

## Leaf-rolling Sawflies of the Genus *Onycholyda* (Hymenoptera, Pamphiliidae) from Shaanxi Province, China

Akihiko Shinohara

Department of Zoology, National Science Museum,  
3–23–1 Hyakunin-chō, Shinjuku-ku, Tokyo, 169–0073 Japan

**Abstract** Three species of the leaf-rolling sawfly genus *Onycholyda*, namely, *O. xanthogaster* sp. nov., *O. shaanxiana* sp. nov. and *O. subquadrata* (Maa, 1944), are recorded from Shaanxi Province, China. The former two new species are described and the variation in the male of the last species is discussed. This is the first record of the genus *Onycholyda* from Shaanxi Province.

**Key words:** Pamphiliidae, *Onycholyda*, new species, Shaanxi, China.

The Holarctic leaf-rolling sawfly genus *Onycholyda* comprises 30 world species, of which 20 occur in East Asia (Shinohara & Byun, 1993). A total of six species of the genus have been recorded from China (Shinohara et al., 1988, 1991; Shinohara, 1992), including four endemic species, but all of them are known from scanty material and the six species should doubtless represent a small part of the actual *Onycholyda* fauna of this vast country.

In the course of the Sino-Japanese expeditions to the mountains of Shaanxi 1997, five specimens of *Onycholyda* were collected at the central part of the Qin Ling Mountains in Central Shaanxi, central China. They were classified into three species, two of which, each represented by a single specimen, have been found new to science. The remaining three specimens, all males, belong to the widely distributed Chinese endemic species *O. subquadrata* (Maa, 1944) but show some difference in coloration from the previously known specimens. In the following lines, I will describe the two new species, *O. xanthogaster* and *O. shaanxiana*, and give the record of *O. subquadrata* with notes on its variation. This is the first record of the genus *Onycholyda* from Shaanxi Province.

I wish to thank the members of the expeditions for their careful attention to collect sawflies on the Qin Ling Mountains and Prof. T. Naito, Kobe University, for his help in various ways. My thanks are also due to Dr. D. R. Smith, United States Department of Agriculture, Washington, D. C., for the loan of material and Dr. S.-I. Uéno, National Science Museum, Tokyo, for reviewing the manuscript. This work is supported by the Grant-in-aid No. 07041141 for Field Research of the Monbusho International Scientific Research Program, Japan, and the Grant-in-aid for Scientific Research No. 10836021 from the Ministry of Education, Science, Sports and Culture, Japan.

*Onycholyda xanthogaster* sp. nov.

(Figs. 1 A–B, G; 2 A; 3)

*Male* (holotype). Length ca. 9 mm. Head (Fig. 1 G) black, with anterior portion in front of line connecting transverse crests, including facial crest, paraantennal field, frons below ocellar basin, clypeus and malar space, and large narrow mark along posterior orbit pale yellow. Mandibles pale yellow, apically rufous, right one with obscure blackish spot along inner margin. Antennal scape dark yellow, with large black mark on outer surface; pedicel dark yellow basally and blackish brown apically; flagellum blackish brown. Thorax black, with narrow posterolateral corner of dorsal pronotum, minute spot at lower margin of lateral pronotum, tegula, most of mesoscutellum, very large, partly fading mark at anterior margin and median part of mesepisternum, large spot on metascutellum and large spot on metepisternum pale yellow. Legs pale yellow, with coxal bases black. Wings hyaline, distinctly stained with blackish brown; veins and stigma blackish brown; minute inconspicuous pale spot at extreme base of stigma. Abdomen dark yellow to orange, with propodeum, narrow anterior margin and small lateral area of 2nd tergum and anterior 1/2 of 2nd sternum black.

Clypeus with anterior margin roundly thickened and without median depressed area; sharply carinate frontoclypeal crest attaining anterior margin of clypeus; ocular and transverse crests low, broad, very blunt, nearly confluent; postocellar crest separated from ridges in upper frons just before ocellar basin by shallow notch. Upper part of head behind transverse and lateral transverse sutures smooth, nearly impunctate, except for distinctly punctate posterior margin; area before these sutures down to clypeus shallowly rugose or coriaceous; gena sparsely and irregularly punctate, weakly rugose in places; head glabrous, except for pilose gena. Right mandible (Fig. 2 A) tridentate, with incision between apical and median teeth much wider and deeper than that between median and basal teeth; left mandible (Fig. 2 A) tridentate, but median tooth very low and inconspicuous. Left antenna 26-segmented, with 3rd segment about 2.0 times as long as 4th. Subgenital plate with posterior margin produced into rounded apex. Genitalia as in Fig. 3.

*Female.* Unknown.

*Distribution.* China (Shaanxi).

*Holotype:* ♂, “[Shaanxi: Fuping-x.], Dadianzi, 1800–2000 m, 5 km N of Donhetai, 7 July 1997, T. Yagi.” Kept in Beijing University.

*Etymology.* The new specific name refers to the almost entirely yellowish abdomen.

*Remarks.* *Onycholyda xanthogaster* is known only from the male and belongs to the group of species characterized by the entire, sharply carinate frontoclypeal crest. Within the Old World species of this group, *O. xanthogaster* is unique in having an almost entirely yellowish abdomen. All the other known Palearctic and Oriental

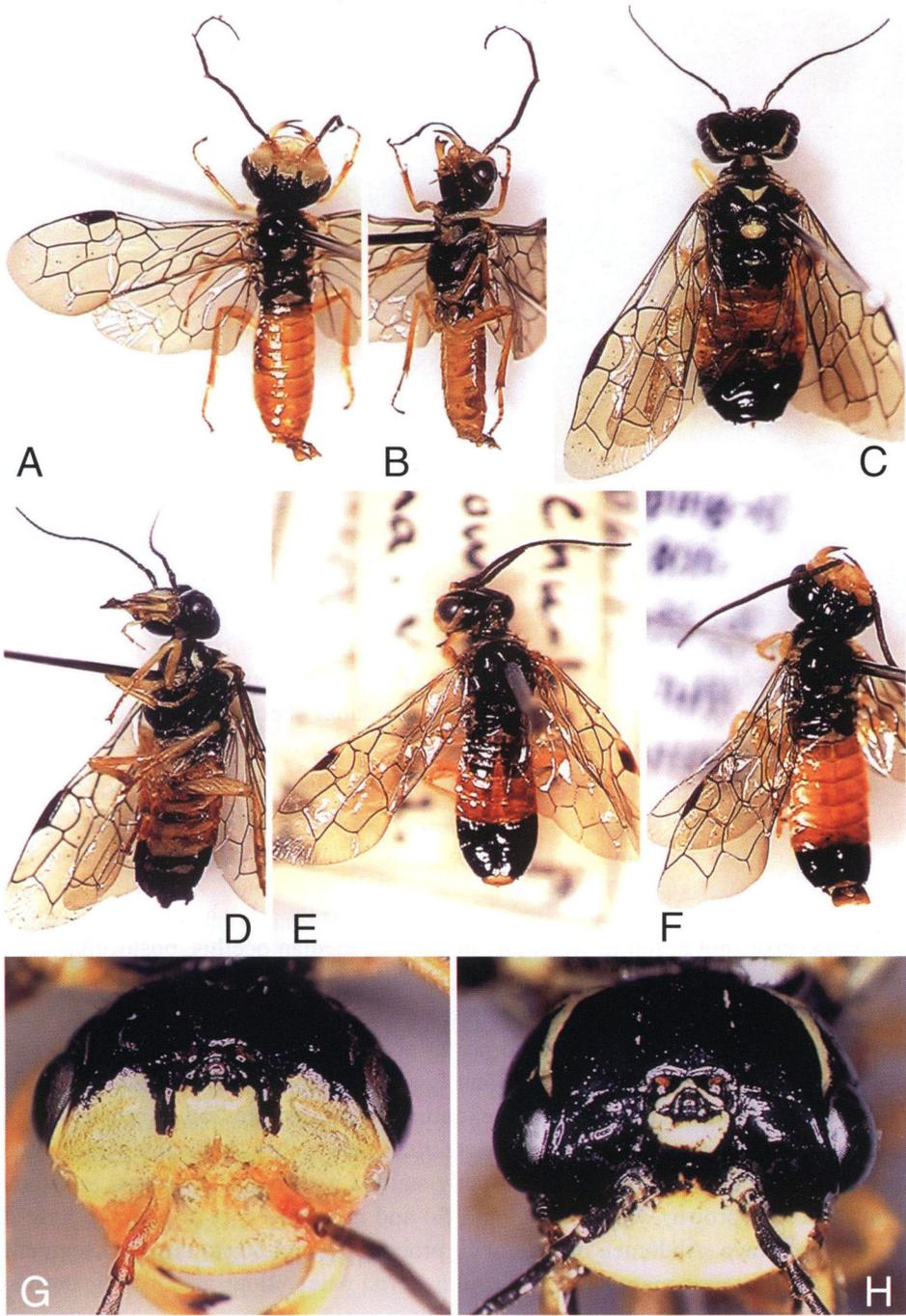


Fig. 1. *Onycholyda xanthogaster*, ♂, holotype (A–B, G), *O. shaanxiana*, ♀, holotype (C–D, H), *O. subquadrata*, ♂, paratype, “Ta-Chu-Lan,” Fujian (E), and do., Dadianzi, Shaanxi (F).

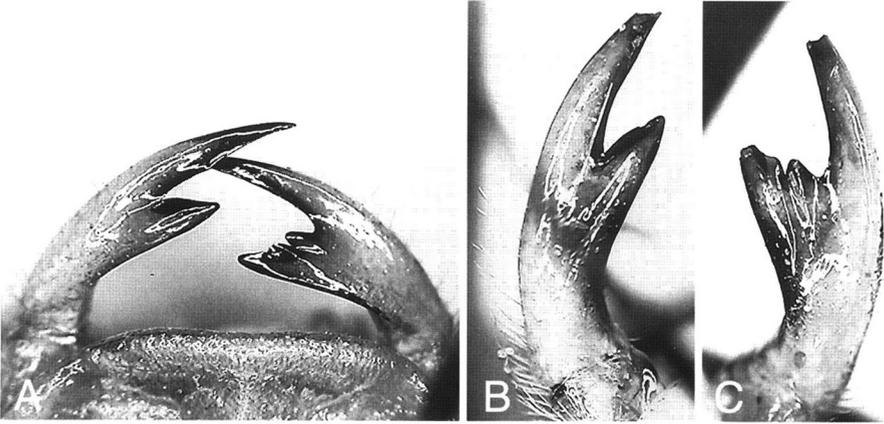


Fig. 2. *Onycholyda xanthogaster*, ?, holotype, mandibles (A), *O. shaanxiana*, ♀, holotype, left mandible (B), and do., right mandible (C).

forms have the tip of abdomen black. The combination of distinct surface microsculpture of the head, black-marked antennal scape, blackish brown flagellum, pale-marked mesepisternum, and almost entirely blackish brown stigma will also serve to distinguish the new species from the other Old World congeners. In Middlekauff's (1964) key to Nearctic species, *O. xanthogaster* would run to *O. rufofasciata* (Norton, 1869); however, the abdomen of the latter species is black except for a few orange median segments.

***Onycholyda shaanxiana* sp. nov.**

(Figs. 1 C–D, H; 2 B–C)

*Female* (holotype). Length ca. 10 mm. Head (Fig. 1 H) black, with clypeus, large transverse spot at top of frons just in front of median ocellus, postocellar crest, and posteriorly somewhat widening postocular stripe pale yellow. Mandibles pale yellow with inner half partly blackish and apex rufous. Antenna blackish brown to black throughout. Thorax black, with broad posterior margin (rather broadly interrupted) on dorsum of pronotum, large mark along lower margin of lateral pronotum, tegula, posterior 1/2 of mesoscutal median lobe, entire mesoscutellum, rather broad anterior margin of mesepisternum, most of metascutellum pale yellow. Legs pale yellow, with coxal bases black. Wings hyaline, distinctly stained with blackish brown; veins and stigma blackish brown, with veins C and Sc and a minute spot at extreme base of stigma pale brown. Abdomen orange, with propodeum and 6th to terminal segments black, broad posterior margins of 2nd to 6th sterna pale yellow, apex of 7th sternum pale brown, and sawsheath dark brownish.

Upper frons below ocelli strongly convex, shallowly notched medially; ocellar

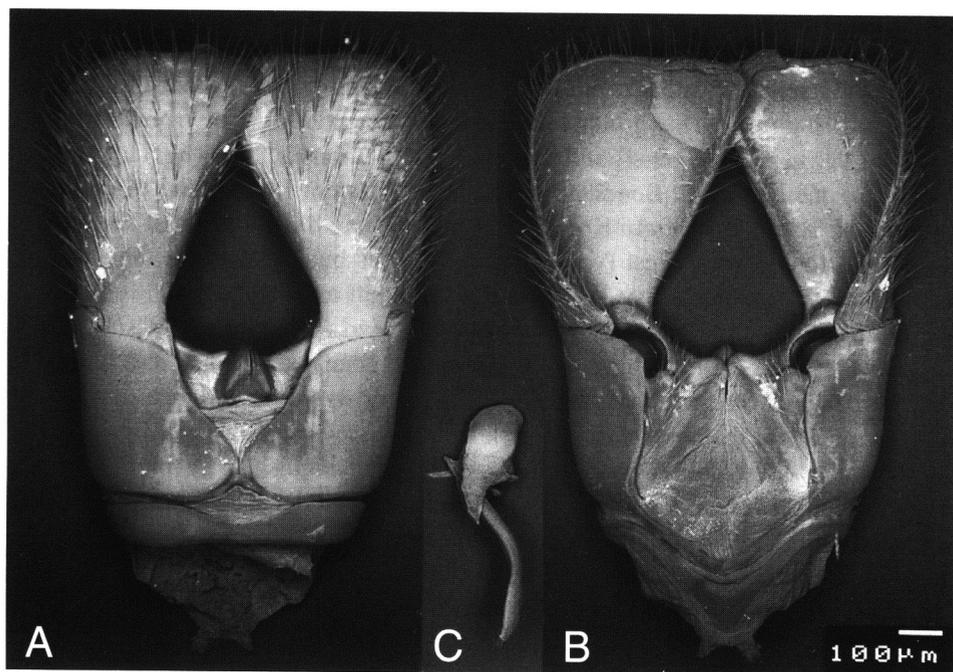


Fig. 3. *Onycholyda xanthogaster*, ♂, holotype, genitalia, dorsal view (A), ventral view (B) and penis valve, lateral view (c).

basin deep, triangular in outline, with short anterolateral extension not reaching antennal furrow; median fovea indistinct; clypeus divided medially by rather low but carinate frontoclypeal crest (its apex nearly obsolete at anterior margin of clypeus), each half distinctly but rather shallowly concave in lateral part; facial crest rather strongly inflated and rounded. Head smooth, with very sparse minute punctures, nearly glabrous, except for rather densely punctate and pilose anterior part of clypeus (with short fine hairs) and gena (with long hairs); anterior and lateral parts of clypeus more or less coriaceous. Mandibles (Fig. 2 B–C) partly damaged; right one tridentate, with incision between apical and median teeth much wider and deeper than incision between median and basal teeth; left one bidentate, but with indication of very low and inconspicuous median tooth. Right antenna with 21 segments and left one 19; 3rd antennal segment about 2.2 times as long as 4th. Sawsheath peg normal in shape for genus, with a few setae.

*Male.* Unknown.

*Distribution.* China (Shaanxi).

Holotype: ♀, “[Shaanxi: Zuoshui-x.], Yingpan-linchang, 1850 m, 22 June 1997, A. Nakanishi.” Kept in Beijing University.

*Etymology.* The new specific name derives from the name of Shaanxi Prov-

ince, where the unique specimen has been obtained.

*Remarks.* The structure of the clypeus and the lack of distinct middle tooth in the left mandible indicate that this new species is an additional member of the *wongi* subgroup of the *luteicornis* group (Shinohara & Byun, 1993). The *wongi* subgroup includes *O. wongi* (Maa, 1944) and *O. sichuanica* Shinohara, Naito & Huang, 1988, from China, *O. birmanica* Beneš, 1972, from northeastern Burma, and *O. odaesana* Shinohara & Byun, 1993, from Korea, all of which share the reduction of the anterior part of the frontoclypeal crest (very distinct in males but indistinct in females) and the bidentate left mandible (i.e., no middle tooth on left mandible).

From two very pale-colored species, *O. wongi* and *O. birmanica*, *O. shaanxiana* differs in the much darker color pattern; the head, antennae and apical part of the abdomen are mainly orange or yellowish in the former two species, whereas these parts are mainly black in the new species.

From *O. odaesana*, *O. shaanxiana* is easily distinguished by more strongly, rather angularly swollen upper frons and facial crest, well developed posterior part of postocular stripe (reduced in *odaesana*), blackish antennal flagellum (brown in *odaesana*), pale-marked lateral pronotum, mesoscutal median lobe, mesoscutellum, anterior margin of mesepisternum, and metascutellum (these areas entirely or almost entirely black in *odaesana*), and mostly blackish brown stigma (basal 1/3–1/4 dark yellow in *odaesana*). Also, the vertex, postocular area and frons of the new species have extremely sparse and minute but distinct punctures, whereas those areas are impunctate in *odaesana*.

Problematical is *O. sichuanica*, which is known only from a single male from Tianquan, Sichuan Province, China. This may possibly be a male of *O. shaanxiana* or *O. wongi*, but, without further evidence, I would treat them as separate species.

### *Onycholyda subquadrata* (Maa, 1944)

(Fig. 1 E–F)

*Pamphilius* (*Anoplyda*) *subquadrata* [sic] Maa, 1944, p. 54.

*Onycholyda subquadrata*: Shinohara, 1988, p. 102; Shinohara et al., 1988, p. 93; Shinohara et al., 1991, p. 159.

*Distribution.* China (Inner Mongolia, Sichuan, Shaanxi [new record], Fujian).

*Specimens examined.* 1 ♂, “[Shaanxi: Fuping-x.], Dadianzi, 1800–2000 m, 5 km N of Donhetai, 7 July 1997, A. Nakanishi”; 1 ♂, “[Shaanxi: Fuping-x.], Bridge 3 km NW of Donhetai, 1500 m, 28 June 1997, T. Saigusa”; 1 ♂, “[Shaanxi: Zhouzhi-x.], Shuimoping, 1500–1700 m, SSW of Banfangzi, 6 July 1997, A. Nakanishi.”

*Remarks.* This widely distributed species has been recorded from Inner Mongolia, and Fujian and Sichuan Provinces and this is the first record from Shaanxi Province. As was discussed by Shinohara (1988), this seems to be a very variable species. Shinohara et al. (1988, 1991) reported on the color variation of the males

based on four specimens from Fujian and Sichuan. The three males from Shaanxi agree generally with the previously examined specimens, but are somewhat larger (about 9–10.5 mm), and the 2nd, 3rd and 6th abdominal terga, which are largely black in the previously examined specimens from Fujian (Fig. 1 E) and Sichuan, are entirely orange (Fig. 1 F); the gena and stigma are dark-colored and the ocular and transverse crests are more strongly raised as in the Sichuan specimens treated by Shinohara et al. (1988, 1991). The mesoscutellum in two of the three Shaanxi specimens is largely pale yellow.

According to Maa (1944), the 2nd, 3rd and 6th terga (his “abdominal tergite I–II” and “V”) are black in the male of this species and he did not comment on variation after examining 96 males from Fujian. The two Fujian males which I have seen have these segments black (Fig. 1 E), though the black area on the 3rd tergum appears to show some tendency of reduction. On the other hand, the three Shaanxi specimens have these areas constantly orange (Fig. 1 F). Therefore, existence of geographic variations, more or less constant in each population, may be suggested. This problem should be reconsidered when more material from various localities becomes available.

Of the characters used by Shinohara et al. (1991) in their key to separate *O. subquadrata* from *O. sinica* Shinohara, Naito & Huang, 1991, the coloration of the mesoscutellum and 3rd abdominal segment has been found inadequate now.

## References

- Maa, T., 1944. Novelties of Chinese Hymenoptera Chalastogastra. *Biol. Bull. Fukien Christ. Univ. Shaowu*, **4**: 33–60.
- Middlekauff, W. W., 1964. The North American sawflies of the genus *Pamphilius* (Hymenoptera: Pamphiliidae). *Univ. Calif. Publs. Ent.*, **38**: 1–84.
- Shinohara, A., 1988. Systematic studies on the genus *Onycholyda* (Hymenoptera, Pamphiliidae) of the Far East II. *Kontyû, Tokyo*, **56**: 102–109.
- Shinohara, A., 1992. *Onycholyda nigroclypeata* (Hymenoptera, Pamphiliidae) new to the fauna of China. *Jpn. J. Ent.*, **60**: 502.
- Shinohara, A. & B. K. Byun, 1993. Pamphiliid sawfly genera *Neurotoma* and *Onycholyda* (Hymenoptera, Symphyta) of Korea. *Ins. Kor.*, **10**: 75–91.
- Shinohara, A., T. Naito & F.-S. Huang, 1988. Pamphiliid sawflies (Hymenoptera) from Xizang (Tibet) and Sichuan, China. *Annls. Soc. Ent. Fr.*, (N. S.), **24**: 89–97.
- Shinohara, A., T. Naito & F.-S. Huang, 1991. Some Pamphiliidae (Hymenoptera) from Sichuan Province, China. *Bull. Biogeogr. Soc. Japan*, (46): 155–160.

