

## A Taxonomic Study of Chinese Species of *Ooencyrtus* (Insecta: Hymenoptera: Encyrtidae)

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**Yan-Zhou Zhang, Wei Li, and Da-Wei Huang (2005)** A taxonomic study of Chinese species of *Ooencyrtus* (Insecta: Hymenoptera: Encyrtidae). *Zoological Studies* 44(3): 347-360. Eighteen Chinese species of *Ooencyrtus* were studied. *Ooencyrtus uniformis* is described as new to science. *Ooencyrtus flavipes* (Timberlake), *O. lucina* Huang and Noyes, *O. nezarae* Ishii, and *O. telenomicida* (Vassiliev) are first recorded from China. *Ooencyrtus malacosomae* Liao is synonymized with *O. kuvanae* (Howard). A key to the species is given, and photomicrographs are provided to illustrate the morphological characters of the species. Type specimens are deposited in the Institute of Zoology, Chinese Academy of Sciences, Beijing.  
<http://zoolstud.sinica.edu.tw/Journals/44.3/347.pdf>

**Key words:** Hymenoptera, Encyrtidae, *Ooencyrtus*, Egg parasitoid, China.

The genus *Ooencyrtus* Ashmead is a worldwide and species-rich group in the family Encyrtidae (Insecta: Hymenoptera). Nearly 200 species of *Ooencyrtus* have been recognized (Noyes 2002). *Ooencyrtus* plays an important role in controlling populations of many insect pests of agriculture and forestry. More than ten species of *Ooencyrtus* have been used in biocontrol programs (see Huang and Noyes 1994, Noyes and Hayat 1994). Though some taxonomic work has been done on Chinese species of *Ooencyrtus* (Liao et al. 1987, Huang and Noyes 1994, Xu et al. 1996), only a portion of the Chinese species was covered. In view of the importance of these potential biocontrol agents, the present work attempted to study all available Chinese species, to facilitate species recognition by providing a dichotomous key to Chinese species, and to summarize the available information on hosts and distribution. The introduced species, *Ooencyrtus ennomophagus* Yoshimoto (1975), is not included in this paper because there was no material available.

Morphological terminology generally follows that of Huang and Noyes (1994). Absolute mea-

surements are used for body length. Relative measurements are used for other dimensions. All specimens examined, unless specified, are deposited in Institute of Zoology, Chinese Academy of Sciences, Beijing (IZCAS).

### TAXONOMY

#### Genus *Ooencyrtus* Ashmead

The genus *Ooencyrtus* was erected by Ashmead (1900) on the basis of *Encyrtus clisio-campae* Ashmead. The generic synonymy and diagnosis are given by Huang and Noyes (1994).

Other pertinent references include Perkins 1906: 254, Howard 1910: 2, Girault 1915: 170, Timberlake 1920: 424, Ferrière 1931: 630, Risbec 1954: 1068, Annecke and Mynhardt 1973: 211, and Noyes and Hayat 1984: 309.

#### Key to Chinese species of *Ooencyrtus* (females)

1. Forewing shortened, clearly not reaching apex of

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- gaster.....2
- Forewing fully developed, reaching or extending beyond apex of gaster.....3
  - 2. Scutellum generally with reticulate or slightly striated-reticulate sculpturing which is barely deeper than that of mesoscutum (apex of scutellum often with very shallow reticulate sculpturing or smooth).....*O. segestes*
  - Scutellum with striated-reticulate sculpturing which is distinctly deeper than that of mesoscutum (apex of scutellum often smooth).....*O. telenomicida*
  - 3. Body yellow or orange.....*O. lucina*
  - Body dark or dark brown, at most gaster partly or nearly entirely yellow or orange.....4
  - 4. All coxae dark brown, rarely only hind coxae yellowish brown.....5
  - At least 1 pair of coxae yellow.....13
  - 5. Apex of antennal clava distinctly obliquely truncated.....6
  - Apex of antennal clava more or less rounded or somewhat transversely truncated.....7
  - 6. Mesoscutum generally covered with silvery-white setae; truncated part of antennal clava less than 1/3 of claval length (Fig. 1).....*O. guamensis*
  - Mesoscutum generally covered with dark brown setae; truncated part of antennal clava more or less 1/2 claval length (Fig. 2).....*O. phongi*
  - 7. Scutellum with sculpturing (striate-reticulate or punctate-reticulate) clearly deeper than that of mesoscutum.....8
  - Scutellum with sculpturing (reticulate or striated-reticulate) barely shallower than or the same as that of mesoscutum.....10
  - 8. Scutellum generally with striated-reticulate sculpturing; postmarginal vein at most as long as marginal vein (Fig. 22).....*O. nezarae*
  - Scutellum generally with deep reticulate or punctate sculpturing; postmarginal vein at least slightly longer than marginal vein (Fig. 20).....9
  - 9. Body length at least 0.8 mm; visible part of ovipositor sheath yellow.....*O. kuvanae*
  - Body length at most 0.6 mm; visible part of ovipositor sheath dark brown.....*O. hercle*
  - 10. Antennal scape clearly expanded and at most 3.2 times as long as broad (Fig. 8).....*O. pinicolus*
  - Antennal scape subcylindrical or slightly expanded and at least 4 times as long as broad.....11
  - 11. Scutellum nearly entirely smooth, only 1/3 or so covered with deep reticulate sculpturing; gaster generally yellow.....*O. flavipes*
  - Scutellum nearly entirely covered with reticulate sculpturing; gaster dark brown.....12
  - 12. Funicle unicolorous, dark brown; F5 and F6 longer than broad (Fig. 7).....*O. uniformis* sp. nov.
  - Funicle bicolored, F1-F4 dark brown, F5 and F6 yellow; F5 and F6 transverse (Fig. 9).....*O. salicinus*
  - 13. Mesoscutum generally covered with white setae; scutellum generally with striate or elongate-reticulate sculpturing.....14
  - Mesoscutum generally covered with dark or dark-brown setae; at most lateral margin of scutellum with striate or elongate-reticulate sculpturing.....15
  - 14. Basal 1/2 of scutellum with reticulate sculpturing similar to mesoscutum; apical 1/2 or so of scutellum with very shallow reticulate sculpturing or smooth.....*O. segestes*
  - Scutellum with striated-reticulate sculpturing which is distinctly deeper than that of mesoscutum; at most posterior 1/4 of scutellum smooth.....*O. telenomicida*

- 15. Scutellum covered with reticulate sculpturing similar to that of mesoscutum.....16
- Scutellum with deep reticulate or punctate sculpturing distinctly deeper than that of mesoscutum.....18
- 16. Linea calva of forewing posteriorly open; all coxae yellow or yellowish white.....*O. philopapilionis*
- Linea calva of forewing posteriorly closed or nearly closed (Fig. 24); at least hind coxae dark or dark brown.....17
- 17. Scutellum anteriorly with reticulate sculpturing, posterior 1/4 or so smooth; forewing with a transverse brownish band below marginal vein (Fig. 24).....*O. longivenosus*
- Scutellum entirely covered with reticulate sculpturing; forewing without a brownish band below marginal vein.....*O. endymion*
- 18. Scutellum nearly entirely covered with deep, punctate-reticulate sculpturing; visible part of ovipositor sheath dark brown.....*O. utetheisae*
- Scutellum with at least posterior 1/4 or so smooth; visible part of ovipositor sheath yellow.....19
- 19. F1 and F2 distinctly longer than broad; posterior 1/4 or so of scutellum smooth.....*O. pallidipes*
- F1 and F2 transverse or subquadrate; posterior 2/5 or so of scutellum smooth.....*O. papilionis*

#### ***Ooencyrtus uniformis* sp. nov.**

(Figs. 7, 18, 19, 28)

**Diagnosis:** *Female:* Body length 1~1.5 mm; body dark brown, frontovertex with blue sheen, dorsum of thorax with bluish-green sheen; all coxae and femora of legs generally dark brown; antenna dark brown; frontovertex a little more than 1/4 head width; antennal scape about 4 times as long as broad; all funicular segments longer than broad (Fig. 7); scutellum entirely covered with similar reticulate sculpturing to mesoscutum; postmarginal vein of forewing slightly shorter than stigmal vein; linea calva posteriorly open (Fig. 19); visible part of ovipositor sheath yellow or brownish yellow. *Male:* generally similar to female except for antenna (Fig. 18) and genitalia.

**Description:** Body length 1~1.45 mm; body dark brown, frontovertex with blue sheen, dorsum of thorax with greenish-blue sheen; antennal scape dark brown, pedicel and flagellum dark brown or dark yellowish brown; tegula dark brown; all coxae of legs dark brown; all femora and tibia dark brown or dark yellow brown except apices (mid femora sometimes yellowish brown, mid tibia yellow with a dark-brown band); all tarsi generally yellow; wings hyaline; visible part of ovipositor sheath yellow, rarely yellowish brown.

**Head:** Frontovertex slightly more than 1/4 head width; ocelli nearly arranged in an equilateral triangle; antenna (Fig. 7) with slightly expanded scape, more or less 4 times as long as broad; pedicel about as long as F1 and F2 together; all funicular segments longer than broad; mandible

(Fig. 28) with 1 tooth and broad truncation. Relative measurements: Head width 110, Frontovortex width 30, POL 15, OOL 2.5, OCL 3, scape length 50, scape width 12.

**Thorax:** Scutellum nearly entirely covered with reticulations which are barely smaller and deeper than those on mesoscutum, laterally with striate reticulations; linea calva of forewing posteriorly open (Fig. 19), marginal punctiform, postmarginal vein about 2/3 stigmal vein length. Relative measurements: forewing length 280, forewing width 130, marginal vein 5, postmarginal vein 10, stigmal vein 14.

**Gaster:** Gaster about as long as thorax; cercal plates located in the middle of gaster; hypopygium reaching more or less 2/3 of gaster; ovipositor often slightly exerted.

**Male:** Generally similar to female; frontovortex about 1/3 head width; ocelli arranged in a right-angled triangle; antennal scape slightly expanded and flattened, about 4 times as long as broad; pedicel about as long as F1; funicular segments clothed in relatively long hairs; apex of clava

obliquely truncated (Fig. 18).

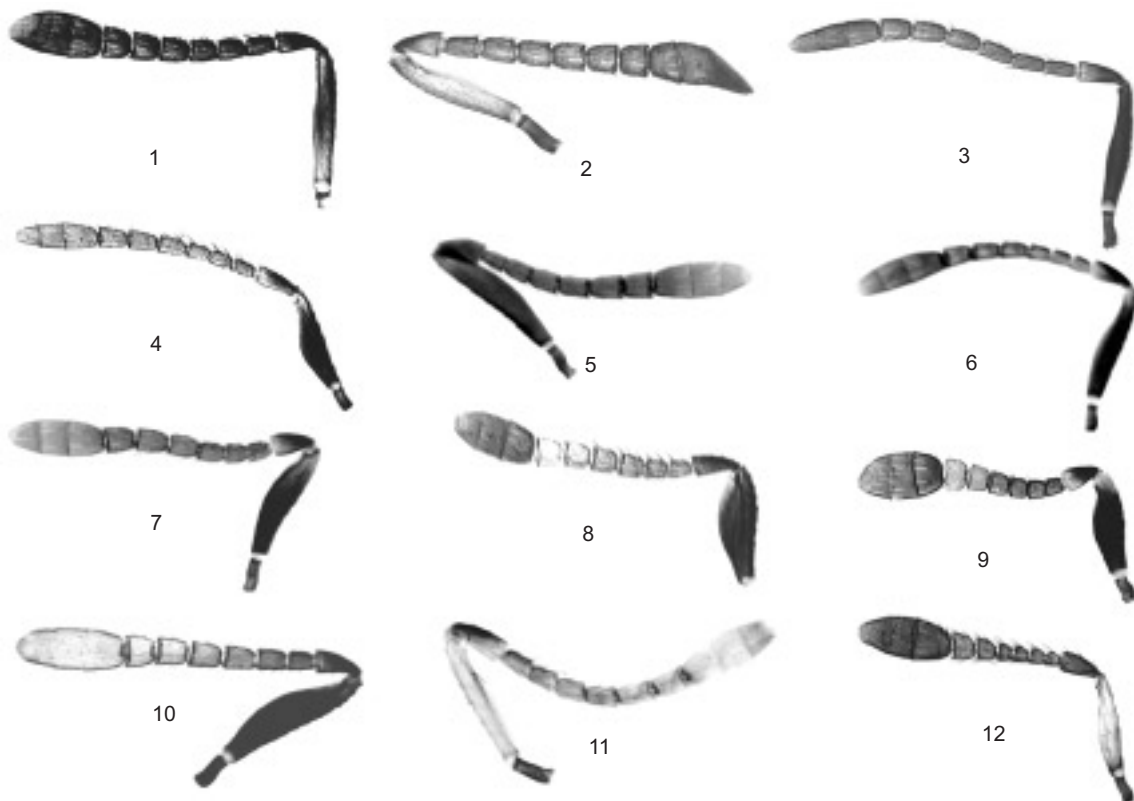
**Host:** *Cerura menciiana* Moore, *Micromelalopha sieversi* (Staudinger) (Lepidoptera: Notodontidae); *Stilpnolia salicis* Linnaeus, lymantriid (Lepidoptera: Lymantriidae).

**Distribution:** Anhui, Beijing, Hebei, Inner Mongolia, and Shanxi of China.

**Holotype:** ♀, China, Inner Mongolia, Baotou, ex. eggs of *Cerura menciiana* Moore, 24 June 1989, Z-r Liu (IZCAS).

**Paratypes:** 11 ♀♀, 3 ♂♂, same data as for holotype (IZCAS).

**Other materials:** 14 ♀♀, 6 ♂♂, China, Anhui, Funan, ex. *Stilpnolia salicis* Linnaeus, 29 May 1974; 1 ♀, 1 ♂, China, Beijing, ex. *Stilpnolia salicis* Linnaeus, 31 July 1956; 24 ♀♀, 9 ♂♂, China, Hebei, Changli, ex. *Micromelalopha sieversi* (Staudinger), 27 Aug. 1957; 13 ♀♀, 3 ♂♂, China, Beijing, Miyun, ex. eggs of lymantriid on poplar, Oct. 1979 (misidentified with *O. kuvanae* by Huang and Noyes 1994); 2 ♀♀, China, Shanxi, Yuncheng, ex. *Stilpnolia salicis* Linnaeus, 10 Sept. 1979 (misidentified as *O. kuvanae* by Huang and



**Figs. 1-12.** Antennae, females: 1. *Ooencyrtus guamensis* Fullaway; 2. *O. phongi* Trjapitzin, Myartseva and Kostjukov; 3. *O. telenomicida* (Vassiliev); 4. *O. nezarae* Ishii; 5. *O. kuvanae* (Howard) (from *Lymantria dispar*); 6. *O. kuvanae* (Howard) (variation, from *Malacosoma neustria*); 7. *O. uniformis* sp. nov.; 8. *O. pinicolus* (Matsumura); 9. *O. salicinus* (Erdős); 10. *O. philopapilionis* Liao; 11. *O. longivenosus* Xu and He; 12. *O. flavipes* (Timberlake).

Noyes 1994).

**Discussion:** *Ooencyrtus uniformis* is close to *O. kuvanae* (Howard), but can be separated by the following features: scutellum with similar reticulate sculpturing to mesoscutum (in *O. kuvanae*, scutellum sculpturing distinctly different from that of mesoscutum, reticulations small and deep, which always gives a punctate appearance); scutellum metallic greenish blue (in *O. kuvanae*, scutellum green or coppery, only apex and lateral margin of scutellum with bluish sheen); antennal scape more or less 4 times as long as broad (in *O. kuvanae*, antennal scape more or less 5 times as long as broad).

### *Ooencyrtus endymion* Huang and Noyes

*Ooencyrtus endymion* Huang and Noyes 1994: 13, 46-47. Holotype, ♀, China (IZCAS, examined).

**Diagnosis:** *Female:* Body length 0.9~1.2 mm; body dark brown; fore and mid legs almost entirely yellow, rarely tibia subbasally dark brown; hind coxae and femora dark brown, rarely tibia brownish; visible part of ovipositor sheath brown or dark brown; frontovertex about 1/4 head width; antennal scape about 4 times as long as broad; all funicular segments longer than broad; scutellum with similar reticulate sculpturing to mesoscutum; postmarginal vein of forewing slightly shorter than stigmal vein; linea calva posteriorly closed. For detailed description see Huang and Noyes (1994).

**Host:** *Dendrolimus kikuchii* Matsumura, *Dendrolimus* sp. (Lepidoptera: Lasiocampidae); sphingid (Lepidoptera: Sphingidae).

**Distribution:** Sichuan and Yunnan of China.

**Material examined:** Type material. Holotype, ♀, China, Yunnan, ex. eggs of *Dendrolimus* sp., 83-1285, 28 Aug. 1981, T-q Hou; Paratypes, 5 ♀♀, China, Yunnan, Gejiu, ex. eggs of *Dendrolimus kikuchii* Matsumura, 10 Aug. 1980, G-x Li; 1 ♀, China, Yunnan, Honghe, ex. eggs of a sphingid G-x Li; 1 ♀, China, Sichuan, Huili, 2 June 1961, D-x Liao.

**Non-type material:** 3 ♀♀, China, Yunnan, Gejiu, 1985, G-x Li; 1 ♀, China, Yunnan, Lijiang, 24 July 1984, C-f Li.

**Discussion:** See comments under *O. longivenosus*.

### *Ooencyrtus flavipes* (Timberlake)

(Figs. 12, 21) (new record from China)

*Xesmatia flavipes* Timberlake 1920: 425. Holotype, female, Hawaii (BPBM, examined by DW Huang).

*Ooencyrtus flavipes* (Timberlake): Noyes and Hayat 1984: 309; Huang and Noyes 1994: 34.

**Diagnosis:** *Female:* Body length 0.5~1 mm; head and thorax dark brown, gaster dorsolaterally dark brown; fore coxae dark brown; mid coxae dark brown to yellowish brown; hind coxae yellowish brown to yellow; antenna with yellow scape, sometimes brownish basally; flagellum yellowish brown to dark brown; antennal scape 4~5 times as long as broad (Fig. 12); scutellum entirely smooth but for a small punctate reticulate area at base; forewing with very short postmarginal vein, less than 1/2 stigmal vein length; linea calva posteriorly open (Fig. 21); visible part of ovipositor sheath dark brown or yellowish brown. For a more-detailed description of this species refer to



**Figs. 13-18.** Antennae, males: **13.** *Ooencyrtus phongi* Trjapitzin, Myartseva and Kostjukov; **14.** *O. nezarae* Ishii; **15.** *O. philopapilionis* Liao; **16.** *O. kuvanae* (Howard) (from *Lymantria dispar*); **17.** *O. kuvanae* (Howard) (variation, from *Malacosoma neustria*); **18.** *O. uniformis* sp. nov.

Timberlake (1920).

*Host*: Unknown.

*Distribution*: Fujian, China; other countries include Brunei; Indonesia; Nepal; Thailand; and Hawaii, USA.

*Material examined*: 3 ♀♀, China, Fujian, 9 June 2001, N-q Lin.

*Extralimital material*: 1 ♀, Indonesia, Sulawesi Utara, Dumoga-Bone NP, Toraut, Apr. 1985, JS Noyes (determined as *O. flavipes* (Timberlake) by JS Noyes and DW Huang).

***Ooencyrtus guamensis* Fullaway**  
(Fig. 1)

*Ooencyrtus guamensis* Fullaway 1946: 205. Holotype, Guam (USNM, examined by DW Huang).

*Schedius garouae* Risbec 1954: 896-899. Synonymy with *guamensis* by Huang and Noyes 1994: 16.

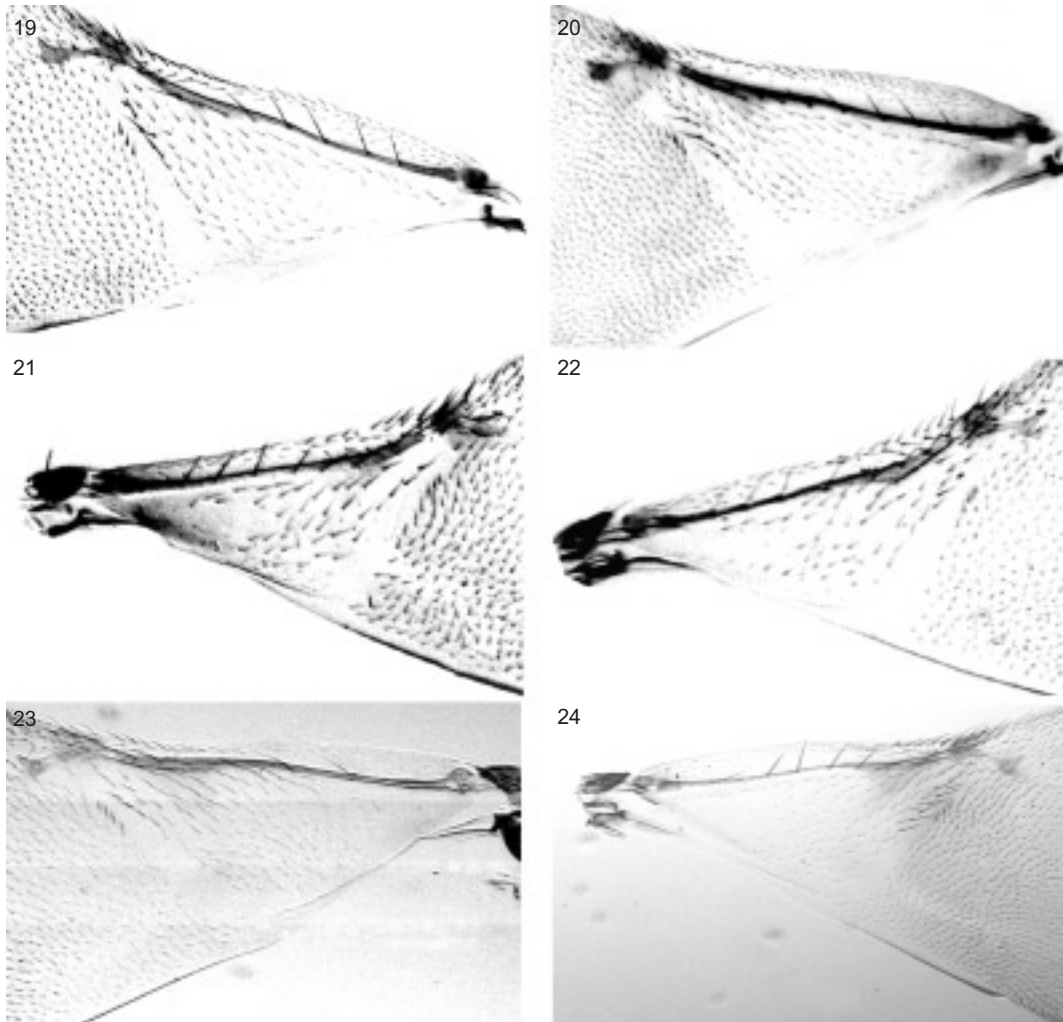
*Psyllaephagus goarini* Risbec 1958: 98-99. Lectotype (designated by Huang and Noyes 1994), Madagascar (MNHN, examined by DW Huang). Synonymy with *guamensis* by Huang and Noyes 1994: 16.

*Psyllaephagus faridabadensis* Fatima and Shafee 1994: 53. Synonymy with *guamensis* by Hayat 1999: 386.

*Ooencyrtus garouae* (Risbec): Annecke and Insley 1971: 20, 39.

*Ooencyrtus guamensis* Fullaway: Huang and Noyes 1994: 16-17; Hayat 1999: 386.

*Diagnosis: Female*: body length 1~1.5 mm; body dark brown; legs with all coxae and femora except apices dark brown; visible part of ovipositor sheath dark brown; frontovertex about 1/4 head width; antennal scape about 5 times as long as broad; basal funicular segments longer than broad, F5 subquadrate, F6 subquadrate or slightly wider than long; clava apically with a short oblique truncation (Fig. 1); mesoscutum with silvery-white



**Figs. 19-24.** Forewings, females: **19.** *Ooencyrtus uniformis* sp. nov.; **20.** *O. kuvanae* (Howard) (from *Lymantria dispar*); **21.** *O. flavipes* (Timberlake); **22.** *O. nezarae* Ishii; **23.** *O. telenomicida* (Vassiliev); **24.** *O. longivenosus* Xu and He.

setae; scutellum nearly entirely with deep reticulate or slightly elongated reticulate sculpturing, only hind margin smooth; forewing with short postmarginal vein; linea calva posteriorly open. *Male*: generally similar to female; legs including coxae yellow; frontovertex about 2/5 head width; all funicular segments distinctly longer than broad. For a detailed description see Fullaway (1946).

*Host*: *Ooencyrtus guamensis* is known as a pupal parasitoid of *Ischiodon aegyptius* (Wiedemann), *Ischiodon scutellaris* (Fabricius), *Paragus auritus* Stuckenberg, *Paragus borbonicus* (Macquart), and *Allograpta exotica* (Wiedemann) (Diptera: Syrphidae) (see Beardsley 1976, Prinsloo 1987, Huang and Noyes 1994). Other reported hosts may be erroneous (also see Huang and Noyes 1994).

*Distribution*: Burma; Cameroon; Hainan and Yunnan, China; Congo; Ghana; Guam; India; Indonesia; Papua New Guinea; Kenya; Madagascar; Malaysia; Philippines; South Africa; Tanzania; Thailand; Zambia; Zimbabwe (see Huang and Noyes 1994).

*Material examined*: 3 ♀♀, China, Hainan, Jianfeng Ling, Apr. 1984, D-x Liao; 1 ♀, China, Hainan, Five-finger Mts., 31 Mar. 2002, Y-z Zhang; 2 ♀♀, China, Hainan, Qiongzong, 27 Mar. 2002, Y-z Zhang; 2 ♀♀, China, Yunnan, Xishuangbanna, 21 Oct. 2002, W-q Zhen; 1 ♀, China, Hainan, Tie Fong Mts. 15 May 1983, Z Boucek (determined as *O. guamensis* Fullaway by JS Noyes and DW Huang).

*Extralimital material*: 1 ♀, 1 ♂, Indonesia, Sulawesi, Utara, Kotamobagu Danau Mooat, 1-6 May 1985, JS Noyes (determined as *O. guamen-*

*sis* Fullaway by JS Noyes and DW Huang); 1 ♀, Indonesia, Sulawesi, Utara, Dumoga-Bone NP, Toraut, MT/YPT, May 1985, JS Noyes (determined as *O. guamensis* Fullaway by JS Noyes and DW Huang).

### *Ooencyrtus hercle* Huang and Noyes

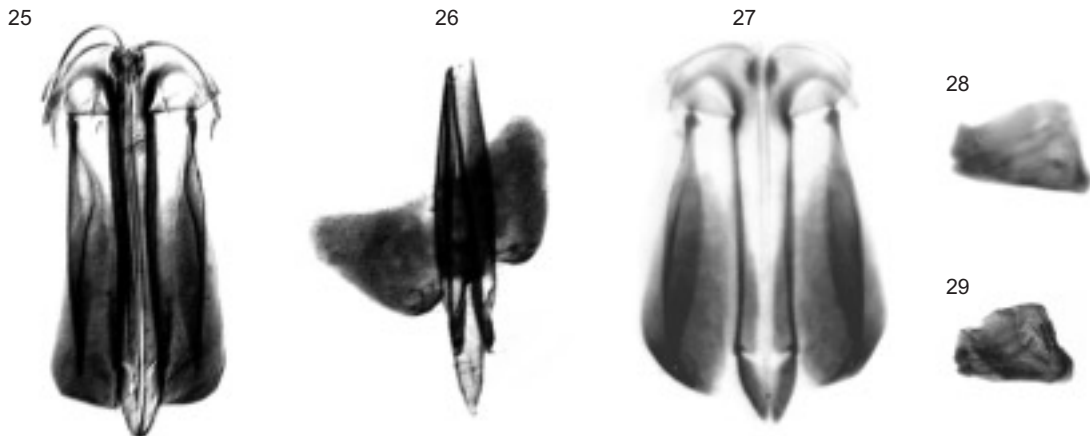
*Ooencyrtus hercle* Huang and Noyes 1994: 28-29. Holotype, ♀, Zhejiang, China (IZCAS, examined).

*Diagnosis: Female*: body length 0.5~0.65 mm; body dark brown, with weak blue sheen; all coxae and femora except apices dark brown; tibia yellowish brown; visible part of ovipositor sheath yellowish brown; frontovertex slightly less than 1/3 head width; antennal scape about 4 times as long as broad; F1~F3 subequal in length and subquadrate, F4 and F5 a little longer than broad, F6 subquadrate or slightly transverse; scutellum with deeper reticulate sculpturing than mesoscutum; postmarginal vein of forewing slightly shorter than stigmal vein; linea calva posteriorly open. *Male*: generally similar to female except for antenna and genitalia. Diagnosis and detailed description were presented by Huang and Noyes (1994).

*Host*: *Rondotia menciana* Moore (Lepidoptera: Bombycidae) (also see Huang and Noyes 1994).

*Distribution*: Zhejiang, China (also see Huang and Noyes 1994).

*Material examined*: Holotype, China, Zhejiang, Wuxing, ex. eggs of *Rondotia menciana* Moore, May 1956, F-q Zhang; paratypes, same data as for holotype.



**Figs. 25-27.** Genitalia: **25.** female, *Ooencyrtus philopapilionis* Liao; **26.** male, *O. philopapilionis* Liao; **27.** female, *O. nezarae* Ishii. **Figs. 28-29.** Mandibles, females: **28.** *Ooencyrtus uniformis* sp. nov.; **29.** *O. nezarae* Ishii.

***Ooencyrtus kuvanae* (Howard)**

(Figs. 5, 6, 16, 17, 20)

*Schedius kuvanae* Howard 1910: 3. Holotype, ♀, Japan (USNM, not examined).

*Ooencyrtus kuwanai* Peck 1951: 496.

*Ooencyrtus malacosomae* Liao 1987: 173, 175-176. Holotype, ♀, China (IZCAS, examined). syn. nov.

*Ooencyrtus kuvanae* (Howard): Mercet 1926: 48-50; Trjapitzin 1989: 207-208; Huang and Noyes 1994: 26-27.

**Diagnosis:** *Female:* Body length 0.8~1.4 mm; body dark brown; scutellum with greenish or coppery sheen, posterior and lateral margin blue; coxae and femora of legs generally dark brown; visible part of ovipositor sheath yellow; frontovertex 1/4 to nearly 1/3 head width; antennal scape about 5 times as long as broad; all funicular segments longer than broad (Figs. 5, 6); scutellum with relatively deep and small reticulate sculpturing, producing a punctate appearance; postmarginal vein of forewing slightly shorter than stigmal vein (Fig. 20); linea calva posteriorly open. *Male:* generally similar to female; antenna as in figures. 16, 17. A detailed description of this species was presented by Howard (1910).

**Host:** *Ooencyrtus kuvanae* has been recorded from eggs of *Lymantria dispar* (Linnaeus), *Lymantria fumida* (Bulter), *Stilpnotia salicis* Linnaeus, *Nygmia phaeorrhoea* Donovan (Lepidoptera: Lymantriidae); *Malacosoma neustria* (Linnaeus), *Dendrolimus spectabilis* Bulter (Lepidoptera: Lasiocampidae), and *Saturnia pyretorum* Westwood (Lepidoptera: Saturniidae). For other hosts refer to Trjapitzin (1989) and Huang and Noyes (1994).

**Distribution:** Beijing, Hebei, Heilongjiang, Jilin, Liaoning, and Shanxi of China; Japan; Korea; and Taiwan. *Ooencyrtus kuvanae* has also been introduced into North America, Europe, and North Africa in biocontrol programs.

**Material examined:** Type material of *Ooencyrtus malacosomae* Liao. Holotype, China, Inner Mongolia, ex. eggs of *Malacosoma neustria*, Apr. 1979; paratypes, 3 ♀♀, same data as for holotype.

**Non-type material:** 2 ♀♀, China, Beijing, Oct. 1981, S-m Zhang; 30 ♀♀, 10 ♂♂, China, Hebei, Xiaowutai, ex. eggs of *Lymantria dispar*, 12 Aug. 1964, T-l Chen; 2 ♀♀, 4 ♂♂, China, Jilin, Changling, ex. eggs of *Malacosoma neustria*, 13 Aug. 1986, X-s Yang; 26 ♀♀, 8 ♂♂, China, Jiling, Linjiang, ex. eggs of *Malacosoma neustria*, 28 June 1955; 5 ♀♀, 1 ♂, China, Liaoning, Xinjin, 16 May 1955, D-x Zhang; 8 ♀♀, 3 ♂♂,

China, Liaoning, Shenyang, July 1985, J-x Lou; 11 ♀♀, 1 ♂, China, Liaoning, Shenyang, ex. eggs of *Lymantria dispar*, 17 Feb. 1976, G-t Xu (determined as *O. kuvanae* (Howard) by JS Noyes and DW Huang); 4 ♀♀, China, Liaoning, Heilongjiang, Heishan, ex. eggs of *Lymantria dispar*, 30 July 1976 (determined as *O. kuvanae* (Howard) by JS Noyes and DW Huang).

**Discussion:** There are some variations, such as body size, antennae dimension (see Figs. 5, 6, 16, 17), between specimens reared from eggs of *Malacosoma neustria* and those from *Lymantria dispar*, but we think these differences fall within the range of variation of a species.

***Ooencyrtus longivenosus* Xu and He**

(Figs. 11, 24)

*Ooencyrtus longivenosus* Xu and He in Xu et al. 1996: 71-73.

Holotype, ♀, China (Lab of Biological Control, Zhejiang Agricultural Univ., not examined).

**Diagnosis:** *Female:* body length 1~1.4 mm; body dark brown; antenna yellow except pedicel dorsally dark brown; forewing often with a transverse brownish band under marginal vein; fore and mid legs entirely yellow; hind coxae and femora except apices dark brown; visible part of ovipositor sheath yellow; frontovertex about a 1/4 head width; antennal scape about 4 times as long as broad; all funicular segments longer than broad; scutellum anteriorly with similar reticulate sculpturing to mesoscutum, posterior 1/4 or so smooth; postmarginal vein of forewing very slightly shorter than stigmal vein; linea calva posteriorly closed. *Male:* body length about 0.7 mm; generally similar to female but for antenna and genitalia; frontovertex about 1/3 head width. For a more-detailed description see Xu et al. (1996).

**Host:** *Ooencyrtus longivenosus* is recorded from eggs of an unidentified lasiocampid (Lepidoptera: Lasiocampidae) (see below), and *Hippotiscus dorsalis* Stål (Hemiptera: Pentatomidae) (see Xu et al. 1996).

**Distribution:** Hunan and Zhejiang of China.

**Material examined:** 1 paratype, China, Zhejiang, Deqing (30.5°N, 120.8°E), ex. *Hippotiscus dorsalis* Stål, 11 Aug. 1994, no. B-94035, Y-h Tu; 4 ♀♀, China, Hunan, Yueyang, ex. eggs of an unidentified lasiocampid on bamboo, 10 June 1981, D-x Liao; 2 ♀♀, 1 ♂, China, Hunan, Changde, 23 Sept. 1977, X-w Tong.

**Discussion:** *Ooencyrtus longivenosus* Xu and He is very close to *O. endymion* Huang and

Noyes, as both species have yellow fore and mid legs (sometimes mid coxae basally dark in *endymion*), the hind coxae and femora are generally dark brown, and the linea calva is posteriorly closed by 1 or 2 lines of setae. *Ooencyrtus longivenosus* can be separated from *O. endymion* by characters in the key (see above).

***Ooencyrtus lucina* Huang and Noyes**  
(new record from China)

*Ooencyrtus lucina* Huang and Noyes 1994: 64-65. Holotype, ♀, India (BMNH, examined by DW Huang).

**Diagnosis:** *Female:* Body length 0.55~0.70 mm; body generally yellowish; metanotum, propodeum, and dorsal part of gaster dark brown; legs orangish yellow; visible part of ovipositor sheath yellow; frontovertex about 1/3 head width; antennal scape about 5 times as long as broad; all funicular segments subquadrate, F1 and F2 clearly smaller than other funicular segments; scutellum with similar reticulate sculpturing to mesoscutum, but apically smooth; postmarginal vein of forewing nearly as long as stigmal vein; linea calva posteriorly open. *Male:* Body generally dark brown; antenna with yellowish scape and pedicel, F1, F4, and clava dark brown, remainder white; legs yellowish. For description of this species refer to Huang and Noyes (1994).

**Host:** *Clostera cupreata* (Butler) (Lepidoptera: Notodontidae) (see Huang and Noyes 1994).

**Distribution:** Hainan of China; and India.

**Material examined:** 1 ♀, China, Hainan, Jiangfeng Ling, Apr. 1984, D-x Liao.

**Discussion:** *Ooencyrtus lucina* is a distinctive species, whose females are nearly entirely yellow or orange yellow.

***Ooencyrtus nezarae* Ishii**

(Figs. 4, 14, 22, 27, 29) (new record from China)

*Ooencyrtus nezarae* Ishii 1928: 126. Holotype, Japan (not examined).

*Ooencyrtus nezarae* Ishii: Trjapitzin 1989: 207.

**Diagnosis:** *Female:* Body length 0.7~1 mm; body dark brown; legs with all coxae, femora dark brown, tibia subbasally dark brown; visible part of ovipositor sheath dark brown; frontovertex nearly 1/3 head width; antennal scape about 5 times as long as broad; all funicular segments longer than broad; scutellum generally with elongate or striate reticulations, apically smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea

calva posteriorly open. *Male:* generally similar to female except for antenna (Fig. 14) and genitalia. For a detailed description of this species see Ishii (1928).

**Host:** *Ooencyrtus nezarae* is known from various families of Hemiptera: *Nezara antennata* Scott, *Nezara viridula* (Linnaeus), *Eysarcoris guttiger* (Thunberg), *Piezodorus hybneri* (Gmelin) (Pentatomidae); *Homoeocerus unipunctatus* (Thunberg), *Anacanthocoris concoloratus* Uhl. (Coreidae); *Riptortus clavatus* (Thunberg), *Leptocoris chinensis* Dallas (Alydidae); and *Megacopta punctatissimum* (Montandon) (Plataspidae) (see Takasu and Hirose 1986 1991, Jones 1988, Trjapitzin 1989, Hirose et al. 1996, Yokosuka et al. 1998).

**Distribution:** Brazil (introduced) (see Noyes and Hayat 1994); Beijing and Shandong of China; Japan; South Korea; and Thailand.

**Materials examined:** 4 ♀♀, 3 ♂♂, China, Beijing, Beijing Botanical Garden, 29 Aug. 1999, Y-z Zhang; 5 ♀♀, 2 ♂♂, China, Shandong, Taian, ex. eggs of Alydidae, July 1989, S-j Guo.

**Discussion:** The Chinese specimens agree with the description and figures for *O. nezarae* by Ishii (1928).

***Ooencyrtus pallidipes* (Ashmead)**

*Aphidencyrtus pallidipes* Ashmead 1904: 15. Lectotype (designated by Huang and Noyes 1994), ♀, Philippines (USNM, examined by DW Huang).

*Ooencyrtus erionotae* Ferrière 1931: 284. Lectotype (designated by Huang and Noyes 1994), ♀, Malaysia (BMNH, examined by DW Huang). Synonymy with *pallidipes* by Huang and Noyes 1994: 51.

*Ooencyrtus pallidipes* (Ashmead): Noyes and Hayat 1984: 309, Huang and Noyes 1994: 51.

**Diagnosis:** *Female:* Body length 0.8~1.25 mm; body dark brown; all legs including coxae yellowish; antenna yellowish, sometimes scape basally dark brown; visible part of ovipositor sheath yellow; frontovertex no more than 1/5 head width; antennal scape 5~6 times as long as broad; all funicular segments longer than broad; scutellum anteriorly with punctate-reticulate sculpturing, posterior 1/4 or so smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea calva posteriorly open. *Male:* similar to female but for antenna and genitalia; antenna yellowish or yellowish white, frontovertex nearly 1/3 head width.

**Host:** *Caligo memnon* (Lepidoptera: Nymphalidae) (see Huang and Noyes 1994) and *Erionota thrax* (Linnaeus) (Lepidoptera: Hesperidae). The original record from an aphid host (Ashmead 1904)



is erroneous.

**Distribution:** China; Guam; India; Malaysia; Mauritius (introduced); Nepal; Papua New Guinea; New Caledonia; the Philippines; and Hawaii, USA (introduced) (see Huang and Noyes 1994).

**Materials examined:** 30 ♀♀, 2 ♂♂, China, Fujian, Fuzhou, ex. *Erionota thrax* on banana, 5 July 1986, J-h Huang; 7 ♀♀, China, Fujian, Fuzhou, ex. *Erionota thrax*, Oct. 1983, N-q Lin; 10 ♀♀, 3 ♂♂, China, Hainan, Xinglong, ex. eggs of a butterfly, 5 Apr. 1964, D-x Liao (determined by DW Huang and JS Noyes); 7 ♀♀, 1 ♂, China, Fujian, Fuzhou, ex. *Erionota thrax* on banana, 5 July 1986, J-h Huang (determined by DW Huang and JS Noyes).

### *Ooencyrtus papilionis* Ashmead

*Ooencyrtus papilionis* Ashmead 1905: 4-5. Lectotype (designated by Huang and Noyes 1994: 79), ♀, the Philippines (USNM, examined by DW Huang).

*Ooencyrtus leucocerus* Mercet 1922: 150. Lectotype (designated by Noyes 1981: 179), ♀, Indonesia (IEE, examined by DW Huang). Synonymy with *papilionis* by Huang and Noyes 1994: 79.

*Ooencyrtus malayensis* Ferrière 1931: 282-283. Lectotype (designated by Huang and Noyes 1994: 79), ♀, Malaysia (BMNH, examined by DW Huang). Synonymy with *papilionis* by Huang and Noyes 1994: 79.

*Ooencyrtus cochereaui* Prinsloo and Annecke 1978: 41-42. Holotype, ♀, New Caledonia (ORSTOM, not examined). Synonymy with *papilionis* by Huang and Noyes 1994: 79.

*Ooencyrtus papilionis* Ashmead: Liao et al. 1987: 173-174, Trjapitzin 1989: 201, Huang and Noyes 1994: 79-81.

**Diagnosis:** *Female:* Body length 0.7~1.1 mm; head and thorax dark brown, gaster generally yellow except for dark-brown apical tergites; legs completely yellow; visible part of ovipositor sheath yellow; frontovortex 1/6~1/4 head width; antennal scape subcylindrical, varying from 3 to 4 times as long as broad; funicle with F1~F3 transverse or subquadrate, apical segments usually longer than broad; scutellum with punctate reticular sculpturing anteriorly, posterior 2/5 or so smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea calva posteriorly open. *Male:* generally similar to female; gaster entirely dark brown; frontovortex nearly 1/3 head width; antenna with all funicular segments conspicuously longer than broad.

**Host:** *Ooencyrtus papilionis* has been recorded from eggs of various families of Lepidoptera: *Papilio* sp., *P. aegeus* Donovan, *P. agamemnon* (Linnaeus), *P. demoleus* Linnaeus, *P. helenus* Linnaeus, *P. memnon* Linnaeus, *P. polytes* Linnaeus, *P. rumanzovia* Eschscholtz, *Troides helena* Linnaeus (Papilionidae); *Cephonodes hylas*

(Linnaeus) (Sphingidae); *Ariadne ariadne*, *Hypolimnas bolina*, *Junonia lemonias*, *Phalanta phalantha*, *Tanaecia jului* (Nymphalidae); *Tirumala limniace*, *Euploea core*, *Danaus chrysippus* (Danaiidae); *Hasora* sp. (Hesperiidae); *Heliconius charitonius* (Heliconiidae); *Chilo terrenellus* Pagenstecher (Pyralidae); *Othreis fullonia* (Noctuidae); and *Aroa cometaris* (Lymantriidae). Other recorded hosts may be in error for *O. palidipes* or *O. utetheisae* (also see Huang and Noyes 1994).

**Distribution:** Hainan of China; India; Indonesia; Malaysia; New Caledonia; Papua New Guinea; the Philippines; and the Solomon Is.

**Materials examined:** 1 ♀, 2 ♂♂, China, Hainan, Xinglong, ex. *Papilio* sp., 5 Apr. 1964, T-l Chen (determined as *O. malayensis* Ferrière by DX Liao); 1 ♀, China, Hainan, Jianfeng Ling, Apr. 1984, D-x Liao; 6 ♀♀, 1 ♂, China, Hainan, Qiongsan, 18 May 1969, D-x Liao.

**Extralimital materials:** 2 ♀♀, 1 ♂, Thailand, Chedi Mae Khrua, ex. eggs of *Tirumala limniace*, 9~22 Mar. 1990, R Harberd (determined as *O. papilionis* Ashmead by JS Noyes and DW Huang).

**Discussion:** *Ooencyrtus papilionis* can be confused with *O. manii* Huang and Noyes (1994) and *O. utetheisae* (Risbec). It can be separated from *O. manii* by the following: mandible with 1 tooth and upper broad truncation (mandible tridentate in *O. manii*), posterior 2/5 or so of scutellum smooth (scutellum nearly entirely with punctate reticulate sculpturing, only the extreme posterior margin smooth in *O. manii*) (also see Huang and Noyes 1994). It can be separated from *O. utetheisae* by the characters in the key (see above) (also see Huang and Noyes 1994).

### *Ooencyrtus philopapilionis* Liao

(Figs. 10, 15, 25, 26)

*Ooencyrtus philopapilionis* Liao 1987: 173, 175; Holotype, ♀, China (IZCAS, examined).

*Ooencyrtus philopapilionis* Liao: He et al. 1988 (as *Ooencyrtus* sp.).

**Diagnosis:** *Female:* Body length 0.9~1.4 mm; body dark brown, with greenish-blue or purplish-blue sheen; antennal scape and pedicel dark brown; funicle often with dark-brown or yellowish-brown basal segments, apical segments yellow or yellowish white; clava yellow or yellowish white; legs including coxae yellow or yellowish white except sometimes hind coxae brownish; visible part of ovipositor sheath yellow (Fig. 25); frontovortex about 1/4 head width; antennal scape about 4

times as long as broad; all funicular segments longer than broad, rarely F5 and F6 subquadrate (Fig. 10); scutellum with similar reticulate sculpturing to mesoscutum; postmarginal vein of forewing slightly shorter than stigmal vein; linea calva posteriorly open. *Male*: generally similar to female but for antennae (Fig. 15) and genitalia (Fig. 26).

*Host*: *Dendrolimus tabulaeformis* Tsai and Liu (Lepidoptera: Lasiocampidae); (?) *Papilio machaon* Linnaeus (Lepidoptera: Papilionidae) (see Liao et al. 1987); and a sphingid (Lepidoptera: Sphingidae).

*Distribution*: Beijing, Hebei, Jilin, and Shandong of China.

*Materials examined*: Holotype, ♀, China, Beijing, ex. eggs of (?) *Papilio machaon*, 1973, Y Fan; paratype, 3 ♀♀, 1 ♂, same data as for holotype; 12 ♀♀, 3 ♂♂, China, Beijing, ex. eggs of *Dendrolimus tabulaeformis*, 25 Aug.–5 Sept. 2003, R-d Han; 3 ♀♀, 1 ♂, China, Hebei, Changli, ex. eggs of sphingid on an elm, 7 July 1957; 3 ♀♀, China, Shandong, Longkou, ex. eggs of sphingid on a willow, 27 June 1958.

*Discussion*: *Ooencyrtus philopapilionis* is close to *O. endymion* Huang and Noyes, *O. longivenosus* Xu and He, and *O. pinicolus* Matsumura, but can be separated by characters in the key (see above).

***Ooencyrtus phongi* Trjapitzin,  
Myartseva and Kostjukov**  
(Figs. 2, 13)

*Ooencyrtus phongi* Trjapitzin, Myartseva and Kostjukov 1977: 671-672. Holotype, ♀, Vietnam (ZISP, not examined).

*Ooencyrtus* sp. I, Mehra 1966.

*Ooencyrtus* sp., Liao et al. 1987: 176-177.

*Ooencyrtus phongi* Trjapitzin, Myartseva and Kostjukov: Huang and Noyes 1994: 19.

*Diagnosis: Female*: Body length 1~1.7 mm; body dark brown; legs with all coxae, femora (except extreme apices) dark brown, tibia and tarsi yellow; visible part of ovipositor sheath dark brown; frontovertex about 1/4 head width; antennal scape about 4 times as long as broad; basal funicular segments longer than broad, F5 subquadrate, F6 subquadrate or slightly wider than long; clava apically strongly obliquely truncated, with truncated part more or less 1/2 clava length (Fig. 2); scutellum nearly entirely with deep reticulate sculpturing, only posterior margin smooth; postmarginal vein of forewing distinctly shorter than stigmal vein; linea calva posteriorly open. *Male*: generally similar to female except for antenna (Fig. 13) and genitalia.

*Host*: *Tessaratoma javanica* (Thunberg), *Tessaratoma papillosa* (Drury), and *Pycacum ponderosum* Stål (Hemiptera: Tessaratomidae). The record as a parasitoid of eggs of Lepidoptera (Trjapitzin et al. 1977) needs to be confirmed (also see Huang and Noyes 1994).

*Distribution*: Fujian, Guangdong, Guangxi, and Hainan of China; India; Indonesia; Malaysia; Philippines; and Vietnam.

*Materials examined*: 15 ♀♀, 3 ♂♂, China, Fujian, Fuzhou, ex. *Tessaratoma papillosa* (Drury), Apr. 1946, X-f Zhao; 4 ♀♀, China, Hainan, Jianfeng Ling, ex. *Tessaratoma papillosa* (Drury), 15 Apr. 1985, S-z Ren; 25 ♀♀, China, Guangxi, Fangcheng, 25 May 1999, Y-z Zhang; 8 ♀♀, China, Guangdong, ex. *Tessaratoma papillosa* (Drury), Apr. 1957; 12 ♀♀, China, Hainan, Xinglong, ex. *Tessaratoma papillosa* (Drury), 14 Apr. 1963, B-l Zhang (determined as *O. phongi* by JS Noyes and DW Huang); 7 ♀♀, China, Hainan, Qiongzong, 620 m, from lichee, 26 Apr. 1964, D-x Liao (determined as *O. phongi* by JS Noyes and DW Huang).

***Ooencyrtus pinicolus* (Matsumura)**  
(Fig. 8)

*Encyrtus pinicolus* Matsumura 1926a: 37. Holotype, Japan (not examined).

*Encyrtus pinicola* Matsumura 1926b: 44-45. Holotype, Japan (not examined).

*Ooencyrtus dendrolimusi* Chu: Liu and Shih 1957. nomen nudum.

*Ooencyrtus pinicolus*: Trjapitzin 1978: 289, 1989: 204-205; Yang and Gu 1995: 228-229.

*Diagnosis: Female*: Body length 0.9~1.3 mm; body dark brown, with bluish-green sheen; antenna dark brown except for F6, sometimes F5 yellowish; coxae and femora of legs generally dark brown, sometimes mid tibia yellowish brown; frontovertex more than 1/4 but less than 1/3 head width; antennal scape distinctly expanded and flattened, about 3 times as long as broad; all funicular segments longer than broad; scutellum with similar reticulate sculpturing to mesoscutum; postmarginal vein of forewing nearly as long as stigmal vein; linea calva posteriorly open; ovipositor hidden. *Male*: generally similar to female except for antenna and genitalia; antennal flagellum yellow.

*Hosts*: *Bombyx mori* (Linnaeus) (Lepidoptera: Bombycidae) (see Gorshkov 1974); *Calliteara abietis* (Denis and Schiffermüller), *Dasychira albodentata* (Bremer), *Leucoma salicis* (Linnaeus), *Orgyia antiqua* (Linnaeus) (Lepidoptera: Lymantriidae)

(see Trjapitzin 1989); *Dendrolimus* sp., *D. albolineatus* Matsumura, *D. pini* (Linnaeus), *D. superans* (Butler), *Euthrix potatoria* (Linnaeus), and *Selenephra lobulina* (Denis and Schiffermüller) (Lepidoptera: Lasiocampidae) (see Matsumura 1926, Trjapitzin 1978 1989, Yang and Gu 1995).

**Distribution:** Jilin, Liaoning, Heilongjiang, and Xinjiang of China; Japan; Kazakhstan; and Russia.

**Materials examined:** 2 ♀♀, China, Jilin, Fusong, ex. *Dendrolimus* sp., Sept. 1953; 6 ♀♀, China, Liaoning, 13 Apr. 1953, D-x Zhang; 1 ♀, 1 ♂, China, Liaoning, Xinjin, 10 May 1953, D-x Zhang; 3 ♀♀, 1 ♂, China, Heilongjiang, Tahe, ex. *Dendrolimus superans* (Butler), 4 June 1990, Y-q Gu; 3 ♀♀, China, Heilongjiang, Hailin, ex. *Dendrolimus superans* (Butler), Aug. 1975, G-y Zhang (determined as *O. pinicolus* (Matsumura) by D-X Liao); 2 ♀♀, 2 ♂♂, China, Heilongjiang, Yichun, ex. *Dendrolimus superans* (Butler), Aug. 1982, X-x Du (determined as *O. pinicolus* (Matsumura) by DX Liao); 7 ♀♀, 1 ♂, China, Xinjiang, Qinghe, ex. *Dendrolimus superans* (Butler), Aug. 1978, W-l Ma (determined as *O. pinicolus* (Matsumura) by D-X Liao).

**Extralimital materials:** 5 ♀♀, Russia, Spassk, Dalniy, ex. *Dendrolimus sibiricus* (= *D. superans*), Aug. 1953 (determined as *O. pinicolus* (Matsumura) by V.A Trjapitzin).

### ***Ooencyrtus salicinus* (Erdös)**

(Fig. 9)

*Aphycoides salicinus* Erdös 1957: 32. Syntypes, Hungary (HNHM, not examined).

*Ooencyrtus salicinus* (Erdös): Trjapitzin 1978: 289, 1989: 205-206.

**Diagnosis:** *Female:* Body length 0.5~1 mm; body dark brown, with blue sheen, dorsum of thorax with bluish-green sheen; antenna dark brown except for F6, sometimes F5 yellowish; legs generally dark brown; frontovertex more or less 1/3 head width; antennal scape about 4 times as long as broad; basal segments of funicle slightly longer than broad or subquadrate, distal segments often transverse; scutellum with similar reticulate sculpturing to mesoscutum; postmarginal vein of forewing very slightly shorter than stigmal vein; linea calva posteriorly open; visible part of ovipositor sheath yellow. *Male:* generally similar to female except for antenna and genitalia; funicular segments of antenna subquadrate or slightly longer than broad.

**Host:** *Ooencyrtus salicinus* is recorded below from eggs of *Malacosoma neustria* (Linnaeus)

(Lepidoptera: Lasiocampidae).

**Distribution:** Liaoning and Inner Mongolia of China; Czech Republic; and Hungary.

**Materials examined:** 15 ♀♀, 1 ♂, China, Liaoning, Shenyang, Aug. 1985, ex. *Malacosoma neustria* (Linnaeus), J-x Lou; 3 ♀♀, China, Inner Mongolia, Apr. 1979, ex. *Malacosoma neustria* (Linnaeus).

**Discussion:** The Chinese specimens agree with the description for *Ooencyrtus salicinus* by Erdös (1957), except for some variations in body size and antennal dimension, but we think these differences fall within variations of a species. It is very probable that *O. salicinus* was misidentified as *O. masii* (Mercet) by Lou (1988).

### ***Ooencyrtus segestes* Trjapitzin**

*Ooencyrtus segestes* Trjapitzin 1965: 320; Huang and Noyes 1994: 75. Holotypes, ♀, Indonesia (ZISP, examined by DW Huang).

**Diagnosis:** Macropterous and brachypterous forms known. *Female:* Body length 0.65~1 mm; head and thorax dark brown; gaster basally yellow, apical 1/2 or so dark brown; legs including coxae yellow; visible part of ovipositor sheath dark brown; frontovertex more or less 1/3 head width; antennal scape 5~6 times as long as broad; all funicular segments longer than broad; scutellum anteriorly with similar reticulate sculpturing to mesoscutum, apical 1/2 or so nearly smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea calva posteriorly open. *Male:* generally similar to female but for antenna and genitalia. Description of female refers to Trjapitzin (1965); that of male refers to Huang and Noyes (1994).

**Host:** Unknown.

**Distribution:** Sichuan and Yunnan of China; India; Malaysia; and Indonesia.

**Materials examined:** 1 ♀, 2 ♂♂, China, Yunnan, Xishuangbanna, 13 Nov. 2002, W-q Zhen; 1 ♀, China, Sichuan, Huili, 2 June 1961, D-x Liao; 1 ♀, China, Sichuan, Miyi, 19 May 1961, D-x Liao; 1 ♀, China, Sichuan, Huili, June 1961, D-x Liao (determined as *O. segestes* Trjapitzin by DW Huang and JS Noyes).

### ***Ooencyrtus telenomicida* (Vassiliev)**

(Figs. 3, 23) (new record from China)

*Ooencyrtus telenomicida* Vassiliev 1904: 117-118. Syntypes, central Russia (ZISP, not examined).

*Schedius flavofasciatus* Mercet 1921: 315. Holotype, ♀, Spain (IEE, examined by DW Huang). Synonymy with *telenomi-*

*cida* by Ferrière and Voegele 1961: 32.

*Ooencyrtus telenomicida* (Vassiliev): Romanova 1953: 238, 240, 246, Trjapitzin 1978: 289, 1989: 202, 203, Huang and Noyes 1994: 78-79.

**Diagnosis:** Macropterous and brachypterous forms known. **Female:** Body length 0.85~1.2 mm; body dark brown but gaster basally yellow or yellowish brown; visible part of ovipositor sheath dark brown; legs including coxae yellow, rarely hind coxae yellowish brown; frontovertex more or less 1/4 head width; antennal scape about 5 times as long as broad; all funicular segments clearly longer than broad (Fig. 3); mesoscutum with distinct silvery-white setae; scutellum basally with longitudinally elongated reticulate sculpturing, apical 1/4 or so nearly smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea calva posteriorly open (Fig. 23). **Male:** generally similar to female but for antenna and genitalia. Description of female refers to Trjapitzin (1965), of the male refers to Huang and Noyes (1994).

**Host:** *Brachynema germarii* (Kolenati), *Dolycoris penicillata* (Horvath) (Hemiptera: Pentatomidae); *Eurygaster integriceps* Puton (Hemiptera: Scutelleridae); and *Gonocerus juniperi* Herrich-Schaeffer (Hemiptera: Coreidae). For other hosts see Herting (1971) and Laraichi (1978 1979). In the laboratory, it was reared from eggs of *Gonocerus acutangulatus* (Hemiptera: Coreidae), *Taragama repanda* (Lepidoptera: Lasiocampidae), and *Amorpha populi astanti* Staudinger (Lepidoptera: Sphingidae) (see Trjapitzin 1989, Huang and Noyes 1994).

**Distribution:** Beijing of China; southern and central European countries; Egypt; Iran; Israel; Kazakhstan; Morocco; Russia; Syria; Turkey; Turkmenistan; Ukraine; and Uzbekistan.

**Materials examined:** 2 ♀♀, China, Beijing, 1 July 1989, ex. eggs of Coreidae; 4 ♀♀, 2 ♂♂, China, Beijing, Mentougou, 19 May 2002, C-d Zhu.

**Extralimital materials:** 1 ♀, 1 ♂, Spain, Madrid, Casa de Campo, 15 Oct. 1978 (determined as *O. telenomicida* (Vassiliev) by JS Noyes); 6 ♀♀, 5 ♂♂, Russia, Krasnodar, 1944 (determined as *O. telenomicida* (Vassiliev) by VA Trjapitzin).

### ***Ooencyrtus utetheisae* (Risbec)**

*Aenasioidea utetheisae* Risbec 1951: 141. Syntypes, Ivory Coast (MNHN, not examined).

*Ooencyrtus patriciae* Subba Rao 1981: 39-41. Holotype, ♀, Nigeria (BMNH, examined by DW Huang). Synonymy with *utetheisae* by Prinsloo 1987: 9-10.

*Ooencyrtus utetheisae* (Risbec): Prinsloo 1987: 9-10, Huang and Noyes 1994: 82-83.

**Diagnosis:** **Female:** Body length 0.75~1.2 mm; head and thorax dark brown; gaster yellow but apically and dorsolaterally dark brown; all legs including coxae yellow; visible part of ovipositor sheath dark brown; frontovertex more or less 1/5 head width; antennal scape about 4.5 times as long as broad; all funicular segments longer than broad; scutellum nearly entirely with punctate-reticulations, only lateral margin and extreme apex smooth; postmarginal vein of forewing clearly shorter than stigmal vein; linea calva posteriorly open. **Male:** generally similar to female but for antenna and genitalia. Diagnosis was also given by Huang and Noyes (1994). For a more-detailed description refer to Prinsloo (1987).

**Hosts:** *Anoplocnemis curvipesi* (Fabricius), *Pseudothaptus wayi* (Brown), *Clavigralla elongata* (Signoret), *C. tomentosicollis* Stål, *Amblypelta lutescens papuensis* Brown, *Dasynus piperis* China, *Mictis profana* (Fabricius) (Hemiptera: Coreidae); *Mirperus jaculus* (Thunberg), *Riptortus* sp., *Riptortus dentipes* (Fabricius), *Piezodorus hybneri* (Fabricius), *Leptocoris* sp., *L. acuta* Thunberg (Hemiptera: Alydidae); and *Rhynchoris humeralis* (Thunberg) (Hemiptera: Pentatomidae) (see Prinsloo 1987, Huang and Noyes 1994, Pandey et al. 1995). The host of the type series, *Utetheisa pulchella* (Lepidoptera: Arctiidae), needs to be confirmed (also see Huang and Noyes 1994).

**Distribution:** Hainan and Yunnan of China; India; Indonesia; Ivory Coast; Malaysia; Nepal; Nigeria; Papua New Guinea; the Philippines; Senegal; and Tanzania (see Huang and Noyes 1994).

**Materials examined:** 1 ♀, China, Hainan, Jianfeng Ling, Aug. 1984, D-x Liaoi; 1 ♀, China, Yunnan, Xishuangbanna, 21 Nov. 2002, W-q Zhen.

**Depositories:** BMNH, Natural History Museum, London, UK; BPBM, Bernice P. Bishop Museum, Honolulu, HI, USA; HHNM, Hungarian Natural History Museum, Budapest, Hungary; IEE, Instituto di Entomologia Espanol, Madrid, Spain; IZCAS, Institute of Zoology, Chinese Academy of Sciences, Beijing, China; MNHN, Museum National d'Histoire Naturelle, Paris, France; ORSTOM, Office de la Recherche Scientifique et Technique Outre-Mer, Paris, France; USNM, United States National Museum, Washington, DC, USA; ZISP, Zoological Institute, St. Petersburg, Russia.

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