female antenna relatively less developed, with thirteen segments; thorax generally covered with microtrichia; wing generally without microtrichia, with single small dark spot at stigma or single large spot in apical part of wing, rarely with two spots; shape of male ninth sternite more or less complicated, female with ovipositor slightly bent upwards (Meigen, 1803; Savchenko, 1979; Oosterbroek *et al*., 2006). Three subgenera are recognized within the genus, *Cnemoncosis* Enderlein 1921, *Ctenophora* Meigen 1803 and *Xiphuromorpha* Savchenko 1973. The subgenus *Cnemoncosis* differs from both of *Ctenophora* and *Xiphuromorpha* by the presence of a large brown spot at the stigma, and *Xiphuromorpha* can be separated from *Ctenophora* by the hind tibia with a broad whitish belt near the apex and by the male hypopygium without a long appendage (Sudorenko, 1999).

Kertész (1902) listed 17 species in the genus *Ctenophora* in his world catalogue. Later, Matsumura (1906, 1916), Lundstrom (1908), Alexander (1919, 1921, 1936, 1938, 1940, 1953, 1955, 1965), Enderlein (1921), Pierre (1924), Becker & Schnabl (1926), Crampton *et al*. (1942), Takahashi (1960), Byers (1963), Savchenko (1973, 1979, 1983, 1989), Klopp-Albrecht (1974), Remm (1986), Clements & Alexander (1987), Sudorenko (1999), Oosterbroek *et al*. (2006), Yang (2009) successively dealt with taxonomic studies of the genus *Ctenophora*. Up to now, 23 species and one subspecies have been reported worldwide, including one widely distributed in both the Palaearctic and Oriental Regions, two from the Oriental Region, two from the Nearctic Region, and the rest from the Palaearctic Region.

The tipulid fauna of China remains inadequately studied and only four species within genus *Ctenophora* have been recorded (Loew 1869, 1871; Alexander 1938, 1940). During a study of specimens collected from Yaoluoping National Nature Reserve, Anhui Province, China, we found an unknown species of *Ctenophora* which is herein described. A key to known species of the genus is provided.

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trochanters long, the rest setae relatively short. Wings with a faint and light brown tinge, more yellow in cells C and Sc; stigma inconspicuous, light brown, the posterior border darker; the base of cells $R_5$, $M_1$, $M_2$ and $M_3$ tinged with a smokey mark, surrounding the distal margins of dm cell, the mark connecting with the stigma; Rs long, approximately 4.5 times as long as m-cu, m-cu curved at an obtuse angle, cell $M_1$ broadly sessile; veins dark brown (Figs 5, 6, 10). Halteres with stem yellow, knob weakly darkened (Fig. 4).

Abdomen. General color yellow (Figs 1, 2). First tergite narrowly ringed with dark brown, extending to sternite; second and third tergite also have a dark brown ring near the posterior margin and extending to the sternite, with a dark brown stripe at middle; tergite four with a dark brown stripe at anterior margin, median stripe distinct but not extending to posterior margin; tergite five to eight with a dark brown stripe at anterior margin, without a middle stripe (Figs 1, 2, 11).

Hypopygium. General color dark brown to black, deepened in coloration at the base in ventral view, densely covered with yellow or brown setae (Figs 7, 8, 12–14). The ninth tergite and ninth sternite fused forming an entire genital ring, with a pair of tergal lobes, black and strongly sclerotized, rounded apically and divided medially by a deep notch (Figs 12–14). Inner gonostylus black, very densely covered with black setae, terminating into a curved spine (Fig. 15). Outer gonostylus black, strongly sclerotized, broadened in middle and narrowed at both ends in dorsal view, fluted in ventral view, dorsally terminating into truncated end and jutting into the tergal lobes (Figs 12, 16, 17). A pair of yellowish-brown lobes arising from the apex of the basistylus, caudad directed, very densely covered with long and yellowish-brown setae; the lobes bilobed, the ventral one with a wisp of yellow hairs very long and pointed inward (Figs 12–14). Aedeagus and semen pump as shown in Figs 18, 19.

**Material examined. Holotype** male, **China:** Anhui Province, Yuexi County, Yaoluoping National Nature Reserve, 1000 m, 15 Aug. 2013, coll. Qiulei Men. **Paratype. China:** 1 male, Anhui Province, Yuexi County, Yaoluoping National Nature Reserve, 1000 m, 16 Aug. 2013, coll. Zhengkui Liu.

**Distribution.** China (Anhui).

**Remarks.** This new species is similar to another Chinese species *C. pselliophoroides* Alexander, 1938 in the colors of antenna and thorax, and in the shape of the flagellum segments and morphological structure of hypopygium. It can be easily distinguished from the latter by the first to eighth tergite narrowly ringed with dark brown, the second to fourth tergite also with median stripesas illustrated in Fig. 11 (only the first segment narrowly ringed with blackish in *C. pselliophoroides* as described by Alexander, 1938: 338), the hind femora tawny with light brown belt near apex, the hind tibiae tawny with a broad whitish band as shown in Fig. 1 (hind legs reddish-yellow without such patterns as described by Alexander, 1938: 338), the outer gonostylus dorsally terminating into truncated end as illustrated in Figs 12, 16, 17 (terminating into a curve spine as described by Alexander, 1938: 338).

**Etymology.** The specific epithet is a noun derived from the Latin '*fumos*' with the feminine termination '*-a*', referring to the presence of smoky mark on the wing.

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