

## Pamphiliid Sawflies (Hymenoptera, Symphyta) of Mt. Yunshan, Hunan Province, China

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**Abstract.** Eight species of three genera of pamphiliid sawflies are recorded from Mt. Yunshan in the southwestern part of Hunan Province, China. Of these, the following five species of three genera are described and illustrated as new: *Onycholyda flavicostalis* Shinohara, n. sp. from Shaanxi and Hunan, *Chrysolyda yunshanica* Shinohara, n. sp. from Hunan, *Pamphilius xiaowei* Shinohara, n. sp. from Hunan, *P. lizejiani* Shinohara, n. sp. from Hunan and Jiangxi, and *P. atricaudatus* Shinohara, n. sp. from Hubei and Hunan. *Onycholyda odaeana* Shinohara & Byun, 1993, is newly recorded from Gansu, *O. sichuanica* Shinohara, Naito & Huang, 1988, from Guangxi and Hunan, and *O. fanjingshanica* Jiang, Wei & Zhu, 2004, from Guangxi, Hubei, Hunan, Anhui and Fujian.

**Key words:** Hymenoptera, Pamphiliidae, China, Hunan Province, Mt. Yunshan, new species, new distribution records.

### Introduction

The sawfly family Pamphiliidae (Hymenoptera, Symphyta) is distributed in the Holarctic region and northern margins of the Oriental and Neotropical regions. The pamphiliid fauna of China, with its huge area and great diversity of natural environments and flora, should be most diversified but is not well known both at national and local levels. A total of 75 species of seven genera have been recorded from this country, of which 33 species of three genera belong to the conifer-feeding subfamily Cephalciinae and 42 species of four genera belong to the subfamily Pamphiliinae, which is associated with angiosperms (Shinohara & Yuan, 2004; Shinohara & Zhou, 2006; Wei *et al.*, 2006). However, large number of additional species will probably be found in the future as discussed by Shinohara (2004), who boldly estimated that the actual number of the species of the subfamily Pamphiliinae alone

should be 100 or more in this vast country.

In 2009–2011, Shinohara made a survey of sawflies of Mt. Yunshan (1,380 m alt.), situated in Wugang City in the southwestern part of Hunan Province, China, with particular focus on its fauna of the family Pamphiliidae. Here we report on the results of the studies on the pamphiliid sawflies of Mt. Yunshan mainly based on this material.

The name of Yunshan or Yünschan is well known to the botanist interested in Chinese flora, because an Austrian botanist, Heinrich Freiherr von Handel-Mazzetti [1882–1940], visited Mt. Yunshan in 1917 and 1918 (Handel-Mazzetti, 1927) and collected large number of plant specimens, which were used in his “Symbolae Sinicae”, a classic monograph of southwestern Chinese plants (Handel-Mazzetti, 1929–1937). A total of 1,518 species of 203 families of higher plants are known in this area, of which 146 species (33 families) are ferns, 17 species 7 families) are gymnosperms, and 1,355

species (163 families) are angiosperms (Wang *et al.*, 2008).

### Materials and Methods

The material used in this work is kept in the National Museum of Nature and Science, Tokyo (NSMT) and in the Central South University of Forestry and Technology, Changsha (CSUFT). All the holotypes of the new species described in this paper are deposited in the latter collection.

All the material from the former collection was collected by Shinohara during his collecting trips to Mt. Yunshan in 2009 (April 30 to May 12), 2010 (April 9 to 21) and 2011 (April 11 to 23). Adult sawflies were collected by a hand net with a rod of about 2–8 meters long. Sampling sites were mainly along a rough car road and a continuing path from the car park (N26°38.995 E110°37.154, 1,180 m) to the summit (N26°38.687 E110°3.337, 1,380 m), along a path from the car park to the Shengli Monastery (N26°38.859N E110°37.026, 1,145 m), and along a paved car road from the car park through the forest park gate (N26°39.340 N E110°37.495, 950 m) down to the point of about 700 meters high. The vegetation of the area was largely a secondary broadleaved forest mixed with planted conifers such as *Cryptomeria*.

Morphological terms of adult sawflies follow Viitasaari (2002).

### Results

#### Species Recorded

*Onycholyda oadaesana* Shinohara & Byun, 1993  
(Fig. 1A–K)

*Specimens examined.* Gansu Prov.: “Pingliang, Lingtai, Wanbaochuan, 1,130 m, E107°13′49.8″ N34°58′00.1, WuXing-Yu” (CSUFT). Anhui Prov.: 1 ♀, Anqing-shi, Yuèxi-xian,

Baojie-xiang, N31°04′5 E116°07′2, 500m alt., 27. IV. 2007, Zhu Xiao-Ni (CSUFT). Hunan Prov.: 1 ♀, Yongzhou-shi, Shunhuangshan, 800–1,000 m, 27. IV. 2004, Zhou Hu (CSUFT); 6 ♀, Yongzhou-shi, Shunhuangshan, 900–1,200 m, 28. IV. 2004, Zhou Hu (CSUFT); 8 ♀, same data, except He Ying-Ke (CSUFT); 3 ♀, same data, except Lin Yang (CSUFT); 1 ♀, same data, except Xiao Wei (CSUFT); 1 ♀, same data, except Liu Wei-Xing (CSUFT); 1 ♀, Shaoyang-shi, Suining-xian, Huangsang-xiang, 600–900 m, 21. IV. 2005, Liu Shou-Zhu (CSUFT); 1 ♀, Mufushan–Fengjian, N28°59.297′ E113°49.547′, alt. 1,604 m, 26. IV. 2008, Zhang Yuan (CSUFT); 1 ♀, Mufushan, Tianmen-si, N28°58.780′ E113°49.745′, alt. 1,350m, Li Ze-Jian (CSUFT); 1 ♀, Mt. Yunshan, 4. V. 2009, A. Shinohara (NSMT); 1 ♀, Mt. Yunshan, larva on *Rubus adenophorus* coll. 8. V. 2009, mat. 16–17. V., em. 18. III. 2010, A. Shinohara (NSMT); 1 ♀, Mt. Yunshan, N26°38.981′ E110°37.225′, alt. 1,200m, 4. V. 2009, Wang X.-H. (CSUFT); 3 ♀67 ♂, Mt. Yunshan, 9–20. IV. 2010, A. Shinohara (NSMT); 3 ♂, Mt. Yunshan, N26°38 E110°37, alt. 1,200 m, 10–11. IV. 2010, Wang X.-H. (CSUFT); 1 ♀1 ♂, Mt. Yunshan, N26°38 E110°37, alt. 1,200 m, 10–16. IV. 2010, Liu Y.-X. (CSUFT); 4 ♀46 ♂, Mt. Yunshan, 13–21. IV. 2011, A. Shinohara (NSMT); 1 ♀9 ♂, Mt. Yunshan, 19–20. IV. 2011, Li Z.-J. & Wei L. (CSUFT).

*Distribution.* Korea, China (Gansu, Henan, Anhui, Zhejiang, Hunan) (Shinohara & Xiao, 2006; Wei *et al.*, 2008). New record from Gansu Province.

*Host plant.* The larva is a solitary leaf-roller on *Rubus adenophorus* Rolfe (Rosaceae) (Shinohara & Wei, 2010).

*Remarks.* This is a widespread species and apparently the commonest pamphiliid sawfly on the mountains of Hunan Province. The four species of *Onycholyda* found on Mt. Yunshan belong to the *O. wongi* complex defined by Shinohara (2002a). *Onycholyda oadaesana* differs from the other three species by the largely pale yellow veins and the bi-colored, pale

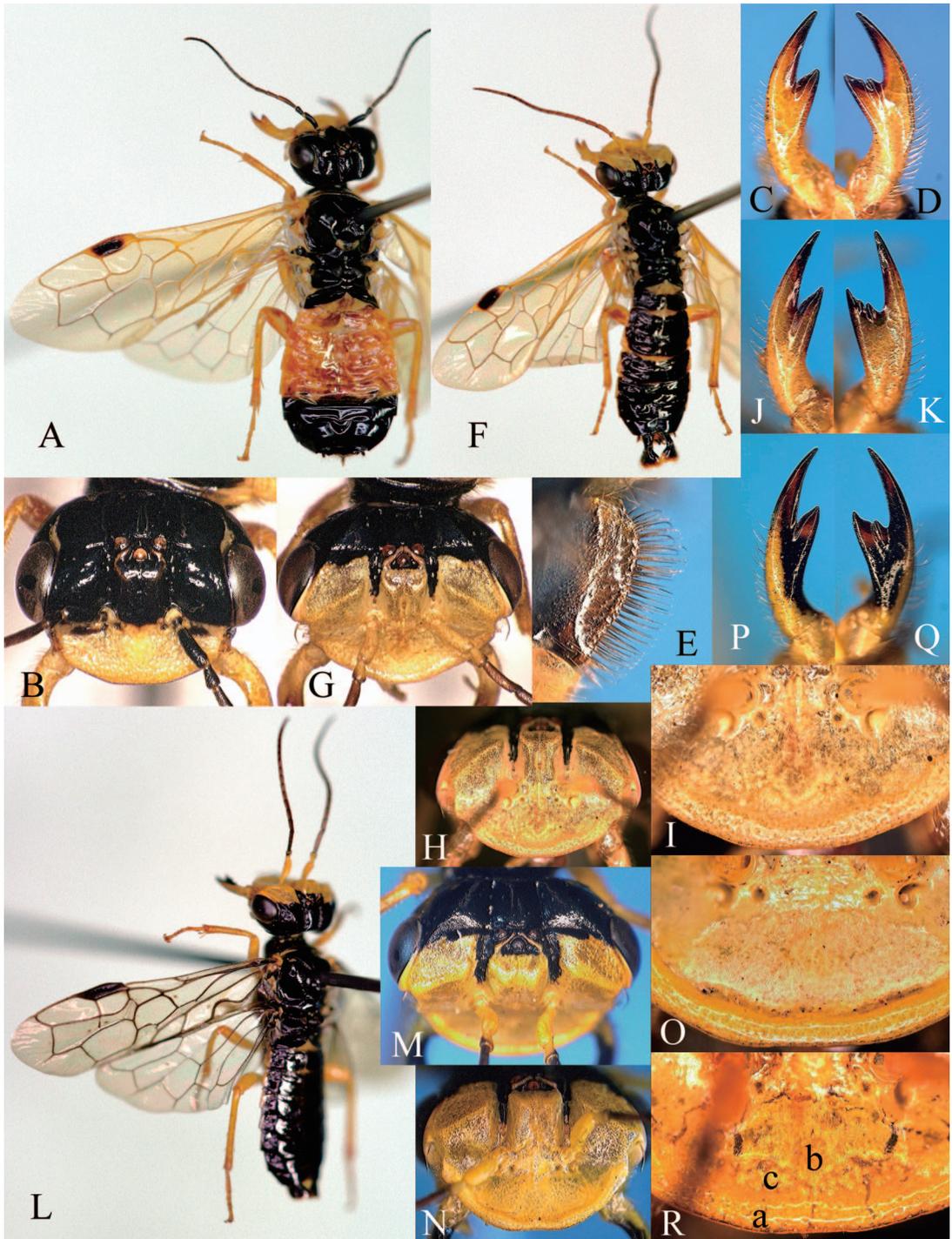


Fig. 1. *Onycholyda odaesana*, female, Mt. Yunshan (A–E), male, Mt. Yunshan (F–K), *O. sichuanica*, male, Mt. Yunshan (L–O) and *O. flavicostalis*, male (R). — A, F, L, Dorsal view; B, G, H, M, N, head, dorsofrontal or frontal view; C, J, P, left mandible, dorsal view; D, K, Q, right mandible, dorsal view; E, sawsheath, lateral view; I, O, R, clypeus, frontal view (a, roundly thickened anterior margin; b, slightly raised flattened fan-shaped area; c, slightly depressed narrow transverse area).

yellow and black stigma in the forewing (Fig. 1 A, F). The female can also be recognized by the mostly or entirely black frons and antennal scape (Fig. 1B) and the male by the mostly pale yellow pectus of the thorax.

*Onycholyda sichuanica* Shinohara,  
Naito & Huang, 1988  
(Figs. 1L–Q, 2)

*Specimens examined.* Guangxi Zhuang Autonomous Region: 1♂, Jinxiu, Daiyaoshan, 1,150m, 2002. III. 30, Jiang Yang (CSUFT); 1♂, “Longsheng, Huaping, 800m, 2003. III. 30, Jiang Ji-Gang” (CSUFT). Hunan Prov.: 1♂ “Mufushan, Tianmen-si, N28°58.780′ E113°49.745′, alt. 1,350 m, 2008. IV. 25, Li Ze-Jian” (CSUFT); 2♂, Mt. Yunshan, 3–4. V. 2009, A. Shinohara (NSMT); 1♂, Mt. Yunshan, 12. IV. 2010, A. Shinohara (NSMT); 3♂, Mt. Yunshan, 1,200 m, N26°39′ E110°37′, 10–16. IV. 2010, Liu Y.-X. (CSUFT); 34♂, Mt. Yunshan, 17–21. IV. 2011, A. Shinohara (NSMT); 3♂, Mt. Yunshan, 19. IV. 2011, Li Z.-J. & Wei L. (CSUFT).

*Distribution.* China (Sichuan, Guangxi, Hunan). New records from Guangxi Zhuang Autonomous Region and Hunan Province.

*Host plant.* Unknown.

*Remarks.* This species was described on the basis of one male from Sichuan Province, China (Shinohara *et al.*, 1988), and the female is still unknown. We have examined a series of male specimens from Guangxi Zhuang Autonomous Region and Hunan Province as listed above. All of them have a black dorsum of abdomen with only the lateral margins pale yellow, except that two specimens from Guangxi and one from Hunan have an orange spot on the 4th abdominal tergum as in the holotype. The original description reads “frontoclypeal crest low, sharply carinate, highest between antennal sockets, gradually flattened ventrad and becoming indistinct just before attaining anterior margin of clypeus”; however, in most of the specimens examined, the crest is not conspicuous, recognizable only

between the antennae, or almost missing even between the antennae in some specimens, and the crest is recognizable on clypeus only in a few specimens.

*Onycholyda sichuanica* belongs to the *O. wongi* complex defined by Shinohara (2002a; see below for more discussion on the species-group). Males are known only for *O. odaesana* and *O. flavicostalis* in this species-group. *Onycholyda sichuanica* is well characterized by the flattened and evenly micro-sculptured clypeus and the entirely blackish brown or black wing venation and stigma (Fig. 1L). The micro-sculpture on the clypeus gives mat and often slightly whitish appearance (Fig. 1O). In addition to these characters, *O. sichuanica* is distinguished from *O. odaesana* also by having the pectus black, and from *O. flavicostalis* by having the large area of the mesepisternum, most of the coxae, and all the trochanters pale yellow, the median abdominal segments mostly or entirely black above (Fig. 1L), and the valviceps bulbous in dorsal view (Fig. 2A, B).

*Onycholyda fanjingshanica* Jiang,  
Wei & Zhu, 2004  
(Fig. 3A–E)

*Specimens examined.* Guizhou Prov.: ♀ (holotype), “Fanjingshan, 82.5.16, Ran Yun-Guang” (CSUFT). Guangxi Zhuang Autonomous Region: 1♀, “Maoershan, Jiuniutang, 2006–V–18, Xiao Wei, E110°29.287′ N25°53.089′, H 1,164 m” (CSUFT). Hubei Prov.: 1♀, “Shennongjia, Xiaozhaiqibian, 2008. 5. 25, Jiao Zhao, N 31°33.870′ E110°08.121′, alt. 940 m” (CSUFT). Hunan Prov.: 3♀, Mt. Yunshan, 19–21. IV. 2011, A. Shinohara (NSMT). Anhui Prov.: 1♀, “Qingyang, Jiuhuashan, 2007. V. 9, Zhu Xiao-Ni, N30°64′ E117°84′, alt. 600 m” (CSUFT). Fujian Prov.: 1♀, “Wuyishan, Guadun, 2007. V. 1, Zhong Yi-Hai, E117°38.699′ N27°44.037′, alt. 1,137 m” (CSUFT).

*Distribution.* China (Guizhou, Guangxi, Hubei, Hunan, Anhui, Fujian). New records from Guangxi Zhuang Autonomous Region

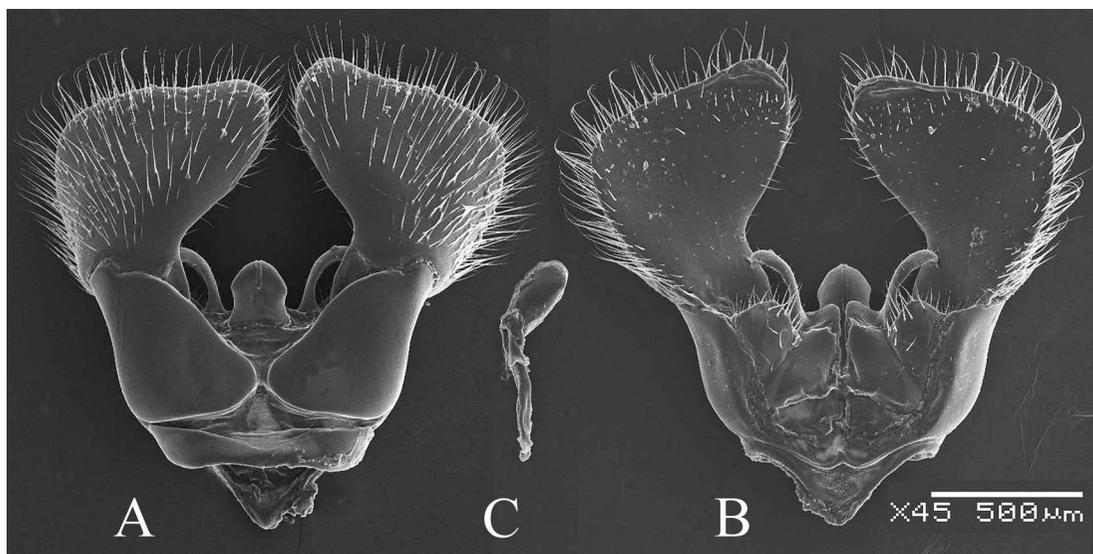


Fig. 2. Male genitalia, *Onycholyda sichuanica*, Mt. Yunshan. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

and Hubei, Hunan, Anhui and Fujian Provinces.

*Host plant.* Unknown.

*Remarks.* This species was known only from a female holotype from Guizhou Province (Jiang *et al.*, 2004). We have examined a series of female specimens from five additional provinces in China as listed above, but no males have been found. As discussed elsewhere, *O. fanjingshanica* may be the female of *O. sichuanica*, but we leave them separate until more evidence becomes available.

The female of this species resembles those of *O. flavicostalis* and *O. shaanxiana* Shinohara, 1999. For separation of the three species, see remarks under *O. flavicostalis*.

*Onycholyda flavicostalis* Shinohara, n. sp.

(Figs. 3F–P, 4)

Female (Fig. 3F). Length about 9.5–11.5 mm. Head black, with most of frons, entire clypeus, interocellar crest, postocular stripe, and often spot on lateral vertex just outside of lateral suture pale yellow. Mouth parts pale yellow, with cardo and stipes (except for apex)

of maxilla, prementum (except for apex) of labium, and apical half of mandible black. Antenna with scape and pedicel black; flagellum blackish brown to black. Thorax black, with following pale yellow: posterior margin and narrow ventral margin of pronotum, tegula, posterior 1/2 of mesoscutal median lobe, mesoscutellum (except for anterior corner), and often spot on mesoscutal lateral lobe close to median lobe, elongate obscure mark in posterior part of mesoscutal lateral lobe (adjacent to mesoscutellum), and metascutellum. Wings faintly stained with dark brown; veins and stigma blackish brown, except for pale yellow veins C and Sc and veins in basal part of wings. Legs pale yellow, with coxae and trochanters black; hind trochanter often largely pale yellow. Abdomen black, with 2nd to 5th segments orange.

Upper frons below ocelli strongly convex, with distinct notch medially; ocellar basin deep, triangular in outline, with anterolateral extension reaching (or nearly reaching) antennal furrow; median fovea indistinct; clypeus divided medially by rather low and very bluntly carinate frontoclypeal crest, each half shal-

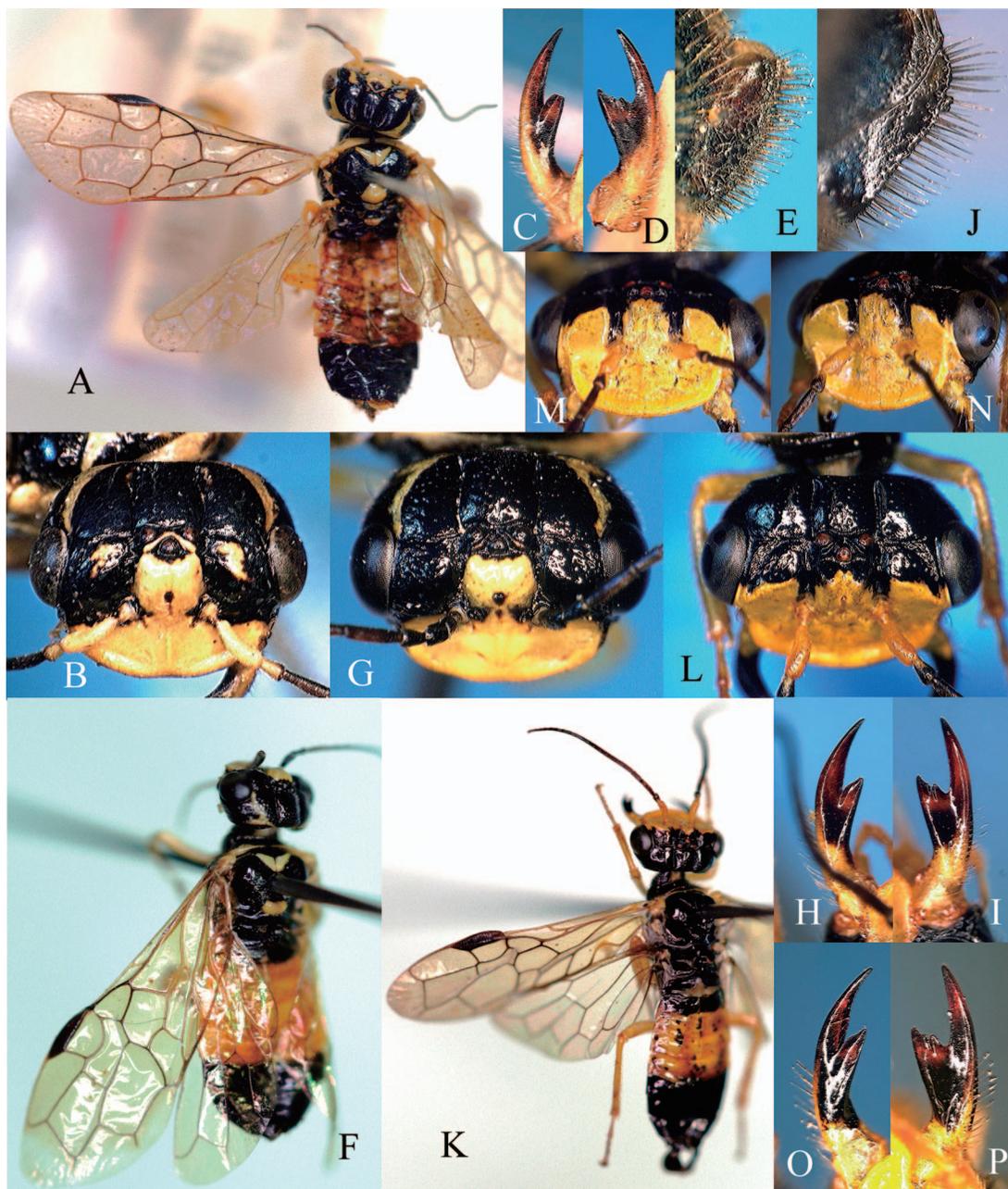


Fig. 3. *Onycholyda fanjingshanica*, female, holotype (A-E), *O. flavicostalis*, female, holotype (F-J), and male, paratype, Mt. Yunshan (K-P). — A, F, K, Dorsal view; B, G, L, M, N, head, dorsofrontal, frontal, or laterofrontal view; C, H, O, left mandible, dorsal view; D, I, P, right mandible, dorsal view; E, J, sawsheath, lateral view.

lowly concave anterolaterally; facial crest rather strongly inflated and bluntly carinate. Head generally smooth; vertex, including post-ocellar area, with few punctures anteriorly and

rather densely punctate posteriorly; transverse area between dorsal parts of eyes, including frons, ocellar area and facial crests, shallowly uneven; clypeus shallowly coriaceous with

dense small punctures in anterior part; gena roughly rugose and punctate. Right mandible (Fig. 3I) tridentate, with incision between apical and median teeth much wider and deeper than incision between median and basal teeth; left one (Fig. 3H) bidentate, without median tooth. Antenna with 20–22 segments; 1st flagellomere about  $1.9\text{--}2.5\times$  length of 2nd. Sawsheath (Fig. 3J) with appendage normal for genus.

Male (Fig. 3K). Length about 9–10.5 mm. Head black, with all frontal surface before level of facial crest and malar space yellow. Mouth parts as in female. Antenna with scape and base of pedicel pale yellow; flagellum blackish brown to black. Thorax black, with very narrow dorsal posterior margin of pronotum and tegula pale yellow. Wings and legs as in female. Abdomen black, with 2nd sternum and 3rd to 5th segments orange.

Head less modified than other *Onycholyda* males, with small setiferous pit. Upper frons below ocelli very strongly convex, with distinct notch medially; ocellar basin deep, triangular in outline, with anterolateral extension reaching (or nearly reaching) antennal furrow; median fovea usually distinct; frontoclypeal crest distinct between antennae but obsolete on clypeus; facial crest very strongly convex and sharply carinate; clypeus with anterior margin roundly thickened (Fig. 1R, a) and median part with large, slightly raised flattened rhomboid (or fan-shaped) area with microscopic vertical striae, giving mat appearance (Fig. 1R, b); narrow transverse area between each dorsally convex lateral ventral margin of mat rhomboid area and roundly thickened ventral margin of clypeus slightly depressed and very roughly sculptured (Fig. 1R, c); lateral part of clypeus coriaceous; paraantennal field very smooth, impunctate and glabrous; gena roughly punctate and pilose; other parts of head generally smooth, sparsely punctate. Right mandible (Fig. 3P) tridentate, with incision between apical and median teeth much wider and deeper than incision between median and basal

teeth; left one (Fig. 3O) bidentate, but with indication of very low median tooth. Antenna with 20–22 segments; 1st flagellomere about  $2.0\text{--}2.1\times$  length of 2nd. Subgenital plate with posterior margin rather weakly roundly produced and rounded at apex. Genitalia as in Fig. 4.

Holotype: ♀, “Shaanxi, Fuping, Daiguping, 2006–IV–28, He Wei-Jun, E107° 16.553' N33° 34.612', H1,320 m” (CSUFT).

Paratypes: 1 ♀, “Hunan, Yongzhou, Shunhuangshan, 2004–IV–28, Xiao Wei, 900–1,200 m” (CSUFT); 1 ♀, “Hunan, Wugang, Yunshan, 2005–IV–26, Wei Mei-Cai, 1,100 m” (CSUFT); 2 ♀3 ♂, Mt. Yunshan, 800–1,200 m, 9–14. IV. 2010, A. Shinohara (NSMT); 1 ♂, “Hunan, Yunshan, 2010. IV. 11, Liu Yan-Xia, N26° 38.981' E110° 37.225', Alt. 1,170 m” (CSUFT); 1 ♀15 ♂, Mt. Yunshan, 1,250 m, 13–20. IV. 2011, A. Shinohara (NSMT); 1 ♂, Mt. Yunshan, 19. IV. 2011, Li Z.-J. & Wei L. (CSUFT).

*Distribution.* China (Shaanxi, Hunan).

*Host plant.* Unknown.

*Etymology.* The species epithet refers to the pale-colored costal vein of the forewing of the new species.

*Remarks.* *Onycholyda flavicostalis* belongs to the *O. wongi* complex defined by Shinohara (2002a) and comes close to *O. shaanxiana* and *O. fanjingshanica*.

In the female, *O. flavicostalis* is distinguished from *O. shaanxiana* and *O. fanjingshanica* by the mostly black prementum, entirely black anterior margin of the mesepisternum, the yellowish veins C and Sc of the forewing, and the mostly or entirely black coxae and trochanters. *Onycholyda shaanxiana* and *O. fanjingshanica* have the prementum largely pale yellow, the anterior margin of the mesepisternum largely marked with pale yellow, the veins C and Sc blackish, and the coxae at least in the apical parts and the trochanters mostly pale yellow. From *O. shaanxiana*, *O. flavicostalis* is separated also by the entirely black 6th abdominal sternum. The new species has the antennal

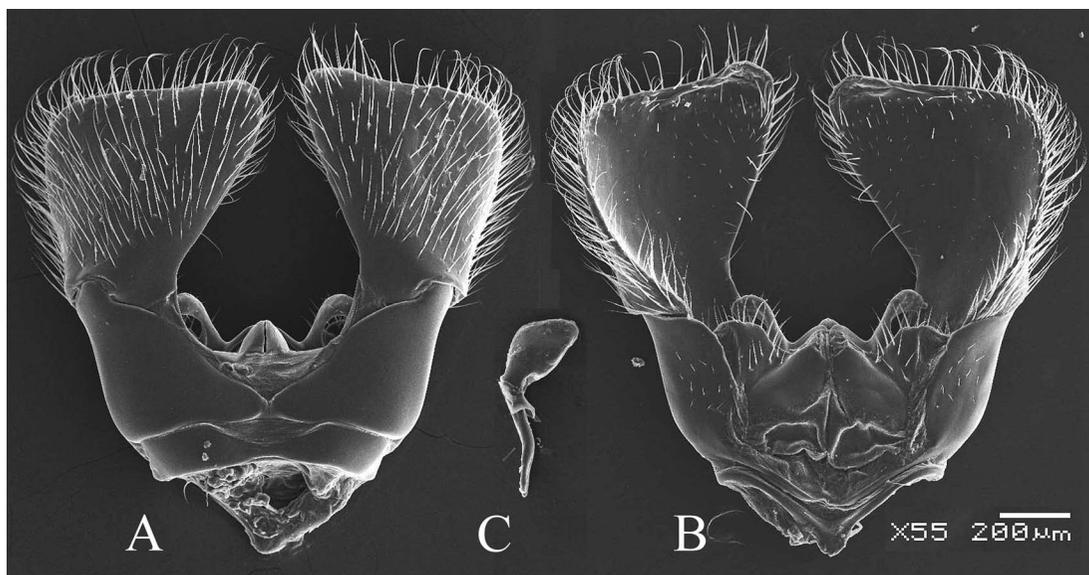


Fig. 4. Male genitalia, *Onycholyda flavicostalis*, paratype, Mt. Yunshan. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

scape and pedicel (Fig. 3G), the mesoscutellar appendage, and the posterior margin of the 6th abdominal sternum all black, whereas *O. fanjingshanica* has the scape and usually also the pedicel pale yellow (Fig. 3B) and the mesoscutellar appendage and the posterior margin of the 6th abdominal sternum marked with pale yellow.

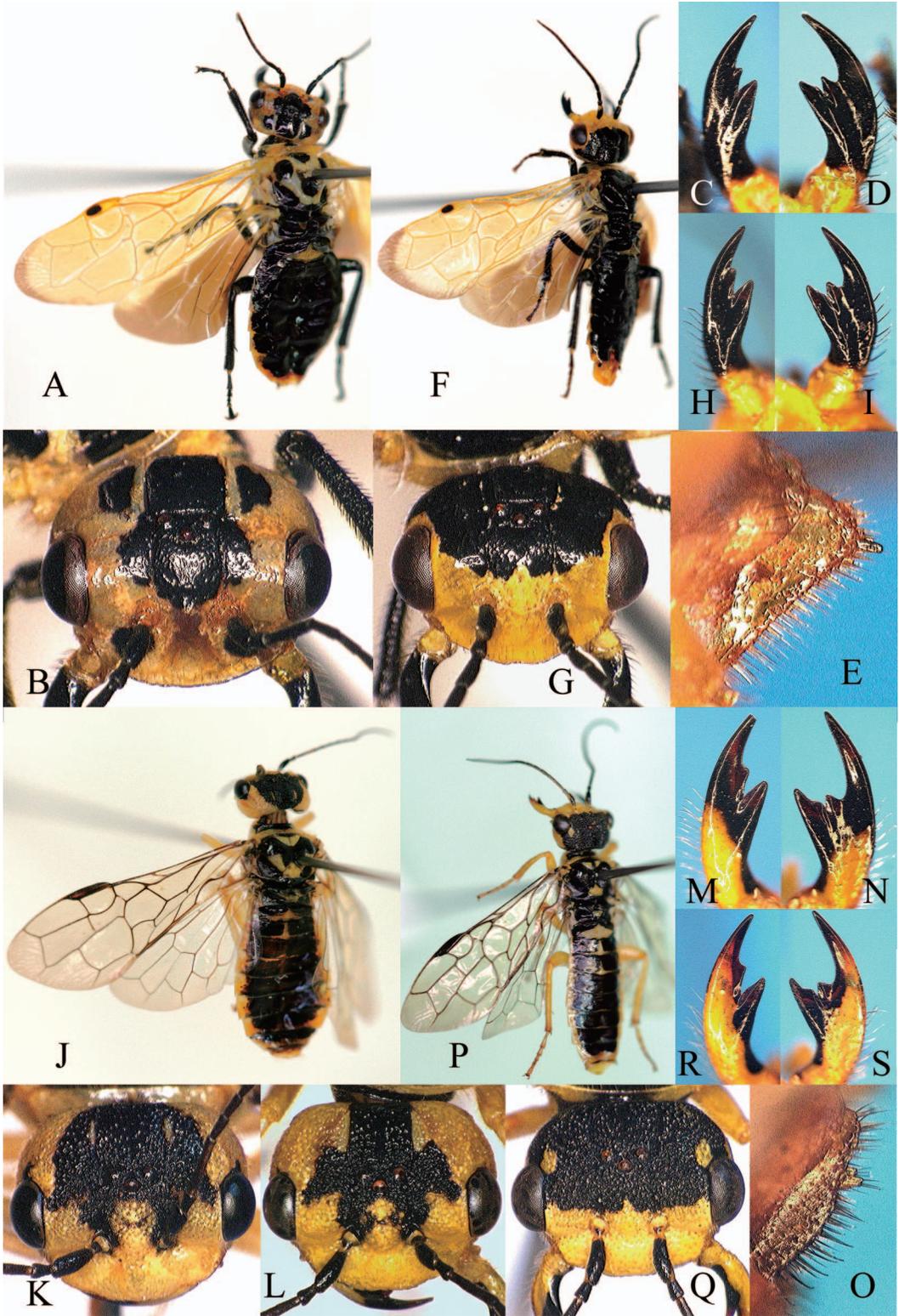
Within the *O. wongi* complex, the male is known only for *O. odaesana* and *O. sichuanica*. *Onycholyda flavicostalis* differs from these two species in the almost entirely black thorax and coxae, at least partly black trochanters, and the black and medially orange abdomen (Fig. 3K). The thorax in *O. odaesana* and *O. sichuanica* is largely marked with pale yellow ventrally, most of the coxae and all the trochanters are pale yellow, and the abdomen is largely black above and entirely pale yellow beneath (see Shinohara *et al.*, 1988, for more details).

#### *Chrysolyda yunshanica* Shinohara, n. sp.

(Figs. 5A–I, 6)

Female (Fig. 5A). Length about 9–10 mm. Head creamy white, with large spot in lateral dorsal part of clypeus just below antennal socket, very large mark covering ocellar and postocellar areas and upper frons, large spot on lateral part of vertex just outside of lateral suture, and small spot in upper part of gena black; occiput, except for broad outer margins, black. Mouth parts black, with bases of mandibles, labrum, apical part of stipes and 1st maxillary palpomere, apical part of prementum, and ligula cream white. Antenna black, with radicle of scape creamy white. Pronotum creamy white, with rounded spot at middle and large spot covering most of lateral surface black; cervical sclerite entirely black; tegula creamy white; mesonotum creamy white, with anteromedian triangular area of mesoscutal

Fig. 5. *Chrysolyda yunshanica*, female, holotype (A–E), male, paratopotype (F–I), *Pamphilius xiaowei*, female, holotype (J, K, M–O), female, paratopotype (L), and male, paratopotype (P–S). — A, F, J, P, Dorsal view; B, G, K, L, Q, head, dorsofrontal view; C, H, M, R, left mandible, dorsal view; D, I, N, S, right mandible, dorsal view; E, O, sawsheath, lateral view.



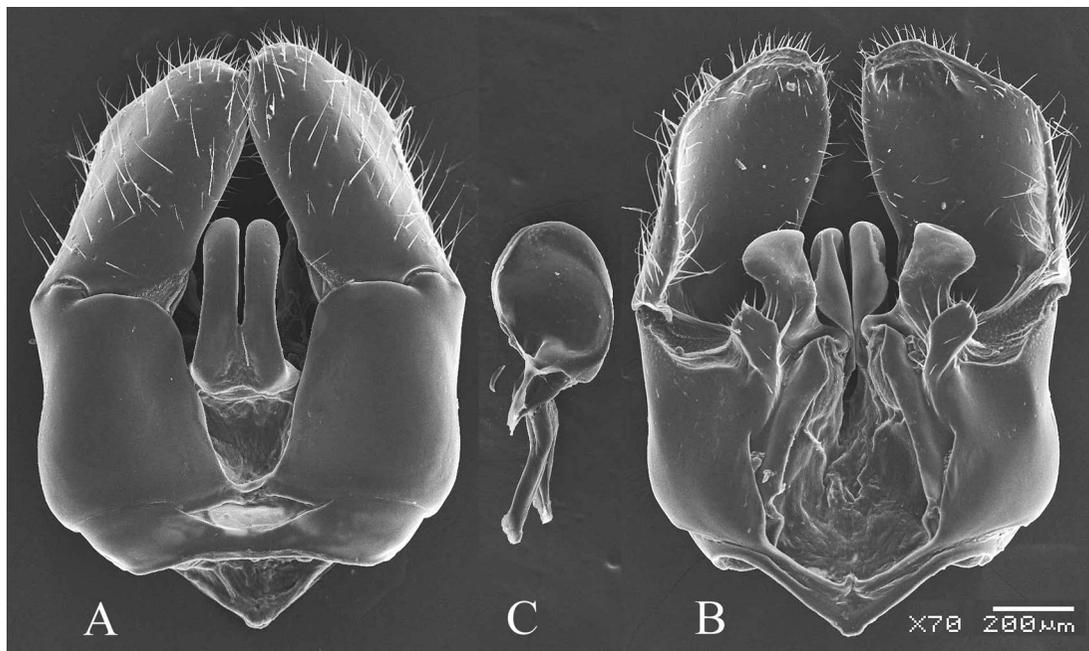


Fig. 6. Male genitalia, *Chrysolyda yunshanica*, paratopotype. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

median lobe, large anterolateral spot on mesoscutal lateral lobe, large spot covering posterior medial part of mesoscutal lateral lobes and anterior half of mesoscutellum, large posterolateral corner (sunken area) of mesoscutal lateral lobe, and most or entire mesoscutellar appendage black; mes- and metepisterna and mes- and metepimera black, with very narrow anterior margins of mesepisternum and mesepimeron creamy white. Forewing stained with brownish yellow; narrow apical margin blackish infuscated; veins and stigma pale yellow, with apical 1/2 (except for outer margins) black; hindwing blackish infuscated, except for clear hyaline cells C and Sc; veins in anterior and basal parts yellowish, those in other parts blackish. Legs black, with bases of basitarsi narrowly pale. Abdomen black above, with narrow posterolateral corners of 2nd and 3rd segments, lateral margins of 4th to 8th segments, posterior margin of 8th and entire 9th and 10th segments creamy white; 1st to 4th laterotergites

and 2nd to 4th sterna entirely black or nearly so; 5th to 7th laterotergites creamy white, each with large rounded black spot; 5th and 6th sterna and hypopygium creamy white, each with large, rounded spot on both sides; caudal parts, including all sawsheath, creamy white; cerci black.

Upper frons below ocelli weakly convex, without distinct notch medially; ocellar basin shallow, triangular in outline, without anterolateral extension; median fovea indistinct; clypeus divided medially by low and rounded frontoclypeal crest, each half not distinctly concave; facial crest low and rounded. Head generally smooth, covered with rather sparse shallow punctures and mostly blackish hairs; upper part of frons and ocellar area shallowly rugose. Right mandible (Fig. 5D) tridentate, with incision between apical and median teeth wider and about as deep as incision between median and basal teeth; left one (Fig. 5C) tridentate, with rather high median tooth. Antenna with 18–20 segments; 1st flagellomere about

1.6–1.8 × length of 2nd. Sawsheath (Fig. 5E) triangular in lateral view, with elongate appendage at apex.

Male (Fig. 5F). Length 8.5–9.5 mm. Head pale yellow, with very large mark covering almost entire dorsal surface black; occiput, except for broad outer margins, black. Mouth parts and antenna as in female. Thorax black; broad dorsolateral part and very narrow outer margin of pronotum creamy white; tegula pale yellow. Wings and legs as in female. Abdomen black above, with narrow lateral margins of 4th to 8th segments and posterior margin of 8th and entire 9th segments creamy white; 1st to 4th laterotergites and 2nd to 4th sterna entirely black or nearly so; 5th to 7th laterotergites creamy white, each with large, rounded black spot; 5th to 7th sterna creamy white, each with large, rounded black spot on both sides; 8th sternum, subgenital plate, and genitalia creamy white; cerci black.

Structure generally similar to that of female. Antenna with 19–20 segments, with 1st flagellomere about 1.3–1.5 × length of 2nd. Subgenital plate with posterior margin roundly produced and narrowly rounded at apex. Genitalia as in Fig. 6.

Holotype: ♀, Mt. Yunshan, 1,200 m, N26° 39' E110° 37', 9. IV. 2010, A. Shinohara (CSUFT).

Paratypes: 4♂, same data as for holotype (NSMT); 1♀ 22♂, Mt. Yunshan, 1,250 m, N26° 39' E110° 37', 13–19. IV. 2011, A. Shinohara (NSMT); 1♂, same data (CSUFT).

*Distribution.* China (Hunan).

*Host plant.* Unknown.

*Etymology.* The species epithet refers to the type locality.

*Remarks.* The genus *Chrysolyda* was represented only by *Ch. leucocephala* (Takeuchi, 1938) from Japan, Korea and the Russian Far East (Shinohara, 2002a). This is the first record of the genus from China. *Chrysolyda yunshanica* differs from *Ch. leucocephala* in color pattern. The forewing in *Ch. yunshanica* is stained with brownish yellow, with the narrow apical margin blackish infuscated, and

the hindwing is blackish infuscated, the fore- and hindwings thus showing clear contrast in coloration (Fig. 5A, F). Both the fore- and hindwings in *Ch. leucocephala* are rather weakly stained with brown. The hindwing is often darker, particularly in the anal region, but the difference between the fore- and hindwings is not very conspicuous (Shinohara, 2002a, CPh. 3C–F). The female of *Ch. yunshanica* has a pair of black spots in the dorsal part of the clypeus and a spot in the lateral part of the vertex just outside of the lateral suture, while that of *Ch. leucocephala* has no black spots on the clypeus and the black spot on the lateral vertex is often missing. The 5th to 7th abdominal sterna in the male of *Ch. yunshanica* are creamy white, each with a pair of large, rounded black spots, whereas the male of *Ch. leucocephala* has the 5th to 7th abdominal sterna entirely or almost entirely black.

*Pamphilius xiaowei* Shinohara, n. sp.

(Figs. 5J–S, 7)

Female (Fig. 5J). Length about 11.5–12 mm. Head pale yellow, with large black mark covering ocellar and postocellar areas, extending anteriorly along antennal furrow to include antennal socket and anterolaterally nearly to eye margin (Fig. 5K); black area just outside of lateral suture often missing (Fig. 5L); occiput, except for broad outer margins, black; upper inner margin of eye often with black spot. Mouth parts pale yellow, with cardo and base and apex of stipes of maxilla, 1st maxillary palpomere, basal and lateral margins of prementum of labium, and inner margin and apex of mandible black. Antenna black; 1st flagellomere often pale brownish below. Thorax black, with following pale yellow: broad posterior margin and lateral surface of pronotum, ventral half of cervical sclerite, tegula, posterior 1/2 of mesoscutal median lobe, large rectangular spot in posterior part of mesoscutal lateral lobe (adjacent to mesoscutellum), mesoscutellum, most lateral surface of mesepi-

ternum, mesepimeron (except for anterior and ventral margins), metascutellum and adjacent part of metascutum, most of metepisternum, and metepimeron (except for anterior and ventral margins). Wings very faintly stained with blackish brown; veins and stigma blackish brown. Legs pale yellow, with narrow coxal bases black. Abdomen black above and pale yellow beneath; dorsum with lateral margins of all segments, narrow posterior margin of 7th (sometimes also 6th) segment, and broad posterior margin of 8th segment pale yellow; venter with broad anterior margin of 2nd sternum, anterolateral spots on 3rd to 6th sterna, and anteromedian spot on hypopygium black.

Head with eyes comparatively small (Fig. 5 K, L). Upper frons below ocelli weakly convex, without distinct notch medially; ocellar basin represented only by small depression in front of median ocellus; median fovea indistinct; clypeus roundly convex medially; rounded crest between antennae; facial crest rather strongly inflated and often bluntly carinate. Head covered with large, deep punctures and golden hairs; transverse area between dorsal parts of eyes, including upper part of frons, ocellar area and facial crests, particularly densely and coarsely punctate; clypeus and posterior part of postocellar area rather sparsely punctate, with rather broad smooth interspaces. Right mandible (Fig. 5N) tridentate, with incision between apical and median teeth wider and about as deep as incision between median and basal teeth; left one (Fig. 5M) tridentate, with rather high median tooth. Antenna with 21–22 segments; 1st flagellomere about  $2.3\text{--}2.4\times$  length of 2nd. Sawsheath (Fig. 5O) with appendage elongate and setose.

Male (Fig. 5P). Length about 10–11 mm. Head pale yellow, with almost all dorsal surface and occiput black; spot at upper anterior margin of eye and often another small spot on postocular area near crassa pale yellow. Mouth parts as in female. Antenna black; scape pale yellow to brown ventrally and pedicel and

flagellum brown ventrally. Thorax black, with following pale yellow: broad posterolateral corner and lateral surface of pronotum, cervical sclerite (except for dorsal part), tegula, posterior 1/2 of mesoscutal median lobe, mesoscutellum, entire mesepisternum (including pectus), mesepimeron (except for anterior and ventral margins), metascutellum, metepisternum and metepimeron (except for anterior and ventral margins). Wings and legs as in female. Abdomen black above and pale yellow beneath; dorsum with lateral margins and most of 9th segment pale yellow; venter with base of 2nd sternum black.

Structure generally similar to that of female. Antenna with 22 segments, with 1st flagellomere about  $2.1\text{--}2.4\times$  length of 2nd. Subgenital plate with posterior margin medially produced and rounded at apex. Genitalia as in Fig. 7.

Holotype: ♀, “Hunan, Wugang, Yunshan, 2005–IV–26, 1,100–800 m, Xiao Wei” (CSUFT).

Paratypes: 1 ♀, Mt. Yunshan, 12. IV. 2010, A. Shinohara (NSMT); 1 ♂, same data, except 17. IV. 2010 (CSUFT); 2 ♀1 ♂, same data, except 16–19. IV. 2011 (NSMT).

*Distribution.* China (Hunan).

*Host plant.* Unknown.

*Etymology.* This new species is named after the collector of the holotype, Mr. Xiao Wei, Central South University of Forestry and Technology, Changsha.

*Remarks.* This new species is well characterized by the black and pale yellow color pattern without reddish marking on the abdomen, the heavily punctured head with comparatively small eyes, the tridentate mandibles, the long 1st flagellomere, and the blackish veins and stigma of the forewing. However, its affinity to the previously known congeners is not quite clear.

In Shinohara's (2002a) key to the species-groups of *Pamphilius*, *P. xiaowei* runs to couplet 13, which leads to the *P. sylvarum* group or the *P. alternans* + *P. tibetanus* groups. The new species might agree with the *P. sylvarum* group

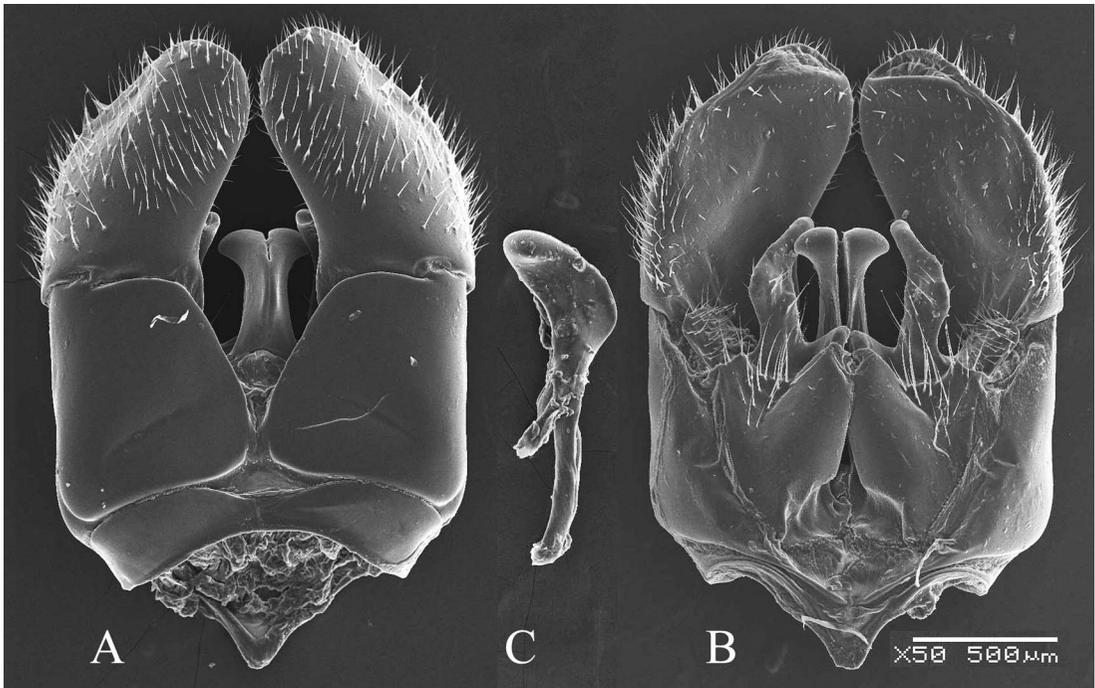


Fig. 7. Male genitalia, *Pamphilius xiaowei*, paratopotype. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

in the shape of the left mandible but agrees with the *P. alternans* + *P. tibetanus* groups in the pilose sawsheath peg and agrees neither of them in the male genitalic characters. Particularly the big difference in the shape of the penis valves between the new species (Fig. 7) and the species of the three species-groups (Shinohara, 2002a, figs. 7A, E, 8A, 10E, G, I) strongly suggests that *P. xiaowei* does not belong to any of the three species-groups.

*Pamphilius xiaowei* nevertheless resembles species of the *P. tibetanus* group (Shinohara *et al.*, 1998) in having a pilose heavily punctured head with comparatively small eyes. From the known species of the *P. tibetanus* group, *P. xiaowei* is distinguished by the black and pale yellow color pattern, without reddish marking on the abdomen, and the entirely blackish veins and stigma of the forewing.

In Gussakovskij's (1935) key to Palearctic species, *P. xiaowei* would run to couplet 47, which contains "*P. smithii* Kby." and "*P.*

*volatilis* Smith". These two Japanese taxa are actually synonymous (Shinohara, 2002a) and the species, *P. volatilis* (Smith, 1874) (= *P. smithii* Kirby, 1882) belongs to the *P. sylvaticus* group as defined by Shinohara (1985). Gussakovskij's (1935) placement of this species in a group of species with a long 3rd antennal segment ("Subg. *Anoplolyda* Costa") was erroneous, because the species of the *P. sylvaticus* group have a short 3rd antennal segment. From *P. volatilis*, *P. xiaowei* is easily distinguished by the large size, the heavy punctuation on the head, the long 3rd antennal segment, very different configuration of the male genitalia and the color pattern (see Shinohara, 1985, for more details).

*Pamphilius lizejani* Shinohara, n. sp.  
(Figs. 8A–G, 9)

Female (Fig. 8A). Length about 9.5–10.5 mm. Head pale orange, with small black spot

covering ocellar area. Mouth parts pale yellow, with apical parts of mandibles blackish. Antenna black, with scape, pedicel and ventral surface of 1st flagellomere pale orange. Thorax black, with pronotum, cervical sclerite, tegula, and anterior dorsal part of mesepisternum pale yellow; in one paratype, mesoscutellum with small obscure pale yellow spot. Forewing strongly black-infuscated, with cells 3R1, 2Rs, 3Rs, apical 1/3 of 2M, 3M, and apical 1/2 of 3Cu clear hyaline; hindwing weakly black-infuscated, with apical 2/3 of R1, apical 2/3 of 1Rs, apical part of 1M, 2Rs, 2M, and apical part of 2A clear hyaline; veins black in blackish parts and pale yellow in hyaline parts of wings; stigma black in basal half and pale yellow in apical half. Legs pale yellow, with very narrow bases of mid and hind coxae partly blackish. Abdomen pale orange, with 1st tergum black; in one paratype, dorsal parts of 2nd and 3rd terga mostly blackish and 4th tergum with obscure blackish marking dorsally.

Upper frons below ocelli convex, with shallow and indistinct notch medially; ocellar basin rather shallow, triangular in outline, with short anterolateral extension not reaching antennal furrow; median fovea very shallow; clypeus divided medially by low and rounded frontoclypeal crest, each half shallowly concave laterally; facial crest rather low and rounded. Head very smooth, impunctate and glabrous; clypeus and gena with sparse, small punctures and hairs. Right mandible (Fig. 8D) tridentate, with incision between apical and median teeth much wider and deeper than incision between median and basal teeth; left one (Fig. 8C) bidentate, without median tooth. Antenna with 25 segments; 1st flagellomere about 1.4–1.5 × length of 2nd. Sawsheath (Fig. 8E) with appendage stout, subtriangular in lateral view, setose.

Male (Fig. 8F). Length 8–9 mm. Head pale yellow, with large spot covering most of vertex and dorsal part of occiput black. Mouth parts as in female. Antenna blackish brown, with scape and pedicel pale orange; ventral surface

of flagellum paler than dorsal surface. Thorax black, with following parts pale yellow: entire lateral pronotum, ventral half of cervical sclerite, anterior part of tegula, entire mesepisternum, all or most of pectus, posterodorsal half of mesepimeron, entire metepisternum, and posterodorsal part of metepimeron. Wings and legs as in female, but stigma with basal 2/3 black. Abdomen pale yellow, with dorsal parts of 1st to 5th terga mostly and those of 6th and 7th terga partly black.

Structure generally similar to that of female. Median notch on upper frons distinct; median fovea distinct or indistinct. Antenna with 23–24 segments, with 1st flagellomere about 1.0–1.2 × length of 2nd. Subgenital plate with posterior margin subtriangularly produced and narrowly rounded at apex. Genitalia as in Fig. 9.

Holotype: ♂, “Hunan, Mufu-shan, Tianmen-si, N28°58.780′ E113°49.745′, alt. 1,350 m, 26. IV. 2008, Li Ze-Jian” (CSUFT).

Paratypes: 1 ♀, “Jiangxi, 1967.3.4” (CSUFT); 1 ♀, 2 ♂, Mt. Yunshan, 1,200 m, 3–4. V. 2009, A. Shinohara (NSMT).

*Distribution.* China (Hunan, Jiangxi).

*Host plant.* Unknown.

*Etymology.* This new species is named after the collector of the holotype, Mr. Li Ze-Jian, Central South University of Forestry and Technology, Changsha.

*Remarks.* This is a second species of the *P. basilaris* group defined by Shinohara (1982, 2000, 2002a) and very closely allied to *P. basilaris* Shinohara, 1982, from Japan. *Pamphilius lizejiani* has more flagellomeres (23 in the females and 21–22 in the males), with a shorter 1st flagellomere (about 1.4–1.5 times as long as the 2nd in the females and 1.0–1.2 in the males), the mesoscutellum and mesepisternum very smooth, the latter very sparsely punctate, and the cell Rs of the forewing entirely and the cell 2M with basal 2/3 black (Fig. 8A, F). *Pamphilius basilaris* has 17–20 flagellomeres in the females and 19–20 in the males, with the 1st flagellomere about 2.0–2.1

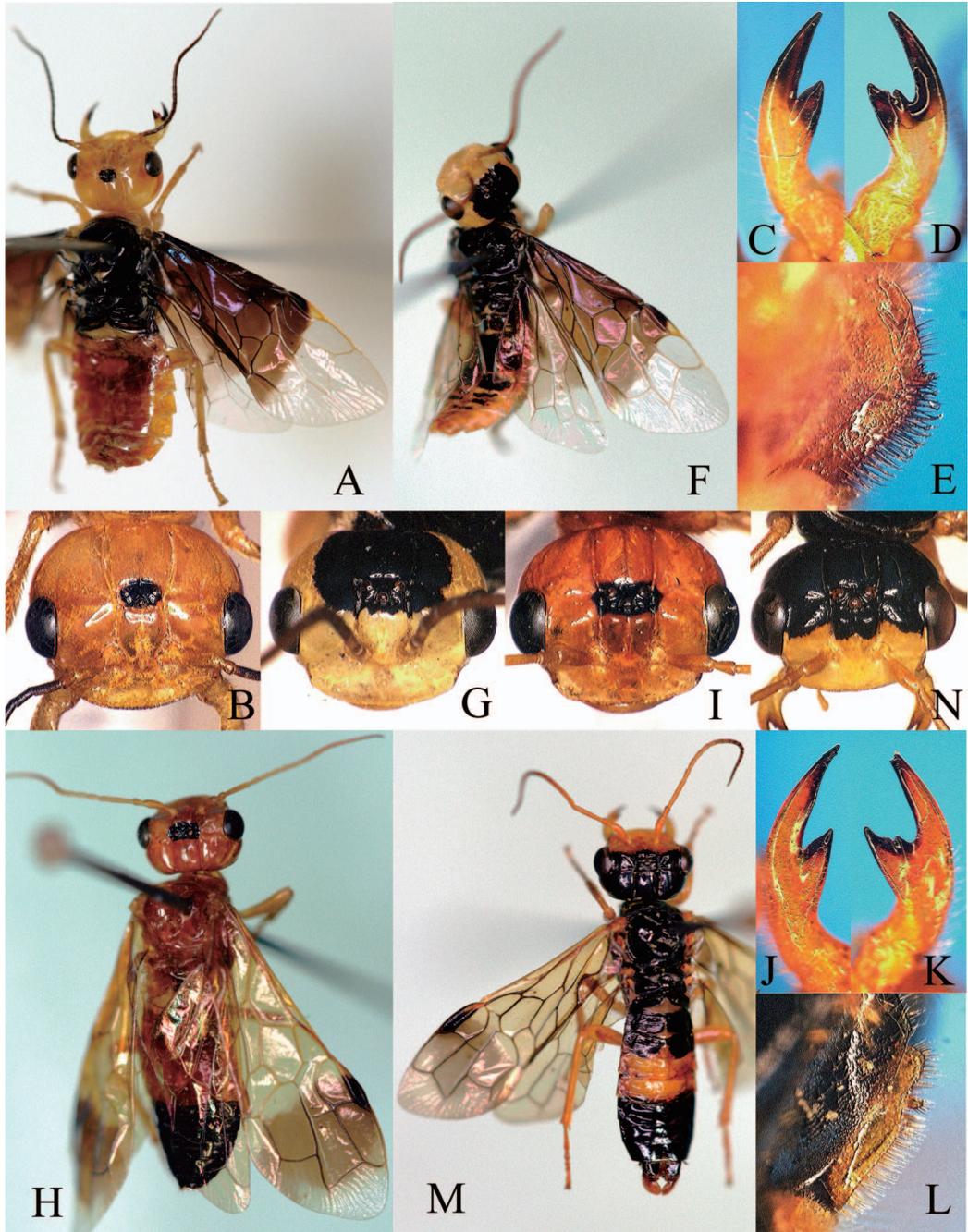


Fig. 8. *Pamphilius lizejiani*, female, paratype, Mt. Yunshan (A-E), male, holotype (F, G), *P. atricaudatus*, female, holotype (H-L), and male, paratopotype (M, N). — A, F, H, M, Dorsal view; B, G, I, N, head, dorsofrontal view; C, J, left mandible, dorsal view; D, K, right mandible, dorsal view; E, L, sawsheath, lateral view.

times as long as the 2nd in the females and 1.7–1.8 in the males, the mesoscutellum and mesepisternum not very smooth with slight rugosity and small punctures and the cell Rs apically hyaline and the cell 2M with basal 1/3–1/2 black in the forewing. In the female, one paratype of *P. lizejiani* from Jiangxi has the 2nd to 4th abdominal terga marked with black dorsally, whereas the other paratype from Hunan has no black marks on these terga. The female of *P. basilaris* has no black marks on the 2nd to 4th terga. In the male, *P. lizejiani* is separated from *P. basilaris* also in having the large black mark on the vertex not reaching the posterior margin of the eye (Fig. 8G), the pectus mostly pale yellow, and the 2nd to 7th abdominal terga largely marked with black. The male of *P. basilaris* has the large black mark on the vertex with a narrow lateral extension reaching the dorsal posterior margin of the eye, the pectus mostly black, and the 2nd to 7th abdominal terga without black marks (sometimes only the 2nd tergum is obscurely blackish).

*Pamphilius atricaudatus* Shinohara, n.sp.

(Figs. 8H–N, 10)

Female (Fig. 8H). Length about 11–13 mm. Head orange, with black spot covering ocellar area; clypeus and malar space often pale yellowish (Fig. 8I). Mouth parts pale yellow, with apical part of mandible blackish. Antenna orange, about ten basal flagellomeres often pale yellowish and apical 2–5 flagellomeres blackish. Thorax orange, with prosternum (partly or entirely) and ventral surface of mesepisternum (including all pectus) black; mesoscutum with median anterior margin of median lobe and anterolateral margin of lateral lobe sometimes very narrowly marked with black. Forewing distinctly stained with orange, with sharply defined blackish cloud covering apical 1/2–2/3 of 2R1, usually most of 3R1, apical 1/2 of 1Rs, entire 2Rs, usually basal margin of 3Rs, apical 2/3–3/4 of 2M, most of 3M (except for apical

part), and anterior apical 1/2 of 3Cu; marginal part of forewing apical to this cloud very slightly infuscated, without orange tint; veins and stigma pale orange, apical 1/2–2/3 of stigma and veins in dark areas black; hindwing stained with orange, apical 1/2–1/3 darkened; veins pale orange, those in darkened part blackish. Legs entirely pale orange. Abdomen orange, with 6th and more posterior segments black; posteromedian part of hypopygium and sawsheath dark orange.

Upper frons below ocelli very strongly convex, with distinct notch medially; ocellar basin deep, triangular in outline, with anterolateral extension shallow but usually reaching antennal furrow; median fovea very shallow, often indistinct; clypeus divided medially by bluntly carinate frontoclypeal crest, each half not distinctly concave; facial crest strongly inflated and rounded or very bluntly carinate. Head very smooth, impunctate and glabrous; clypeus and gena with very sparse small punctures and hairs. Right mandible (Fig. 8K) tridentate, with incision between apical and median teeth much wider and deeper than incision between median and basal teeth; left one (Fig. 8J) bidentate, without median tooth. Antenna with 21–23 segments; 1st flagellomere about 2.8–3.0× length of 2nd. Sawsheath (Fig. 8L) with appendage elongate and setose.

Male (Fig. 8M). Length 8.5–11 mm. Head black, with all frontal surface below level of facial crest and entire malar space and gena pale yellow. Mouth parts as in female. Antenna pale brown, darkened towards apex. Thorax black, with tegula (except for basal part) pale orange. Wings stained with dark brown; forewing with blackish (but much less conspicuous) cloud as in female; veins mostly blackish brown except for C and Sc; stigma black, with basal 1/3 orange. Legs pale yellow, with coxal bases black. Abdomen with terga black and sterna pale orange; 4th and 5th terga mostly or entirely orange; laterotergites marked with orange.

Structure generally similar to that of female. Median fovea always distinct. Left mandible

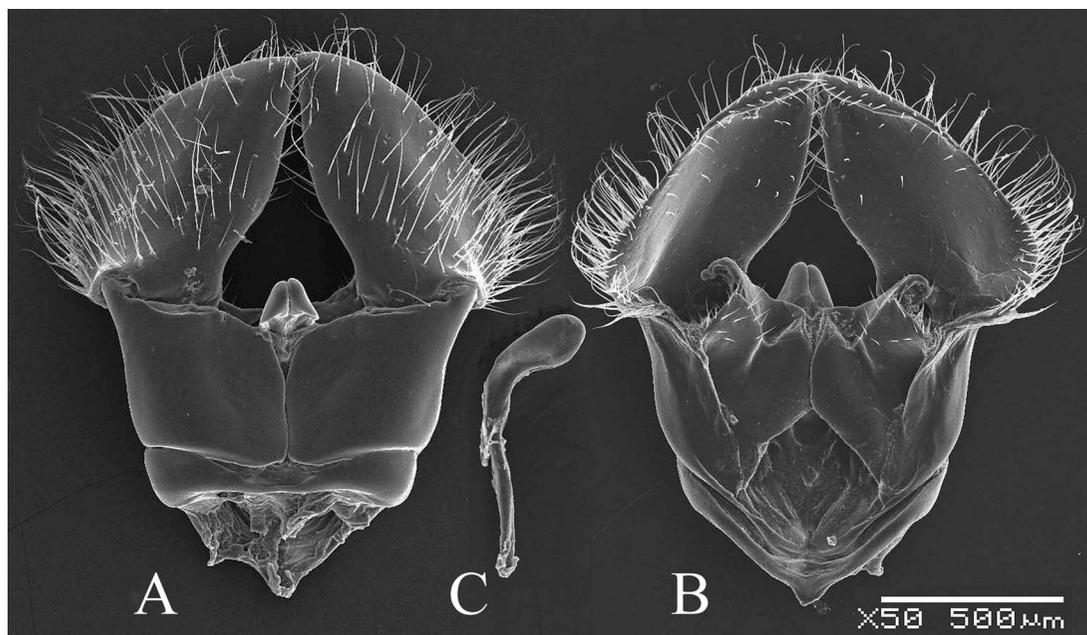


Fig. 9. Male genitalia, *Pamphilius lizejiani*, paratype, Mt. Yunshan. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

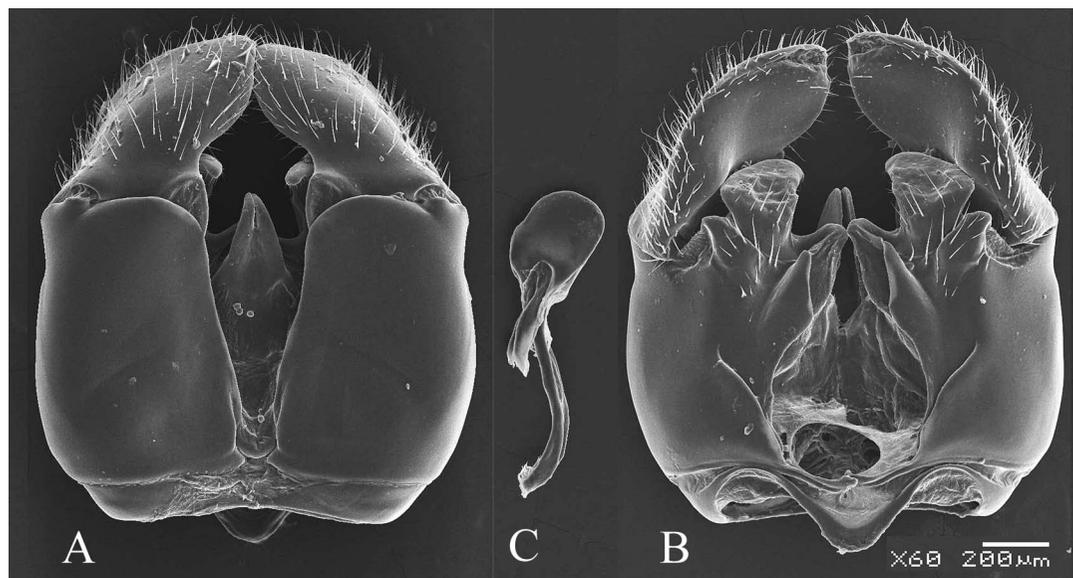


Fig. 10. Male genitalia, *Pamphilius atricaudatus*, paratopotype. — A, Dorsal view; B, ventral view; C, penis valve, lateral view.

often with indication of very low median tooth. Antenna with 21–23 segments, with 1st flagellomere about  $2.8\text{--}3.1\times$  length of 2nd. Subgenital plate with posterior margin broadly

rounded and narrowly truncate at apex. Genitalia as in Fig. 10.

Holotype: ♀, “Hunan, Wugang, Yunshan, 2005–IV–26, 1,100–800 m, Xiao Wei” (CSUFT).

Paratypes: 13 ♀ 17 ♂, Shengli-si, 1,120 m, N26°39' E110°37', Mt. Yunshan, nr. Wugang, Hunan, 15–20. IV. 2010, A. Shinohara (NSMT); 1 ♀ 2 ♂, same data except 16–20. IV. 2010, Wang X.-H. (CSUFT); 7 ♀ 25 ♂, Mt. Yunshan, 1,250 m, N26°39' E110°37', 14–22. IV. 2011, A. Shinohara (NSMT); 1 ♀ 2 ♂, same data except 19–21. IV. 2011, Li Z.-J. & Wei L. (CSUFT). 1 ♀, Yaolangou, 1,360 m, N31°30' E111°23', Shennongjia, Hubei, 18. V. 2011, A. Shinohara (NSMT).

*Distribution.* China (Hunan, Hubei).

*Host plant.* Unknown.

*Etymology.* The species epithet refers to the black tail of the new species.

*Remarks.* This new species belongs to the *P. komonensis* complex (Shinohara & Zhou, 2006) and comes closest to *P. nitidiceps* Shinohara, 1998, from Shaanxi, and *P. politiceps* Shinohara & Yuan, 2004, from Guangxi, China. Within the *P. komonensis* complex, these three Chinese species are well characterized by the lack of a median tooth on the left mandible. In the female, *P. atricaudatus* is easily separated from *P. nitidiceps* and *P. politiceps* by the very different color pattern. The head and thorax are mostly orange and the orange-stained forewing has a sharply defined black subapical cloud in *P. atricaudatus* (Fig. 8H), whereas the head and thorax are richly black-marked and the forewing is not distinctly stained with orange and has no conspicuous blackish cloud in *P. nitidiceps* and *P. politiceps* (Shinohara & Zhou, 2006, figs. 2C–F, 9E, F, 16A). In the male, *P. atricaudatus* differs from *P. nitidiceps* (males are unknown for *P. politiceps*) in the color pattern of the thorax and wings and the shape of the valviceps in the genitalia. The ventral side of the thorax is entirely black, the forewing has a distinct, though not very sharply defined, subapical cloud (Fig. 8M), and the valviceps is narrow and tapered toward apex in dorsal view in *P. atricaudatus* (Fig. 10), while the thorax is largely pale yellow ventrally, the forewing has no conspicuous subapical cloud, and the valviceps is stout and not tapered

toward apex in dorsal view in *P. nitidiceps* (Shinohara & Zhou, 2006, figs. 3E, F, 14).

In general color pattern, the female of *P. atricaudatus* closely resembles that of *Onycholyda euapicalis* Wei, 2002, from Guizhou, China (Wei, 2002). Besides the generic differences, *P. atricaudatus* is separated from *O. euapicalis* by the large black mark on the ventral part of the mesothorax, the black apical 1/2–2/3 of the stigma, the black-infuscated apical 1/2–2/3 of the cell 2R1 and apical 1/2 of the cell 1Rs in the forewing, and the almost hyaline apical margin of the forewing. In *O. euapicalis*, the thorax has no black spot ventrally, the stigma is entirely pale yellow, the cells 2R1 and 1Rs have no black cloud, and the apical margin of the forewing is infuscated.

## Discussion

### *Pamphiliid Fauna of Mt. Yunshan*

The Pamphiliidae are distributed in the Holarctic region and northern margins of the Oriental and Neotropical regions. The southernmost record in Eurasia is from Phuphing (1,300–1,500 m alt., about N18°48') in northern Thailand, where one species of the genus *Neurotoma* has been described (Shinohara, 1986). Mt. Yunshan, situated at about N26°39', is in the southern part of the family's distribution range, where pamphiliid fauna has been little explored. Because Mt. Yunshan is not very high (1,380 meters in altitude), the pamphiliid fauna of this area is not expected very rich.

Here we record eight species of three genera of pamphiliid sawflies from Mt. Yunshan, of which five species of three genera are new to science and one genus is new to the fauna of China. The present study added five species and one genus to the Chinese fauna, thus bringing the total number of the pamphiliid species and genera recorded in China to 80 species and eight genera. *Onycholyda oadaesana* is newly recorded from Gansu Province, *O. sichuanica* from Guangxi Zhuang Autonomous Region

and Hunan Province, and *O. fanjingshanica* from Guangxi Zhuang Autonomous Region and Hubei, Hunan, Anhui and Fujian Provinces. All the eight species recorded belong to the subfamily Pamphiliinae, whose larvae are associated with the angiosperms, and no species of the conifer-feeding subfamily Cephalciinae have been found in the area studied.

The high ratio of the new taxa in our material (five out of eight species) simply reflects the absence of previous sampling and taxonomic researches on the Pamphiliidae in this area and this will also partly explain the absence of the Cephalciinae in our material. Some more species of the Pamphiliidae, including the Cephalciinae, will certainly be found on Mt. Yunshan when more material becomes available.

Nevertheless, the pamphiliid sawfly fauna in this area is rather poor, compared with more northern areas in Asia such as Japan. Shinohara (1971) found five species of the Pamphiliidae in the grounds of a high school (ca. 20 m alt.) in Shiki City and Shinohara (2002b) recorded 19 species of the family in Kamiange (ca. 400 m alt.) in Hachioji City, both in the vicinity of Tokyo, central Japan. The former locality in Shiki is only a small green area surrounded by suburban environment and the study area in Kamiange is also a small old orchard and narrow roadside of a forest road in a valley about 300 meters long (see Shinohara, 2002b, for more details). These are much smaller area apparently with poorer natural environments than Mt. Yunshan.

Of the eight species recorded in this work from Mt. Yunshan, four belong to *Onycholyda*, one belongs to *Chrysolyda* and three remaining species belong to *Pamphilius*. From the faunistic point of view, the eight species of three genera may be classified into the following two categories.

1) Species belonging to groups centered in southern China: All the four species of *Onycholyda* belong to one and the same group of species (*O. wongi* complex), a species-group

apparently centered in southern China (see more discussion below). The affinities of *P. xiaowei* are not clear, but it is probably closely related to the species of the *P. tibetanus* group, which is distributed on the mountains of northern India to southern China (Shinohara *et al.*, 1998). *Pamphilius atricaudatus* belongs to the *P. komonensis* complex and its nearest relatives, *P. nitidiceps* and *P. politiceps*, inhabit in southern and central China (Shinohara & Zhou, 2006).

2) Species belonging to small groups of specialized species showing disjunct distribution: *Chrysolyda yunshanica* is the second species in the previously monotypic genus, whose type species, *Ch. leucocephala*, occurs in Primorsky krai, Korea and Japan (Shinohara, 2002a). A similar distribution pattern is found in the case of *P. lizejiani*; this is the second species in the *P. basilaris* group, which was represented only by a Japanese endemic species, *P. basilaris* (see Shinohara, 2002a). This disjunct distribution corresponds with the pattern IV 10 defined by Wei & Nie (1997).

Occurrence of the species in the first category on Mt. Yunshan is natural and they should represent the major faunal component in this area. On the other hand, the presence of the second category is unexpected and difficult to explain, though some other sawflies show a similar distribution pattern (Wei & Nie, 1997). Possibly, the seemingly great disjunction does not exist in reality, but this hypothesis should be verified only by thorough sampling efforts in the vast areas between Korea and Hunan Province.

#### *Comments on Onycholyda wongi* Complex

All the four species of *Onycholyda* found in Mt. Yunshan belong to the *O. wongi* complex defined by Shinohara (2002a). This is one of the two species-complexes of the *O. wongi* subgroup of the *O. luteicornis* group and is characterized by the roundly swollen upper frons in the female, the bidentate left mandible (e. g., Figs. 1C, J, P, 2H, O), and the long 3rd

antennal segment. Shinohara (2002a) included four species in the *O. wongi* complex, namely *O. wongi* (Maa, 1944), *O. odaeana*, *O. sichuanica*, and *O. shaanxiana*, and four additional species described thereafter, namely *O. euapicalis*, *O. fanjingshanica*, *O. fulva* Shinohara & Yuan, 2004, and *O. flavicostalis*, also belong here. This group of species of *Onycholyda* is speciose in southern part of China and seems to share a large portion in the pamphiliid fauna of this area.

Of the eight species of the *O. wongi* complex, both sexes are known for *O. odaeana* and *O. flavicostalis*, whereas only the male is known for *O. sichuanica* and only the female is known for the remaining five species. Because of the fairly large sexual dimorphism, association of the sexes is not easy in this group of species. *Onycholyda sichuanica* (males) seems to have much in common with *O. shaanxinica* and *O. fanjingshanica* (females only) and the former might possibly be an opposite sex of one of the latter species. Particularly, *O. fanjingshanica* is a likely candidate for the female of *O. sichuanica*, because we obtained both "species" on Mt. Yunshan, but we need more information to reach any definite conclusion.

### Acknowledgements

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## 中国湖南省雲山のヒラタハバチ科（膜翅目，広腰亜目）

篠原明彦・魏美才

2009年から2011年の4月から5月に3回にわたって行った現地調査の結果と中南林業科技大学（長沙）の所蔵標本をもとに、中国湖南省南西部に位置する雲山（標高1380 m）のヒラタハバチ科をまとめた。中国南部のヒラタハバチ類についてはこれまでごく断片的な情報しかない。本研究で同地から見つかったヒラタハバチ科は3属8種あり、そのうち5種が未記載種であることが判明したので、*Onycholyda flavicostalis* Shinohara, *Chrysolyda yunshanica* Shinohara, *Pamphilius xiaowei* Shinohara, *Pamphilius lizejiani* Shinohara, *Pamphilius atricaudatus* Shinohara として記載・命名した。このうち *Chrysolyda* 属は中国初記録であり、また *Onycholyda odaesana* Shinohara & Byun, 1993, は甘粛省から、*Onycholyda sichuanica* Shinohara, Naito & Huang, 1988, は広西チワン自治区と湖南省から、*Onycholyda fanjingshanica* Jiang, Wei & Zhu, 2004, は広西チワン自治区、湖北省、湖南省、安徽省、福建省から、それぞれ初めて記録される。全8種のうち、6種については近縁種がいずれもおもに中国南部に産するが、*Chrysolyda yunshanica* と *Pamphilius lizejiani* の2種については、近縁種が、前者はロシア極東・朝鮮半島・日本から、後者は日本からのみ知られる。