

# ***Sympycnus* (Diptera: Dolichopodidae), newly recorded from Mainland China with descriptions of two new species**

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**Abstract:** *Sympycnus* Loew is newly recorded from Mainland China. Two new species, *Sympycnus flaviantenna* sp. nov. and *S. longipilosus* sp. nov., are described and illustrated. A key to the species of this genus from Mainland China is provided.

**Key words:** Empidoidea; Sympycninae; long-legged fly; taxonomy; key

中国大陆新纪录属合长足虻属及两新种记述（双翅目：长足虻科）

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**摘要：**首次报道中国大陆长足虻科新纪录属合长足虻属 *Sympycnus* Loew，描述了黄角合长足虻 *S. flaviantenna* sp. nov. 和长柔毛合长足虻 *S. longipilosus* sp. nov. 2 新种，并提供了特征图和中国大陆种类的检索表。

**关键词：**舞虻总科；合长足虻亚科；长足虻；分类；检索表

## **Introduction**

The genus *Sympycnus* Loew with 273 known species is distributed worldwide (Yang *et al.* 2006; Grichanov 2011). This genus may be distinguished from other Sympycninae by the following characters: body small to middle-sized; antennal scape bare, distal inner margin of pedicel straight, flagellomere 1 nearly triangular; mesonotum without black or brown lateral spot, metepimeron without hair; segments of fore tarsus usually simple or shortened, rarely ornamented with remarkable hairs; two basal segments of hind tarsus not shortened; male hind basitarsus rarely ornamented with remarkable bristles or hairs, 2nd segment of male hind tarsus never with worm-like process; male 3rd segment of the same tarsus shorter than 2nd, often bearing one or more modified bristles; 4th tarsomere usually longer and thinner than 3rd, often polished. Male surstylus usually projected, usually dorsal surstylus and ventral surstylus fused with each other, basally also fused with epandrium (Grichanov 2011; Yang *et al.* 2011).

Previously 13 species were known from China. All of those Chinese species occurred only in Taiwan, southeast of China (Yang *et al.* 2011). Here two species are added to the fauna

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of China. A key to the species of the genus from Mainland China is provided.

## Material and methods

The specimens on which this study is based were collected on 2013 by sweeping nets from Beijing, Shaanxi and Hebei of Palaearctic China. All specimens were deposited in the Entomological Museum of China Agricultural University (CAU), Beijing. Morphological terminology for adult structures mainly follows McAlpine (1981). Terms for the structures of the male genitalia follow Cumming and Wood (2009). The following abbreviations are used: acr — acrostichal bristle(s), ad — anterodorsal bristle(s), av — anteroventral bristle(s), d — dorsal bristle(s), dc — dorsocentral bristle(s), h — humerus bristle(s), npl — notopleural bristle(s), oc — ocellar bristle(s), pd — posterodorsal bristle(s), pv — poseteroventral bristle(s), psa — postalar bristle(s), v — ventral bristle(s), vt — vertical bristle(s), sa — supraalar bristle(s), sc — scutellar bristle(s), CuAx ratio — length of m-cu / length of distal portion of CuA, LI — fore leg, LII — mid leg, LIII — hind leg.

## Taxonomy

### Key to species (males) of *Sympycnus* from Mainland China

1. Antenna yellow except first flagellomere black dorsally, first flagellomere sharp apically (Fig. 7); crossvein m-cu normal (Fig. 5); hairs on tarsi not specialized; cercus narrow with a weak incision apically (Fig. 9).....  
.....*S. flaviantenna* sp. nov.
- . Antenna all black, first flagellomere blunt apically (Fig. 8); crossvein m-cu with brown border (Fig. 6); tarsi with long hairs, hairs on fore and mid tarsomere 5 nearly as long as fore tarsomere 3 (Fig. 11); cercus narrow apically, with several incisions on lateral margin (Fig. 10).....*S. longipilosus* sp. nov.

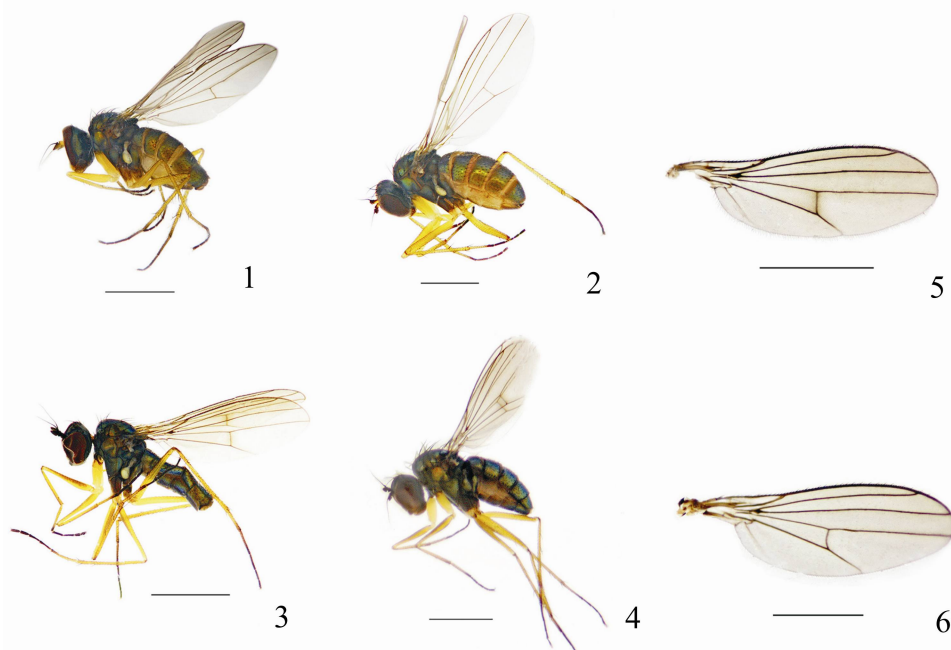
#### 1. *Sympycnus flaviantenna* sp. nov. (Figs. 1, 2, 5, 7, 9)

Male (Fig. 1). Body length 1.8–2.0 mm, wing length 2.2 mm.

Head metallic green with pale gray pollinosity; eyes close on face. Hairs and bristles on head black except middle and lower postocular bristles and posteroventral hairs pale. Ocellar tubercle with 2 long oc; 1 long vt nearly as long as oc. Antenna yellow except first flagellomere black dorsally; first flagellomere nearly triangular, sharp apically, 1.4 times as long as wide, long black pubescent; arista dorsal, shorter than width of head, black, short black pubescent, basal segment very short (Fig. 7). Proboscis brown with blackish hairs; palpus brown or dark brown with blackish hairs.

Thorax metallic green with pale grey pollinosity. Hairs and bristles on thorax black; 5 long strong dc (1st dc weak and short), 6–7 pairs of irregular, short hairlike acr; 1 long h, 2 npl (only anterior one long), 1 long sa and 1 long psa. Scutellum with 2 pairs of long sc and 6 short marginal hairs (of which 4 marginal hairs between 2 apical sc). Propleuron with several short pale hairs and 1 long black bristle at lower portion. Legs yellow except mid and hind coxae metallic green, trochanters somehow brownish; tarsi from tip of tarsomere 1 dark brown onward. Hairs and bristles on legs black except those on fore and mid coxae entirely pale; fore coxa with row of apico-lateral bristles, hind coxa with 1 black outer bristle. Hind trochanter with 1 short outer bristle. Hind femur with 1 strong ad, 1 weak av and 1 weak pv. Fore tibia

with 1 pd, 1 pv and 2 weak apical bristles. Mid tibia with 3 ad, 1 pd, 1 av and 3 apical bristles. Hind tibia with 3 ad, 3–4 pd, 2 av and 3 apical bristles. Relative length of tibia and 5 tarsomeres of legs LI : 3.3 : 2.3 : 1.0 : 0.7 : 0.5 : 0.6; LII : 5.5 : 2.0 : 1.2 : 1.0 : 0.6 : 0.6; LIII : 6.1 : 1.7 : 1.6 : 1.4 : 1.0 : 0.8. Wing nearly hyaline, indistinctly tinged brown; veins dark brown,  $R_{4+5}$  and  $M_{1+2}$  nearly parallel apically. Crossvein m-cu normal, CuAx ratio 0.5 (Fig. 5). Squama pale yellow with 7 black hairs. Halter pale yellow.



Figures 1–6. 1, 2, 5. *Sympycnus flaviantenna* sp. nov. 3, 4, 6. *Sympycnus longipilosus* sp. nov. 1, 3. Male adults; 2, 4. Female adults; 5, 6. Wings. Scale bars = 1.0 mm.

Abdomen metallic green with pale grey pollinosity. Hairs and bristles black except those on venter pale. Male genitalia. Epandrium longer than wide; surstylus somewhat narrowed with an incision apically, ventral process with 1 short bristle, dorsal process with 1 long and 1 short bristles. Cercus distinctly longer than wide, narrow with a weak incision apically, with black marginal hairs and long bristles (Fig. 9).

Female (Fig. 2). Body length 2.2–2.3 mm, wing length 2.2–2.3 mm. Similar to male, but first flagellomere shorter, as long as wide. Bristles on fore and mid coxae blackish or black.

**Holotype.** ♂, **China**, Beijing, Miyun County, Caojialu, 40°39'01.9"N, 117°25'36.5"E; elevation 561 m, collected from meadow, 23-V-2013, Jinying YANG. **Paratypes.** 3♂3♀, same data as holotype; 1♂1♀, Hebei, Xinglong County, Dagou, 40°23'50.0"N, 118°15'45.8"E; elevation 589 m, collected from meadow, 23-V-2013, Xuankun LI; 1♂1♀, Shaanxi, Zhouzhi County, Banfangzi, 33°48'60.0"N, 108°00'36.8"E; elevation 1317 m, collected from meadow, 23-VIII-2013, Xuankun LI.

**Remarks.** This species is somewhat similar to *Sympycnus simplicitarsis* Becker from Russia, but may be separated from the latter from the color of the hairs on squama and the relative length of hind tarsomeres. In *S. simplicitarsis*, the hairs on squama are pale and the

first segment of hind tarsus is significantly longer than the 2nd segment (Parent 1927; Becker 1918).

Etymology. The specific epithet refers to the color of the antenna.

## 2. *Sympycnus longipilosus* sp. nov. (Figs. 3, 4, 6, 8, 10, 11)

Male (Fig. 3). Body length 2.3–2.4 mm, wing length 2.7 mm.

Head metallic brown with pale gray pollinosity, eyes close on face. Hairs and bristles on head black except middle and lower postocular bristles and posteroventral hairs pale. Ocellar tubercle with 2 long oc; 1 long vt nearly as long as oc. Antenna black; first flagellomere nearly triangular, blunt apically, 1.7 times as long as wide, long black pubescent; arista dorsal, shorter than width of head, black, short black pubescent, basal segment very short (Fig. 8). Proboscis light brown with dark brown hairs; palpus black with pale hairs.

Thorax metallic green with pale grey pollinosity. Hairs and bristles on thorax black; 5 long strong dc (first dc short and weak), 7 pairs of regular, short hair-like acr; 1 long h, 2 npl (only anterior one long), 1 long sa and 1 long psa. Propleuron with several short pale hairs and 1 long pale bristle on lower portion. Scutellum with 2 pairs of long sc and 6 short marginal hairs between sc (of which 4 marginal hairs between 2 apical sc). Fore and mid femora somehow brownish dorsally and ventrally; tibiae brown or dark brown at extreme base; tarsi from tip of tarsomere 1 dark brown onward. Hairs and bristles on legs black except those on coxae entirely pale, but only 1 outer bristle on hind coxa black; fore coxa with row of apico-lateral bristles. Hind femur with 1 strong ad, 1 weak av and 1 weak pv. Fore tibia with 1 long pv at apical 1/4 and 2 weak apical bristles. Mid tibia with 3 ad, 1 pd, row of ventral hairs at apical 1/4 and 2 apical bristles. Hind tibia with 3 ad, 3 pd and 2–3 av. Tarsi all with long soft hairs, hairs on fore and mid tarsomere 5 nearly as long as tarsomere 3, mid tarsus 1 with row of regular dorsal long thin bristles (nearly as long as tarsomere 2) (Fig. 11). Relative length of tibia and 5 tarsomeres of legs LI : 4.1 : 2.6 : 1.2 : 1.0 : 0.6 : 0.5; LII : 6.5 : 2.7 : 1.2 : 1.3 : 0.9 : 0.9; LIII : 8.0 : 2.5 : 2.3 : 1.9 : 1.0 : 0.8. Wing nearly hyaline; indistinctly tinged brown, crossvein m–cu with brown border; veins dark brown, R<sub>4+5</sub> and M<sub>1+2</sub> nearly parallel apically. CuAx ratio 0.5 (Fig. 6). Squama pale yellow with 7 black hairs. Halter pale yellow.

Abdomen metallic green with pale pollinosity. Hairs and bristles black except those on venter pale. Male genitalia. Epandrium longer than wide; surstylus somewhat narrowed with an incision apically. Cercus distinctly longer than wide, narrow apically, with several incisions at lateral margin, with black marginal hairs and long bristles (Fig. 10).

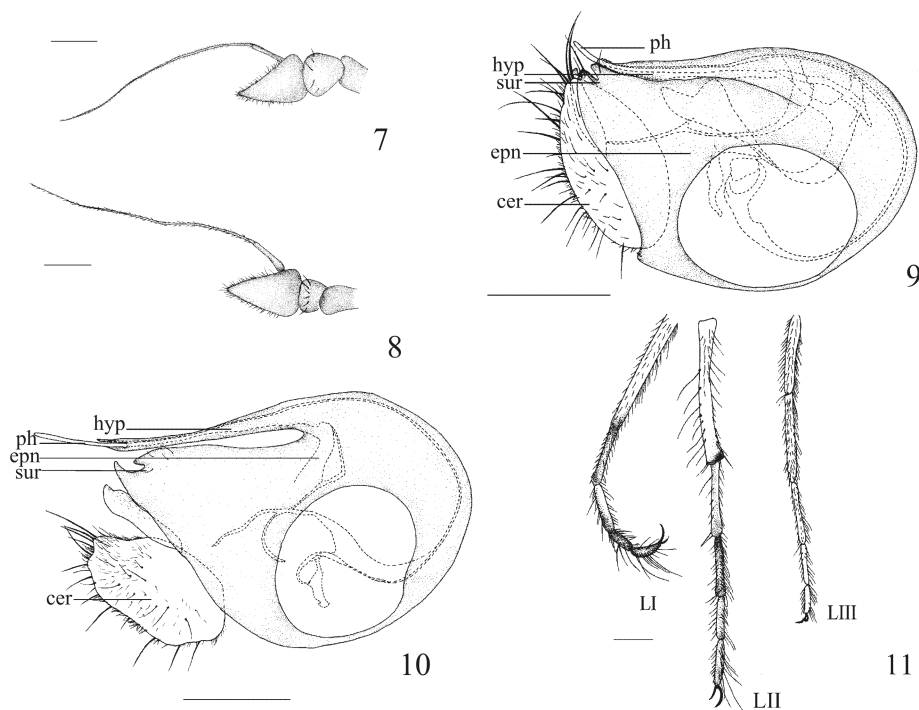
Female (Fig. 4). Body length 2.2–2.3 mm, wing length 2.2–2.3 mm. Similar to male, but first flagellomere shorter, as long as wide (Fig. 12); fore femur slightly brownish ventrally, mid femur yellow; tarsi without long thin bristle, hairs on tarsi normal in length. Mid tibia with 2 av, but without row of pv hairs at apical 1/4.

**Holotype.** ♂, **China**, Beijing, Miyun County, Caojialu, 40°39'01.9"N, 117°25'36.5"E; elevation 561 m, collected from meadow, 23-V-2013, Xuankun LI. **Paratypes.** 4♂4♀, same data as holotype; 1♂1♀, Hebei, Xinglong County, Dagou, 40°23'50.0"N, 118°15'45.8"E; elevation 316 m, collected from meadow, 23-V-2013, Xuankun LI.

Remarks. This new species is somewhat similar to *S. annulipes* Meigen from Germany, France, Spain and many other countries, but may be separated from the latter by the long soft hairs on 3rd and 5th segments of the fore and mid tarsi. In *S. annulipes*, there is no long soft

hair on fore or mid tarsi, hairs are only long, strong on the hind tarsus, but not soft (Becker 1918; Negrobov & Stakelberg 1988).

**Etymology.** The specific epithet refers to the long hairs on the 5th segments of fore and mid tarsi.



Figures 7–11. 7, 9. *Sympycnus flaviantenna* sp. nov.; 8, 10, 11. *Sympycnus longipilosus* sp. nov. 7, 8. Antennae. 9, 10. Genitalia, lateral views. 11. Tarsi, lateral view. Scale bars = 0.1 mm. Abbreviations: cer — cercus; epn — epandrium; hyp — hypandrium; ph — phallus; sur — surstylus.

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