A REVIEW OF THE GENERA *HYDROPHORIA* AND *ZAPHNE* FROM CHINA, WITH THE DESCRIPTIONS OF TWO NEW SPECIES (DIPTERA: ANTHOMYIIDAE)[1]

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ABSTRACT: Short diagnoses, original keys to the Chinese species of the genera *Hydrophoria* and *Zaphne*, and descriptions of the two new species, namely *Hydrophoria disticrassa* sp. nov. and *Zaphne laxibarbiventris* sp. nov. are given. Twelve species of *Hydrophoria* and sixteen species of *Zaphne* are known to China.

KEY WORDS: China, Diptera, Anthomyiidae, *Hydrophoria*, *Zaphne*, keys, new species

Most species of *Hydrophoria* and *Zaphne* are distributed in Holarctic region; some species are known for Oriental and Neotropical regions. According to previous published data (Huckett 1965a; Suwa 1974; Fan 1992; Dely-Draskovits 1993; Griffiths 1998; Xue and Chao 1998; Xue and Dong 2000), genus *Hydrophoria* includes 11 Chinese species, and *Zaphne,* 15 species. We give differences between *Hydrophoria* and *Zaphne* as follows: the majority of *Hydrophoria* species have as diagnostic features mid tibia without *av*, surstyli elongated, and setosed in basal half in posterior view, pregonite with scabrous tip; the diagnostic features for majority of *Zaphne* species are mid tibia with *av*, surstyli shortened, and bare on basal half in posterior view, pregonite without scabrous tip.

As a result of long-term original faunistic investigations of Anthomyiidae at Qinghai-Xizang plateau of China, the authors present an annotated list of species of both genera, including the descriptions of two new species, named *Hydrophoria disticrassa* sp. nov., and *Zaphne laxibarbiventris* sp. nov. The type specimens of the new species are deposited in the Institute of Entomology, Shenyang Normal University (IESNU) China.

METHODS

Absolute measurements are used for body length in millimeters (mm). Abbreviations used: *ori* = frontal seta, *ors* = orbital seta, *acr* = acrostichal seta, *dc* = dorsocentral seta, *ial* = intra-alar seta, *pra* = prealar seta, *npl* = notopleural seta, *av* = anteroventral seta, *ad* = anterodorsal seta, *pd* = posterodorsal seta, *pv* = posteroventral seta, C = costal vein, *m-m* = medial-cubital vein, r-m = radial-medial vein, Mt. = mountain.

[1] Received on April 19, 2008. Accepted on May 15, 2008.

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Mailed on May 13, 2010

REVIEW OF SPECIES

Hydrophoria Robineau-Desvoidy

Robineau-Desvoidy, 1830: 503.

Type Species: *Musca lancifer* Harris (1780: 100-138, pls. 31-40) by designation of International Commission on Zoological Nomenclature (1996, Opinion 1827).

Chloë Robineau-Desvoidy (1830: 560). Type Species: *Chloë silvicola* Robineau-Desvoidy (1830: 551) by monotypy. Preoccupied by Berthold (1827). New synonymy consequent upon Barták, Michelsen, and Pozkošný's (1990: 443) inclusion of the type species in *Hydrophoria*.

Diagnosis of the Genus: Antennae plumose, prementum shining, without dusting; basal part of prosternum bare, lower calypter greater than upper one; abdomen without spots, mid tibia without *av*; surstyli very long and with several basal setae in posterior view, pregonite with scabrous tip.

Distribution: Holarctic, Oriental, and Neotropical biogeographic regions.

Key to the males of the Chinese species of *Hydrophoria* Robineau-Desvoidy

1. Anepimeron haired; body length 6.5 mm….*H. megaloba* Li and Deng, 1981
- Anepimeron bare 2

2. Katepimeron haired; body length 7.0 mm..... .....*H. longissima* Fan and Zhong, 1984
- Katepimeron bare 3

3. Basicosta black to brown.....4
- Basicosta yellow to brownish-yellow.....7

4. Hind tibia with 2 *pv*; body length 3.5-4.5 mm..... .....*H. crassiforceps* Qian and Fan, 1981
- Hind tibia without *pv*.....5

5. Frons about 1.5-2.0 times as wide as anterior ocellus, frontal vitta distinct..6
- Frons only about half of the width of anterior ocellus, frontal vitta linear in its narrowest part; body length 7.5 mm.....*H. montana* Suwa, 1970

6. Short and fine interfrontal setae present, frons about 1.5 times as wide as anterior ocellus, both calypters white; body length 6.5 mm..... .....*H. silvicola* (Robineau-Desvoidy, 1830)
- Interfrontal seta absent, frons about 2.0 times as wide as anterior ocellus, both calypters brown; body length 6.5-7.5 mm ....*H. disticrassa* Xue and Bai, sp. nov.

7. Hind tibia with *pv* 8
- Hind tibia without *pv* 9

8. Hind tibia with 1 *pv*, parafacial slightly wider than the width of 1st flagellomere; body length 5.0-5.5 mm ..... *H. albiceps* (Meigen, 1826)
- Hind tibia with 3-6 *pv*, sometimes shortened, if with 1 *pv* only, parafacial about 2/3 width of 1st flagellomere; body length 5.0-6.5 mm .... *H. ruralis* (Meigen, 1826)

9. Parafacial about 2.0 times as wide as 1st flagellomere; body length 6.5 mm. ..... *H. cinerascens* Stein, 1907
- Parafacial as wide as 1st flagellomere 10

10. 4 *ori*; abdominal tergite 6 with dorsal hairs; body length 6.0 mm .... *H. pronata* Fan and Qian, 1984
- 6-8 *ori*; dorsal surface of abdominal tergite 6 bare 11

11. Frontal vitta as wide or slightly wider as fronto-orbital plate; wing membrane brownish, yellow at base; prementum about 2.0 times as long as broad; body length 7.0 mm ..... *H. lancifer* (Harris, 1780)
- Frontal vitta linear in its narrowest point; wing membrane light gray and hyaline, light brownish-yellow at base; prementum about 3.0 times as long as broad; body length 6.0 mm ..... *H. rufitibia* Stein, 1907

Hydrophoria albiceps (Meigen, 1826)

Meigen, 1826: 95 (*Anthomyia*).

Type Locality: Not given (probably Germany: "Von Hrn. v. Winthem").

Distribution: China: Heilongjiang Province, Neimenggu Autonomous Region, Qinghai Province, Shanxi Province, Sichuan Province, Xinjiang Autonomous Region; Austria; Czech Republic; Germany; France; Hungary; Italy; Slovakia; former Yugoslavia. (Meigen, 1826; Xue, 1998; Hennig, 1969; Dely-Draskovits, 1993; Fan, 1992)

Hydrophoria cinerascens Stein, 1907

Stein, 1907: 350 (*Hydrophoria*).

Type Locality: China: "Bomyn (Itschegyn), sw. Zaidam Gobi," Qinghai Province.

Distribution: China: Qinghai Province. America; Canada; Great Britain. (Stein, 1907; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Hydrophoria crassiforceps Qian and Fan, 1981

Qian and Fan, 1981: 440-441 (*Hydrophoria*).

Type Locality: China: Tashikuergan, Xinjiang Autonomous Region.

Distribution: China: Qinghai Province, Xinjiang Autonomous Region. (Qian and Fan, 1981; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Hydrophoria disticrassa* Xue and Bai, sp. nov.**
(Figs. 1-5)

Male: Body length 6.5-7.5 mm. Head. Eye bare; frons about 2.0 times as wide as anterior ocellus; frontal vitta black, in its narrowest part about 1/3-1/2 width of fronto-orbital plate; without interfrontal seta, 9-10 *ori*, extending to each side of anterior ocellus; *ors* absent; ocellar setae, inner and outer vertical setae short; fronto-orbital plate and parafacials covered with weak brownish-gray pruinosity, parafacial about 1.2-1.4 times as wide as 1st flagellomere; antennae black, 1st flagellomere about 1.6-1.8 times as long as broad, basal 1/2-3/5 of arista plumose, lower facial margin not protruding in profile, vibrissal angle placed behind frontal angle in lateral view; anterior margin of gena with 3 rows of upcurved setae; genal hairs black; gena 0.2 times as high as eye; postocular setae extending to ventral surface; postgena with black hairs; proboscis short; prementum shining, about 2.5 times as long as broad; palpus black, slightly longer than prementum.

Thorax. Ground color metallic black, with weak brownish-gray pruinosity; scutum with 3 black longitudinal vittae, the inside one reaching scutoscutellar suture; 4 rows of short presutural *acr*, and only a pair of posterior prescutellar *acr*; *dc* 2+3; *ial* 0+2; one posthumeral seta; *pra* short, about 1/2 length of posterior *npl*; ventral margins of scutellum with some fine hairs apically, notopleuron, basal part of prosternum, anepimeron, meron and katepimeron bare; spiracles small and fuscous, katepisternal setae 1+2.

Wing. Membrane light brown, brown at base, basicosta black, ventral surface of C with hairs, crossvein *m-m* S-shaped, both calypters brown, lower calypter tongue-shaped projected; halter light brown, brown at base.

Legs. Entirely black; fore tibia with 1 *ad*, 1 *pd*, 1 median *p*; mid femur with row of hairlike *av*, in basal half with several hairlike *pv*, and with 1 apical *pv*; mid tibia without *av*, with 1 *ad*, 1 *pd* and 1 *pv*; hind femur with a complete row of *pv*, in basal half with *pv*; hind tibia with 2 *av*, 2 *ad* and 2 *pd*, without *pv*; fore tarsi longer than tibia, all claws and pulvilli elongated, pulvilli equal to 5th tarsomere in length.

Abdomen. Black, elongate-conic; each of tergites with fuscous median longitudinal vitta, densely black dusted; marginal setae of all tergites strong, tergite 6 bare, sternite 1 with hairs, lateral lobes of sternite 5 with dense setae on the inner margins, surstyli and distal part of cerci curved, distal half of cerci distinctly narrowed in posterior view, distal half of surstyli widened, and their anterior margin not smooth, with setiferous process and long basal setae; postgonite enlarged apically.

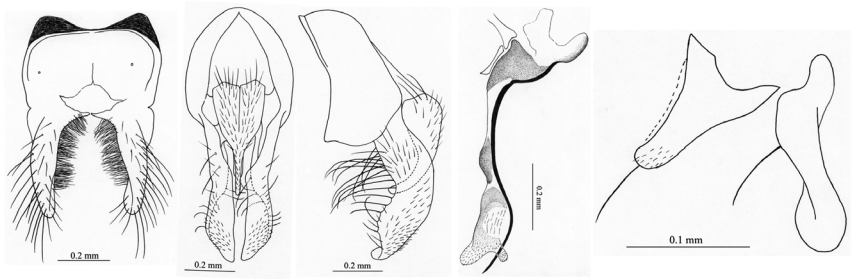
Female: Unknown.

Material Examined: *Holotype*: Male, China: Maoniuping, 3600 m, Yulong Snowberg, Yunnan Province, 100° 43'-100° 54' E, 27° 36'-27° 47' N, 28. June. 2006 (Ming-fu Wang) (IESNU). *Paratype*: 7 Males, China: same data as holotype.

Remarks: This new species resembles *Hydrophoria annulata* (Pandellé, 1899), but it differs from the latter by absence of *ors*, 9-10 *ori*, 4 rows of short presutural *acr*, brown membrane near wing base, black basicosta, brown calypters, mid tibia with 1 *pv*, hind tibia with 2 *ad* and 2 *pd*.

Etymology: The species name is from the Latin words *dist* = distal and *crass* = obesity, referring to distal half of surstyli becoming wide.

Figs. 1-5



Figs. 1-5. *Hydrophoria disticrassa* Xue and Bai, sp. nov. (male). 1. Sternite 5 in ventral view, scale bar = 0.2 mm; 2. Epandrium, cerci and surstyli in posterior view, scale bar = 0.2 mm; 3. Epandrium, cercus and surstylus in profile, scale bar = 0.2 mm; 4. Aedeagus in profile, scale bar = 0.2 mm; 5. Gonites in posterior view, scale bar = 0.1 mm.

Hydrophoria lancifer (Harris, 1780)

Harris, 1780: 126 (*Musca*).

Type Locality: Great Britain: Lancifer.

Distribution: China: Heilongjiang Province, Jilin Province, Shanxi Province; America; Austria; Canada; Czechoslovakia; Denmark; Estonia; Finland; France; Germany; Great Britain; Hungary; Italy; Latvia; Lithuania; Moldavia; Norway; Rumania; Russia: Central European territory, Far East, North European territory; Sweden; Switzerland; The Republic of Belarus; Ukraine; former Yugoslavia. (Harris, 1780; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

***Hydrophoria longissima* Fan and Zhong, 1984**

Fan and Zhong, 1984: 255-260.

Type Locality: China: Anduo, Xizang Autonomous Region.

Distribution: China: Xizang Autonomous Region. (Fan and Zhong, 1984; Fan, 1992; Xue, 1998)

***Hydrophoria megaloba* Li and Deng, 1981**

Li and Deng, 1981: 125 (*Hydrophoria*).

Type Locality: China: Mt. E'mei, Sichuan Province.

Distribution: China: Sichuan Province. (Li and Deng, 1981; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Hydrophoria montana* Suwa, 1970**

Suwa, 1970: 248 (*Hydrophoria*).

Type Locality: Japan: Honshû: Mt. Mitake.

Distribution: China: Heilongjiang Province, Liaoning Province, Neimenggu Autonomous Region, Sichuan Province, Shanxi Province, Xinjiang Autonomous Region; Japan; Korea. (Suwa, 1970, 1974; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Hydrophoria pronata* Fan and Qian, 1984**

Fan and Qian, 1984: 239-253.

Type Locality: China: Nuomuhong, Qinghai Province.

Distribution: China: Shanxi Province, Qinghai Province, Xinjiang Autonomous Region. (Fan and Qian, 1984; Fan, 1992; Xue, 1998)

***Hydrophoria rufitibia* Stein, 1907**

Stein, 1907: 350 (*Hydrophoria*).

Type Locality: China: "Bomyn-Itschegyn-Fluss" and "Kurlyk am Fl. Baingol, Ost- Zaidam," Qinghai Province.

Distribution: China: Shanxi Province, Qinghai Province, Liaoning Province, Gansu Province. (Stein, 1907; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Hydrophoria ruralis* (Meigen, 1826)**

Meigen, 1826: 101 (*Anthomyia*).

Type Locality: Not given (probably Germany: "Von Hrn. v. Winthem").

Distribution: China: Anhui Province, Fujian Province, Guizhou Province, Heilongjiang Province, Jiangsu Province, Jinli Province, Liaoning Province,

Neimenggu Autonomous Region, Shanxi Province, Shanghai Province, Sichuan Province, Yunnan Province, Zhejiang Province; Austria; Czech Republic; France; Germany; Great Britain; Italy; Japan; Korea; Rumania; Russia: Far East; Slovakia. (Meigen, 1826; Hennig, 1969; Suwa, 1974; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Hydrophoria silvicola* (Robineau-Desvoidy, 1830)**

Robineau-Desvoidy, 1830: 551 (*Hylemya*).

Type Locality: France: Saint-Sauveur.

Distribution: China: Xinjiang Autonomous Region, Liaoning Province, Jilin Province, Heilongjiang Province; Austria; Estonia; Finland; France; Germany; Great Britain; Hungary; Italy; Latvia; Lithuania; Norway; Poland; Sweden; Russia: Central European territory; Switzerland; The Republic of Belarus; Ukraine; former Yugoslavia. (Robineau-Desvoidy, 1830; Dely-Draskovits, 1993)

***Zaphne* Robineau-Desvoidy**

Robineau-Desvoidy, 1830: 527.

Type Species: *Zaphne hylemyoidea* Robineau-Desvoidy, 1830: 527 (=*Anthomyia divisa* Meigen, 1826: xii+1-412) by designation of Hennig (1969a: 251).

Acroptena Pokorny (1893: 60). Type Species: *Acroptena simonyi* Pokorny (1893: 61) (= *Anthomyza frontata* Zetterstedt 1838) by monotypy. Synonymy after Micheslen (1985: 40).

Diagnosis of the Genus: Antennae plumose, prementum shining, basisternum of prosternum bare, lower calypter stronger than upper one; abdomen without spots, mid tibia with *av*; surstyli shortened and bare in basal half in posterior view, pregonite without scabrous tip.

Distribution: Holarctic, Oriental, and Neotropical biogeographic regions.

Key to the males of the Chinese species of *Zaphne* Robineau-Desvoidy

1. Mid tibia without *av* 2
- Mid tibia with *av* 4

2. Wing with spots; body length 5.5 mm .....*Z. maculipennis* (Stein, 1907)
- Wing without spots.....3

3. Notopleuron haired; body length 7.0 mm .....*Z. divisa* (Meigen, 1826)
- Notopleuron bare; body length 6.5-7.0 mm.....
.....*Z. pullata* (Wu, Liu and Wei, 1995)

4. Hind tibia with *pv*.....5
- Hind tibia without *pv*.....6

5. Hind tibia with 8 *pv*, posthumeral seta 1+0, mid tibia with 3-4 *av*; body length 7.0 mm .....*Z. verticina* (Zetterstedt, 1838)
- Hind tibia with 1 *pv*, posthumeral setae 2+1, mid tibia with 1 *av*; body length 7.0 mm.....*Z. inuncta* (Zetterstedt, 1838)

6. 1st-4th fore tarsomeres flat, 4th tarsomere longer than 3rd, 5th tarsomere with a strong seta; body length 6.0-6.5 mm.....*Z. wierzejskii* (Mik, 1867)
- 1st-4th fore tarsomere not flat, 4th tarsomere equal to or less than 3rd arsomere, 5th tarsomere without strong seta 7

7. Notopleuron bare.....8
- Notopleuron haired 14

8. Hind femur without *v* or with a single basal short *v*.....9
- Hind femur with one or more medial *v*.....10

9. Parafacial about 1.5 times as wide as 1st flagellomere, frons very narrow less than half the width of anterior ocellus, frontal vitta obliterated in its narrowest part; body length 6.5-7.5 mm .....*Z. melaena* (Stein, 1907)
- Parafacial less than the width of 1st flagellomere, the width of frons about 1.5 times as wide as anterior ocellus, frontal vitta 4.0 times as wide as fronto-orbital plate; body length 6.5 mm .....*Z. fasciculate* (Schnabl, 1915)

10. Fore tibia with 2 *ad*; body length 7.0 mm....*Z. zetterstedti* (Ringdahl, 1918)
- Fore tibia with 1 *ad*…….……11

11. *ori* 7 or more, reaching upper half of frons 12
- *ori* 4-5, reaching lower half of frons.....13

12. *ori* 7, reaching lower 3/5 of frons; kapepimeron sometimes haired; postgonite thin, surstyli not fork-shaped; body length 6.0 mm.....
.....*Z. ventribarbata* (Hsue, 1981)
- *ori* 10-12, reaching upper of frons; kapepimeron bare; postgonite wide, surstyli fork-shaped; body length 6.0-6.5mm .....
.....*Z. laxibarbiventris* Xue and Dong sp. nov.

13. Frontal vitta equal to fronto-orbital plate in width; calypters white; mid tibia with 1 *ad*; body length 4.0-5.5 mm.....*Z. nuda* (Schnabl, 1911)
- Frontal vitta about 2.0 times as wide as fronto-orbital plate; calypters yellow; mid tibia with 3 *ad*; body length 4.0 mm.....
.....*Z. venatifurca* (Zhong, 1985)

14. One row of small hairs present inside of *acr*, pregonite with a small cut; body length 5.0-5.5 mm .....*Z. ignobilis* (Zetterstedt, 1845)
- 2-3 rows of small hairs present inside of *acr* rows, abdomen with black vittae, pregonite without small cut 15

15. Frons equal in width to anterior ocellus, arista almost bare, covered with small hairs shorter than aristal basal diameter, prementum about 4.0 times as long as broad; body length 6.0 mm.....*Z. lineatocollis* (Zetterstedt, 1838)
- Frons about 2.0 times as wide as anterior ocellus, arista short plumose, the length of its hairs 2.0 times longer than aristal basal diameter, prementum about 2.5 times as long as broad; body length 6.5 mm ....*Z. ambigua* (Fallén, 1823)

Zaphne ambigua (Fallén, 1823)

Fallén, 1823: 56 (*Musca*).

Type Locality: Sweden: Scannia.

Distribution: China: Heilongjiang Province; America; Austria; Canada; Czech Republic; Estonia; Finland; Germany; Great Britain; Iceland; Japan; Latvia; Lithuania; Norway; Poland; Russia: Central European territory, Far East, North European territory; Slovakia; Sweden; The Republic of Belarus; Ukraine. (Fallén, 1823; Hennig, 1969; Suwa, 1974; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Zaphne divisa (Meigen, 1826)

Meigen, 1826: 99 (*Anthomyia*).

Type Locality: Not given (probably, Germany: "Von Hrn. v. Winthem").

Distribution: China: Heilongjiang Province, Neimenggu Autonomous Region, Tianjin City; America; Austria; Canada; Czech Republic; Denmark; Estonia; Finland; France; Germany; Great Britain; Latvia; Lithuania; Norway; Poland; Russia: Central European territory; Slovakia; Sweden; The Republic of Belarus; Ukraine. (Meigen, 1826; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Zaphne fasciculata (Schnabl, 1915)

Schnabl, 1915: 15 (*Acroptena*).

Type Locality: Russia: Karskaja Tundra (West Siberia).

Distribution: China: Heilongjiang Province; Finland; Norway; Russia: European territory, West Siberia, Far East; Sweden. (Schnabl, 1915; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Zaphne ignobilis (Zetterstedt, 1845)

Zetterstedt, 1845: 1448 (*Aricia*).

Type Locality: Sweden: Råbäcken, Överluleå, Norrbotten.

Distribution: China: Heilongjiang Province, Jinlin Province, Yunnan Province; America; Canada; Estonia; Finland; Latvia; Lithuania; Norway; Russia: Central European territory, Far East, North European territory; Sweden; The Republic of Belarus; Ukraine. (Zetterstedt, 1845; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Zaphne inuncta (Zetterstedt, 1838)

Zetterstedt, 1838: 672 (*Anthomyza*).

Type Locality: Sweden: Lycksele, Lycksele Lappmark.

Distribution: China: Heilongjiang Province, Jilin Province; Estonia; Finland; France; Germany; Great Britain; Japan; Latvia; Lithuania; Norway; Poland; Russia: Central European territory; Spain; Sweden; The Republic of Belarus; Ukraine. (Zetterstedt, 1838; Dely-Draskovits, 1993)

Zaphne laxibarbiventris Xue and Dong, sp. nov.
Figs. 6-13

Male: Body length 6.0-6.5 mm. Head. Eye bare; frons about 0.22 times as wide as width of head, about 2.5 times as wide as 1st flagellomere, about 2.3 times as wide as the distance between the outer margins of posterior ocellus; frontal vitta black, about 2.0 times as wide as fronto-orbital plate, with 1 pair interfrontal setae; frontal triangle reaching to upper 1/3 of frons; *ori* 5-6, reaching to lower 3/5 of frons, *ors* absent; strong ocellar setae longer than arista, fronto-orbital plate and parafacial covered with brownish-gray to gray pruinosity, parafacial about 1.6 times as wide as 1st flagellomere; antennae black, 1st flagellomere about 2.5 times as long as broad, arista widened in its basal 1/6, plumose, the longest aristal hairs about 1/3 width of 1st flagellomere; vibrissal angle situated behind frontal angle or on its level in profile; only one pair of peristomal setae present; genal height about 2/9 of eye height; postocular setae extending to ventral surface; epicephalon haired, genal hairs black, proboscis thin and long, prementum shining, about 4.5 times as long as broad; palpus black, longer than prementum.

Thorax. Ground color metallic black, with grey pruinosity, scutum with 3 distinct longitudinal vittae, the inside one reaching scutoscutellar suture; 2 rows of presutural *acr*, and only a pair of posterior prescutellar long and strong *acr*; *dc* 2+3, *ial* 0+2, posthumeral seta 1+0, *pra* longer than posterior *npl*; ventral margins of scutellum with some fine hairs apically; notopleuron, basisternum of prosternum, proepisternum hollow in centre, anepimeron, meron and katepimeron all bare; 1 upper anterior anepisternal seta, katepisternal setae 2+2.

Wing. Membrane light brown, veins brown, basicosta black, costal spine strong, longer than r-m crossvein, veins bare except haired C; calypters brownish-yellow, lower calypter projecting over upper one.

Legs. Entirely black; fore tibia with 1 submedial *ad*, 1 median *pv*; mid femur with a setulae-like *av* rows, *pv* rows complete and strong; mid tibia with 1 submedial *av*, 1 medial *ad*, 2-3 *pd* and 2 *pv*; hind femur with a complete row of hair-liked *av*, with 3-4 *pv* in half of basal part, hind tibia with 3 *av*, with a row of uneven *ad*, strong and long 2-3, 3 *pd*, without *pv*; all tarsi longer than the length of tibiae, with elongated claws and pulvilli, pulvilli equal to 5th tarsomere in length.

Abdomen. Black, elongate-oval, not flat, densely covered with dark-gray pruinosity, without versicolor spots; each of tergites with median longitudinal light shining vitta; the posterior ventral margin of tergite 4 with dense fan-shaped cluster setae, sternite 1 haired, setae on lateral lobes of sternite 5 long and thin, distal part of cerci bent forward, lateral margin of cerci and basal parts of surstyli membranous, surstyli fork-shaped, postgonite wide.

Female: Unknown.

Material Examined: *Holotype*: Male, China: Bitahai, 3700 m, Shangri-La, Yunnan Province, 99° 54'-100° 59' E, 27° 46'-27° 57' N, 26. May 2007 (Shu-chong Bai) (IESNU). *Paratype*: Male, China: the same data as holotype.

Remarks: This new species resembles *Zaphne barbiventris* (Zetterstedt, 1845), but it differs from the latter by the width of vertex about 0.22 times of the width of head, and 2.5 times as wide as 1st flagellomere, parafacial about 1.6 times as wide as 1st flagellomere, 1 peristomal seta, apical part of scutellum with light cilia in ventral view, calypters brownish-yellow, mid tibia with 2 *pv*, hind tibia with 3 *av*, without *pv*, abdomen long ovate-shaped, surstyli fork-shaped, postgonite wider than latter one and so on.

Etymology: The frons, abdomen and postgonite of males of new species are wider than ones of *Zaphne barbiventris*, thus the special epithet of new species is constructed from the Latin word *lax* = wide, together with *barbiventris*.

Zaphne lineatocollis (Zetterstedt, 1838)

Zetterstedt, 1838: 679 (*Anthomyza*).

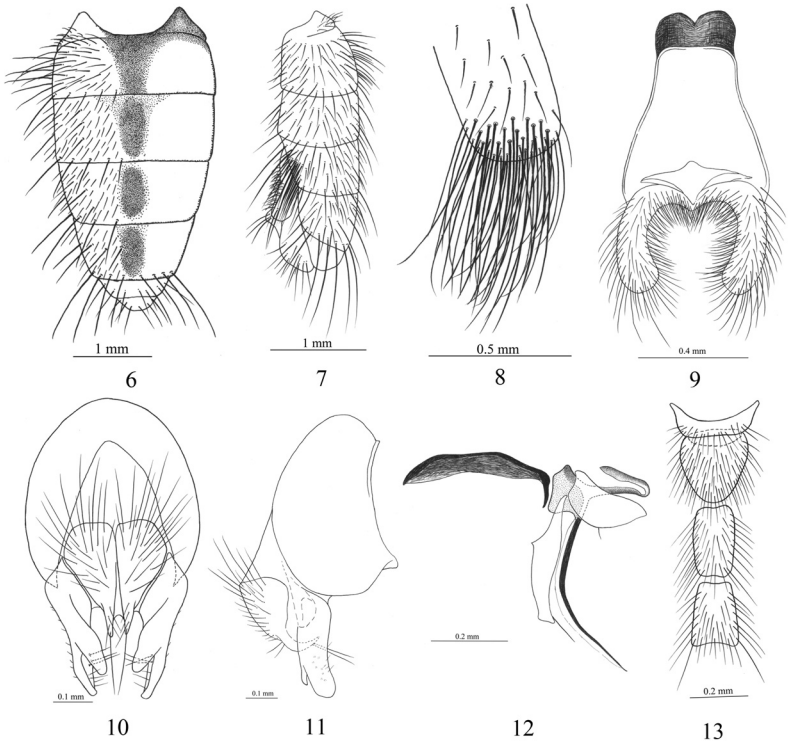
Type Locality: Sweden: Lycksele, Lycksele Lappmark.

Distribution: China: Heilongjiang Province; America; Canada; Estonia; Finland; Latvia; Lithuania; Great Britain; Russia: Central European territory, North European territory; Sweden; The Republic of Belarus; Ukraine. (Zetterstedt, 1838; Fan, 1992; Dely-Draskovits, 1993; Griffiths, 1998)

Zaphne maculipennis (Stein, 1907)

Stein, 1907: 349 (*Hydrophoria*).

Figs. 6-13



Figs 6-13. *Zaphne laxibarbiventris* Xue and Dong, sp. nov. (male). 6. Abdomen in posterior view, scale bar = 1 mm; 7. Abdomen in profile, scale bar = 1 mm; 8. Tergite 4 in posterior ventral view, scale bar = 0.5 mm; 9. Sternite 5 in ventral view, scale bar = 0.4 mm; 10. Epandrium, cerci and surstyli in posterior view, scale bar = 0.1 mm; 11. Epandrium, cercus and surstylus in profile, scale bar = 0.1 mm; 12. Aedeagus and gonites in profile, scale bar = 0.2 mm; 13. Sternite 1 to 4 in posterior view, scale bar = 0.2 mm.

Type Locality: China: "Kurlyk am Fl. Baingol, Ost-Zaidam," Qinghai Province.

Distribution: China: Neimenggu Autonomous Region, Qinghai Province, Shanxi Province, Xizang Autonomous Region. (Stein, 1907; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

Zaphne melaena (Stein, 1907)

Stein, 1907: 350 (*Hydrophoria*).

Type Locality: China: Bomyn Itschegyn-Fluss" and "Kurlyk am Fl. Baingol, Ost- Zaidam," Qinghai Province.

Distribution: China: Heilongjiang Province, Liaoning Province, Qinghai Province, Neimenggu Autonomous Region, Shanxi Province, Sichuan Province,

Xinjiang Autonomous Region. (Stein, 1907; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998)

***Zaphne nuda* (Schnabl, 1911)**

Schnabl, 1911: 255 (*Acroptena*).

Type Locality: Russia: "Petersburger Gegend" [=Leningrad region].
Distribution: China: Heilongjiang Province; America; Canada; Estonia; Finland; Germany; Latvia; Lithuania; Russia: Central European territory, North European territory; Sweden; The Republic of Belarus; Ukraine. (Schnabl, 1911; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

***Zaphne pullata* (Wu, Liu and Wei, 1995)**

Wu, Liu and Wei, 1995: 290-292 (*Hydrophoria*).

Type Locality: China: Guizhou Province.
Distribution: China: Guizhou Province. (Wu, Liu and Wei, 1995)

***Zaphne venatifurca* (Zhong, 1985)**

Zhong, 1985: 131 (*Hydrophoria*).

Type Locality: China: Naqu, Xizang Autonomous Region.
Distribution: China: Xizang Autonomous Region. (Zhong, 1985; Xue, 1998)

***Zaphne ventribarbata* (Hsue, 1981)**

Hsue, 1981: 89 (*Hydrophoria*).

Type Locality: China: Tonghua, Jilin Province.
Distribution: China: Jilin Province. America. (Hsue, 1981; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

***Zaphne verticina* (Zetterstedt, 1838)**

Zetterstedt, 1838: 665 (*Anthomyza*).

Type Locality: Sweden: Junosuando Norrbotten.
Distribution: China: Xinjiang Autonomous Region; Canada; Russia: West Siberia; Sweden. (Zetterstedt, 1838; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

***Zaphne wierzejskii* (Mik, 1867)**

Mik, 1867: 420 (*Spilogaster*).

Type Locality: Ukraine: Halicia.
Distribution: China: Heilongjiang Province, Liaoning Province, Neimenggu Autonomous Region, Qinghai Province, Shanxi Province, Xinjiang Province;

America; Canada; Czech Republic; Estonia; Finland; France; Germany; Great Britain; Latvia; Lithuania; Poland; Russia: Central European territory, Far East; Slovakia; Sweden; The Republic of Belarus; Ukraine. (Mik, 1867; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

Zaphne zetterstedti (Ringdahl, 1918)

Ringdahl, 1918: 185 (*Acroptena*).

Type Locality: Sweden: Abisko and Gäddede.

Distribution: China: Heilongjiang Province, Sichuan Province; Norway; Russia: Far East, North European territory; Sweden. (Ringdahl, 1918; Hennig, 1969; Fan, 1992; Dely-Draskovits, 1993; Xue, 1998; Griffiths, 1998)

ACKNOWLEDGMENTS

This paper was supported by a grant from the National Natural Science Foundation of China (No.30270166) and the Experimental Central Director's Foundation of Shenyang Normal University (No.SY200609). The authors are very grateful to Michael Ackland (Oxford University Museum of Natural History, Oxford, UK), for his valuable suggestions. Thanks also go to Dan-dan Wang and Jing Du for invaluable help in this study, as well as to Ming-fu Wang for providing the type specimens.

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