A review of the species of *Hagenomyia* Banks from China (Neuroptera: Myrmeleontidae)

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Abstract. Eight species of the genus Hagenomyia Banks from China are reviewed. Two species are described as new to science: *H. angustala* n. sp., *H. guangxiensis* n. sp. A key to the known species of *Hagenomyia* from China and geographic distributions are given.


Keywords: China, key, distribution, Neuroptera, Myrmeleontidae.

The genus *Hagenomyia* Banks 1911 belongs to the tribe Myrmeleontini. It is distributed in the Oriental, tropical Africa, Australia and Japan, with about 20 known species. Most of them are from the Oriental. Up to now, the following 7 species have been known from the China: *H. coalitus* (Yang 1999) comb. nov.; *H. conjuncta* Yang 1999; *H. brunneipennis* Esben-Petersen 1913; *H. fuscithoraca* Yang 1999; *H. micans* (McLachlan 1875); *H. eurystictus* (Gerstaecker 1885); *H. sagax* (Walker 1853) (Navás1927, 1935; Krivokhatsky 1996; Yang 1999). *H. pterostigma* Yang 1999 is proposed as a new synonyms as *H. brunneipennis* Esben-Petersen 1913. It is reported that *H. sagax* occurs in China but we did not find it among available material. In this paper, the species of *Hagenomyia* from China are reviewed. Two species are described as new to science. A key to the eight known species of the genus *Hagenomyia* from China is presented.

Material and methods

The types of the new species are kept in the Insect collection of China Agricultural University (CAU).

Results

Genus *Hagenomyia* Banks

*Hagenomyia* Banks 1911: 8. Type species: *Myrmeleon tristis* Walker 1853.

*Nelees* Navás 1911: 244. Type species: *Nelees punctata* Navás 1911.

*Balaga* Navás 1912: 110. Type species: *Balaga obscura* Navás 1912.

*Balaga* Navás 1912: 111. Type species: *Balaga nitens* Navás 1912.

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Key to species of *Hagenomyia* from China

1. Vertex with extensive pale brown markings ............... ........................................... ...........................
2. Vertex all dark brown to dark or red brown ............... ...........................
3. Tibial spurs of fore leg extending to the middle of 3rd tarsi ........................................ ...........................
4. Tibial spurs of fore leg extending not more than the middle of 2nd tarsi ...........................
5. Male hindwing without pilula axillaries ................... ........................................... ...........................
6. Male hindwing with pilula axillaries ........................ ........................................... ...........................
7. Male hindwing with pilula axillaries ........................ ........................................... ...........................

1. Wing membrane brown ........................................... ...........................
2. Wing membrane hyaline or pale brown ...............
3. Forewing with single row of cells basal between CuA1 and posterior Banksian line ........... ...........................
4. Forewing with two or more rows of cells basal between CuA1 and posterior Banksian line .......... ...........................
5. Wing membrane pale brown, pterostigma indistinct .......... ...........................
6. Wing membrane pale brown, pterostigma distinct .......... ...........................
7. The anterior gonapophysis more than one-half as long as posterior gonapophysis .............. ...........................
8. The anterior gonapophysis less than one-half as long as posterior gonapophysis .............. ...........................

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* H. coalitus* (Yang) ...........................
* H. brunneipennis* Esben-Petersen ...........................
* H. micans* (McLachlan) ...........................

Distribution – Oriental, tropical Africa, Australia, Japan.

Diagnosis. Medium-sized to large. Vertex moderately raised. Antennae widely spaced. Wings elongate; forewing without anterior Bankian line; posterior Bankian line conspicuous in both wings; forewing Rs arising almost opposite cubital fork; forewing costal crossveins near base of pterostigma forked, so distal costal cells in two rows. Female: posterior gonapophyses long, anterior gonapophyses short; spermathecal duct long and coiled. Male: gonarcus usually long, meiduncus scarcely developed.
**Hagenomyia angustala** n. sp.  
(FIG. 1–3)

**Type material.** Holotype male. Guizhou: Xishui [28°24’N 106°15’E], 24.–30.IX.2000, Q.Zh.Song. Paratype, one female, same data as holotype.

**Diagnosis.** The wings are narrow. The width of costal area almost equal to the distance between R and Rs in fore wing. Male hindwing without pilula axillaries.

**Description.** Male. Length of body 33 mm, forewing 34 mm, hindwing 33 mm.

*Head* (fig. 2). Vertex inflated, frons, vertex dark. Clypeus pale yellow brown; maxillary palps yellow brown, terminal segment red brown; labial palps red brown, terminal segment long, spindle-shaped. Antennae short, less than one third the forewing length, slightly thickened apically, flagellum dark, yellow on base and inner surface of scape. The space between the antenna base longer than greatest diameter of scape.

*Thorax* (fig. 2) dark, pronotum slightly shorter than broad, with narrow pale brown anteriorly and laterally, setae on pronotum margin long, curved. Mesothorax: anteriorly with long black setae, pale posteriorly with long white setae. Metathorax: tergum with soft white setae.

*Legs* pale brown. Forelegs: tarsi dark, otherwise yellow brown, spurs and claws red brown; femora basal with a long sensory hair, the apex of spurs slightly bend, extending to the middle of 2nd tarsi; claw about 0.67 times as long as tibial spur. Middle legs and hind legs similar to forelegs, hindlegs without long sensory hairs.

*Wings* (fig. 1). Hyaline, veins mostly alternating pale and dark brown; membrane without marking, stigma white, longer than wider; the posterior Banksian line conspicuous in both wings; hindwing narrower than forewing, with 5 presectorial crossveins, without pilula axillaries.

*Abdomen* black with apices of tergites and sternites pale, shorter than fore wing, covered with short white setae; parameres and medieacus as in fig. 3.

*Female* is similar to male. Female genitalia: ectoprocts rounded with erect black setae, posterior gonapophyses digitiform, with setae, anterior gonapophyses rounded; lateral gonapophyses separated from each other by narrow membranous area, pregenital plate small. Spermatheca pigmented, curved.

**Distribution.** China (Guizhou).

**Etymology.** The specific name from the Latin *angusti*, narrow, and the Latin *ala*, wing, refers to the shape of the wing.

**Remarks.** The new species is similar to *Hagenomyia conjuncta* Yang, but may be easily separated from the latter by narrower wings and the male genitalia.

**Hagenomyia guangxiensis** n. sp.  
(FIG. 4–6)


**Diagnosis.** The wings are narrow, stigma indistinct. Hindwing with pilula axillaries.

**Description.** Male. Body length 26mm, forewing 30 mm, hindwing 29 mm.

*Head* (fig. 5). Vertex inflated, frons, vertex occiput dark shiny
brown, clypeus and labrum yellow. Maxillary palps pale yellow-brown to brown, labial palps pale yellowish, terminal segment long, spindle-shaped with acute apex. Antennae slightly thickened apically; flagellum about 36 segments, scape pale brown with dark spot on inner surface. Antenna short, less than one third the forewing length. The space between the base of antenna greater than greatest diameter of scape.

Thorax (fig. 5) brown. Pronotum with a yellowish triangle stripe anteriorly, slightly shorter than broad and with long curved setae. Mesothorax: tergum with long black setae, posteriorly with long white setae. Metathorax: tergum with fine white setae.

Legs pale brown. Forelegs: coxae yellow brown, trochanters, femora yellow, tibia brown on outer surfaces, otherwise yellow brown, tarsi brown. Femora with long white and short black setae, basal with a long sensory hair; basitarsus about one third length of distal tarsome; the apex of spurs slightly bent, extending to the middle of 3rd tarsi; claw about 0.67 times as long as tibial spur. Midlegs: coxae, trochanters, anterior femora yellow, otherwise brown. Femora basal with a long sensory hair, the spurs extending to the end of 2nd tarsi. Hindlegs brown, femora, tibiae with pale brown areas, the spurs extending to the end of 2nd tarsi.

Wings (fig. 4) hyaline, vein brown, membrane without marking, stigma white, the posterior Banksian line conspicuous in both wings; hindwing with 5 presectorial crossveins; pilula axillaris knob with golden long setae.

Abdomen brown with dark brown spots, shorter than forewing, and covered with short, pale brown setae; ectoproct with long setae; parameres and mediuncus as in fig. 6.

Female. Unknown.

Distribution. China (Guangxi).

Etymology. The specific name refers to the type locality Guangxi.

Remarks. The new species with the narrow wings long as tibial spur. Midlegs: coxae, trochanters, anterior femora yellow, otherwise brown. Femora basal with a long sensory hair, the spurs extending to the end of 2nd tarsi. Hindlegs brown, femora, tibiae with pale brown areas, the spurs extending to the end of 2nd tarsi.

Table 1. The distribution of the species of *Hagenomyia* in China.

<table>
<thead>
<tr>
<th>H. angustula</th>
<th>H. brunneipennis</th>
<th>H. coalitus</th>
<th>H. conjuncta</th>
<th>H. eurystictus</th>
<th>H. guangxiensis</th>
<th>H. micans</th>
<th>H. fuscithoraca</th>
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Figures 7–8

Distribution of the genus *Hagenomyia* in China.
is similar to *Hagenomyia angustala* n. sp. but can be easily separated from the latter by the absence of pilula axillaries. Banks (1911) mentioned that *Hagenomyia* has ‘much broader wings’ than *Myrmeleon*. But New (1985) recognized ‘this character is not valid for Australian species, as *Myrmeleon pictifrons* is very similar in wing shape and is in some ways annectent between the two genera’. *Hagenomyia guangxiensis* n. sp. and *H. angustala* n. sp. with narrow wing are similar to most species of *Myrmeleon*, but other wing features accord with the genus *Hagenomyia*. Perhaps these two new species are the transition from *Myrmeleon* to *Hagenomyia*.

**Discussion**

China belongs to the Palaearctic Realm and the Oriental Realm, consisting of the following 7 zoogeographical regions (Zhang 1998): North East China Region, North China Region, Neimeng-Xinjiang Region, Qinghai-Xizang Region, South West China Region, Central China Region and South China Region. The former 4 regions are in the Palaearctic Realm, while the latter 3 regions belong to the Oriental Realm. All the specimens examined of genus *Hagenomyia* are found in Oriental realms (fig. 7, 8). From the Table 1, we can see the *H. eurystictus* occurs widely in South West China Region, Central China Region and South China Region, including south of Henan, Fujian, Sichuan, Zhejiang. But *H. coalitus* and *H. fuscithoraca* only occurs in South China Region; *H. angustala* and *H. guangxiensis* only occurs in Central China Region; *H. brunneipennis* occurs in Central China Region and South China Region. It indicates that the genus *Hagenomyia* may prefer the subtropical or tropical climate. The more diverse environment in South China Region may lead to the higher species diversity of this genus. Among the specimen examined by us, *H. micans* only occurs in South China Region, but Kuwayama (1962) recorded it also from Japan and Korea. *H. micans* is the only species of *Hagenomyia* occurring in Palaearctic Realm.

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**References**


