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The Palaearctic Species of *Oetophorus*
(Hymenoptera, Ichneumonidae, Ctenopelmatinae)

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Abstract

The Palaearctic members of the genus *Oetophorus* FOERSTER, 1868 are revised. Four species are included in the genus, three of which are new: *O. taiwanensis* **sp. nov.** from Taiwan, *O. cornutus* **sp. nov.** from Japan, and *O. koreensis* **sp. nov.** from Korea. *Oetophorus naevius* (GMELIN, 1790), which occurs in the western Palaearctic region, is beneficial in the control of the gooseberry sawfly, *Nematus ribesii* SCOPOLI. Relationship of members of this holarctic genus to other associated genera of the tribe Perilissini are reviewed. Relationship of the species to each other and to the Nearctic species is discussed.

Zusammenfassung

Die paläarktischen Arten der Gattung *Oetophorus* FOERSTER, 1868 werden revidiert. Vier Arten werden in die Gattung aufgenommen, drei davon sind neu: *O. taiwanensis* **sp. nov.** von Taiwan, *O. cornutus* **sp. nov.** von Japan, and *O. koreensis* **sp. nov.** aus Korea. Verwandtschaftsverhältnisse werden diskutiert.

Introduction

The historical concept of the genus *Oetophorus* was reviewed by BARRON (1997). The previously described species of *Oetophorus* are *O. naevius* (GEMLIN, 1790) in the western Palaearctic region and *O. pleuralis* CRESSON, 1864, *O. obscurus* BARRON, 1997, *O. clavatus* BARRON, 1997, and *O. maculatus* BARRON, 1997 in the Nearctic region. The characters of the genus were reviewed by BARRON (1997). All males of species of *Oetophorus* share the following derived character states: each paramere with a "spine-like" seta near the apex and the apex of the aedeagus in the form of an oblique flat disc. The first and second metasomal terga of most species is rugose, with the sculpticells strongly convex.

There are three new species in the Palaearctic area, described in this article, namely *O. taiwanensis* from Taiwan, *O. cornutus* from Japan, and *O. koreensis* from Korea. The genus is holarctic in distribution.

Methods used, including analyses of macrosculpture and microsculputure, are the same as those used in the study of Nearctic species of *Perilissus* (BARRON 1992, 1994a), *Lathrolestes* (BARRON 1994b), and *Oetophorus* (BARRON 1997). Macrosculpture refers to punctures, microsculpture refers to the surface of the integument between punctures. Interpretation of sculpture was described in detail by BARRON (1992). The microsculpture consists of net-like meshes and the space within each mesh is a sculpticell. Structures of the fore and hind wings were given in figures 2 and 3 and of the propodeum in figure 4 (BARRON 1997). The names of individuals and their representative institutions (including abbreviations used throughout the text) from which material was borrowed are noted under acknowledgments.

Oetophorus FOERSTER

Oetophorus FOERSTER, 1868: 196. Type-species: *Mesoleius stretchii* CRESSON, 1878, subsequent designation by VIERECK 1914: 104, from two species included by DAVIS 1898: 251. TOWNES 1939: 96, 1970; TOWNES & TOWNES 1951: 327; KASPARYAN 1981: 331.

Symphobus FOERSTER, 1868: 199. Type-species: *Tryphon pleuralis* CRESSON, 1864, through subsequent monotypy, inclusion by DAVIS 1898: 323, Synonymy with *Oetophorus* by TOWNES 1939: 96.

Diagnostic characters - Palaearctic species. Body length 7 to 8 mm, that of *O. koreensis* about 15 mm. Face and clypeus in dorsolateral profile convex (Figs. 1, 6, 11, 16). Clypeus distinctly separated from face, with apical margin thick, broadly arcuate. Occipital carina dorsomedially complete, meeting hypostomal carina distinctly before base of mandible. Mandible with lower tooth longer than upper. Hind wing with cu-a inclivous; cu-a intercepted by Cu1 distinctly below, at or slightly below or above middle (Figs. 3, 8, 13, 18). Tarsal claws distinctly pectinate to apex. Propeudum with carinae complete (Figs. 4, 9), or with only area basalis at base not defined (Figs. 14, 19); basal transverse carina of *O. koreenses* at middle not defined (Fig. 19). First metasomal segment with glymma elongate, deep. First tergum with spiracle at or near middle; without median longitudinal groove or impression (Figs. 5, 10, 15, 20); lateral longitudinal carinae from base to apex distinct, sharp (Figs. 5, 10, 15, 20). Ovipositor straight, with dorsal notch distant from apex. Male genitalia with parameres longer than aedeagus, distinctly surpassing apex of metasoma; parameres each near apex on inner side with distinct "spine-like" seta (as in the Nearctic species, e.g. *O. clavatus* (Fig. 17, BARRON 1997). Aedeagus without apical sensilla, at apex curved, and transversely broadened into an oblique, flat disc. Face with sculpticells convex, punctures clearly outlined, about 0.5 to 1.0 diameter of puncture apart. First and second metasomal terga rugose, with sculpticells very convex, punctures very fine, obscurely outlined, except those of *O. koreensis* large and clearly defined.

Remarks. The "spine-like" seta on each paramere of males is usually distinct on mounted specimens, since the parameres protrude sufficiently beyond the apex of the metasoma for these projections to be noticeable. This character separates members of this genus from all other Ctenopelmatinae. Also, the first and second metasomal terga are strongly rugose in all Palaearctic species, separating them from other members of the Perilissini.

Diagnostic characters of the holarctic genus *Oetophorus* were given by BARRON (1997). The face and clypeus of the Palaearctic species is convex, whereas the face and clypeus of the Nearctic species is moderately convex, slightly convex, or flat. The first

metasomal terga of the Palaearctic species is without a median longitudinal groove or impression; that of one Nearctic species is with a median longitudinal impression. The first and second metasomal terga of all the Palaearctic species is strongly rugose; that of one of the Nearctic species is not rugose.

Key to the Palaearctic species of *Oetophorus*

1 Propodeum with carinae complete (Figs. 4, 9) 2
– Propodeum with carinae incomplete, area basalis not or partially defined (Figs. 14, 19) 3
2 Head of females black. Face of males yellow, vertex black. Mesosoma of male black with large yellow maculae. Hind wing with cu-a intercepted by Cu1 at, slightly below or above middle (Fig. 3) ..... *O. neavius* (GMELIN)
– Face of females and males yellow, vertex black. Mesosoma of male black, except mesopleuron at anterior margin with small median yellow macula. Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 8) ..... *O. taiwanensis* sp. nov.
3 Mandible with lower tooth slightly longer than upper. Antennae of males with apical articles expanded into a club. Propodeum with area basalis defined at apex, basal transverse carina present (Fig. 14). Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 13). Mesopleuron of female in ventral part black, in dorsal half reddish-brown. Body length about 8 mm, half that of individuals of *O. koreensis* ... . *O. cornutus* sp. nov.
– Mandible with lower tooth distinctly longer than upper. Antennae of males with apical articles not expanded into a club. Propodeum with area basalis not defined, basal transverse carina at middle absent (Fig. 19). Hind wing with cu-a intercepted by Cu1 at middle (Fig. 18). Mesopleuron black, except with small reddish-brown macula. Body length about 15 mm, two times that of individuals of *O. cornutus* .... *O. koreensis* sp. nov.

Oetophorus naevius (GMELIN)

Ichneumon naevius GMELIN, 1790: 2699.
Tryphon naevius; GRAVENHORST 1829: 152.
Mesoleius naevius; HOLMGREN 1854: 70.
Perilissus naevius; MORLEY 1911: 261.
Oetophorus naevius; TOWNES 1970: 94; KASPARYAN 1981: 331; RAHOO & LUFF 1988: 161 (biology).
Mesoleptus limitaris GRAVENHORST, 1829: 14; RATZEBURG 1848: 119.
Tryphon limitaris; BLANCHARD 1840: 307.
Perilissus limitaris; HOLMGREN 1855: 124, 1856: 379; BRISCHKE 1878: 73; THOMSON 1883: 913; DALLA TORRE 1901: 375. Questionable synonymy with *Ichneumon naevius*.
GMELIN by DALLA TORRE 1901: 375: Synonymy with *Perilissus naevius* by MORLEY 1911: 261.

Diagnostic characters. Mandible with lower tooth slightly longer than upper. Hind wing with cu-a intercepted by Cu1 at, slightly below, or above middle (Fig. 3). Propodeum with carinae complete, distinctly raised, area superomedia narrow (Fig. 4). Head of female black. Head of male with face yellow, vertex black. Mesosoma of female black, of male with large yellow maculae.

Description. Adult female, male. Head: Mandible with lower tooth slightly longer than upper. Antennal flagellum with 36-39 articles, m = 37.8 +/- 1.17 (n = 11); that of males

with apical articles not expanded into a club. Mesosoma: Notauli indistinctly dis-cernible from base towards middle. Forewing with areolet distinctly petiolate; 1 m-cu with ramus absent (Fig. 2). Hind wing with cu-a intercepted by Cu1 at, slightly below or above middle (Fig. 3). Propodeum with carinae complete, distinctly raised, area superomedia narrow (Fig. 4). Metasoma: First metasomal tergum without median longitudinal groove or impression, with lateral longitudinal carinae distinct from base to apex, sharp (Fig. 5). Sculpture: First and second metasomal terga strongly rugose; setal punctures very fine, obscurely outlined, space between punctures not clearly defined; sculpticells very convex, in "daisy-like" pattern, and impressed towards setal puncture. Colour: Female: Body black. Head black; clypeus and mandibles reddish-yellow; clypeus at base reddish-brown, mandibles each at apex reddish-brown; antennae reddish-yellow, scape, pedicel, and first article on anterior surface paler reddish-yellow. Mesosoma and propodeum black. Fore and middle legs reddish-yellow; tarsomeres each at apex darker; first and second trochanters pale reddish-brown. Hind legs reddish-brown, tibiae each in apical third darker reddish-brown; tarsomeres each at base pale reddish-brown. Metasomal terga black, each tergum beyond first at sides with longitudinal pale yellow stripe, terga towards apex with yellow stripe increasingly broader. Male: Head black. Face, clypeus, and mandibles pale yellow, each mandible at apex dark reddish-brown; antennae reddish-brown, scape and pedicel on anterior surface pale yellow. Mesosoma black, with pale yellow maculae. Propleuron reddish-yellow. Scutum 2 black, at sides anteriorly pale yellow. Pronotum black, at ventral cornes with large pale reddish-yellow macula. Mesopleuron in ventral part with pale yellow band. Fore and middle legs reddish-yellow, coxae and trochanters pale yellow. Hind legs reddish-brown, femora each at apex darker reddish-brown. Tarsomeres each at base paler reddish-yellow. Propodeum black. Metasomal terga black, each tergum at sides with longitudinal yellow stripe, terga towards apex with yellow stripe increasingly broader, as in females.

Variation. There is some variation in size of yellow maculae, particularly, on the thorax but all specimens have the same colour pattern.

Remarks. Individuals of *Oetophorus naevius* occur during May and June in Germany, Sweden, Denmark, and France. The species also occurs in Russia, Norway, Czechoslovakai, Belgium, and the United Kingdom. It has been bred from *Nematus ribesii* (SCOPOLI) according to RATZEBURG (1848) and by BRISCHKE (1861: 71) from larvae of the synonymous *N. ventricosus* (LATREILLE). It is beneficial in controlling the gooseberry sawfly in England (MORLEY 1911: 261).

Hosts. *Nematus leucotrochus* HARTIG, *Nematus umbratus* THOMSON (= *Nematus collinus* CAMERON) on birch, *Nematus ribesii*, *Nematus* on red currant, *Pristiphora rufipes* LEPELETIER (= *Pristiphora pallipes* LEPELETIER) with host *Ribes* sp. Recorded from *Nematus ribessi* (SCOPOLI), the Gooseberry sawfly (BRISCHKE 1861: 71; RATZEBURG, 1848: 119; MORLEY 1911: 261; KASPARYAN 1981: 331). The host plant is *Ribes*. Studies of parasitoids of the Goosseberry sawfly in England showed that "the main parasitoid of *N. ribesii* is *Oetophorus naevius* (GMELIN), which emerged from host cocoons in the spring, having parasitised the previous season's larvae and overwintered in their cocoons" (RAHOO & LUFF 1988). ZINNERT (1969) recorded *O. naevius* attacking *N. ribesii* in Germany. *O. naevius* ist endoparasitic within the host larva (RAHOO & LUFF 1988). The sawfly, *N. ribesii*, known in North America as the imported currant worm, occurs in Europe east to the Caucasus and was accidentally introduced into North America. It is now established on *Ribes* in all areas of North America except in the southern regions.

Distribution. Western Palaearctic. - Specimens examined 41 females, 56 males: Denmark. No further locality data, 2 females, 2 males (AEIC). England. Boxmoor, em IV, larva *Nematus leucotrochus* HARTIG, 1 male (BMNH); Clophill, 15. VI, ex *Nematus* on red currant, 1 male (BMNH); Colchester, 2 females, 2 males (BMNH); Dartmoor, 15.V,

30.VI, 2 females (BMNH), 30.VI, 1 female, homotype of *Mesoleptus limitaris* GRAVENHORST (AEIC); Nowton Abbot, Devonshire, VI, 1 male (AEIC), 5.IX, 2 females, 2 males (BMNH); Hastings, 1 male (BMNH); Kingswood, 1.VI, ex *Nematus umbratus* THOMSON on birch, 1 female (BMNH); Malham, 1-6.VI, 1 female (BMNH); Stroud, Gloucestershire, em III, ex *Nematus ribesii*, 2 females, 1 male (BMNH); Oxford, VI, 2 females, 1 male (AEIC); Poole, Dorset, V, 16 males (BMNH); Wheathampstead, Hertfordshire, 11.IV, ex *Nematus ribesii*, 1 male (BMNH); no further data, except 4 specimens dated 25.V, 4, 8.VI, 12 females, 22 males (BMNH). France. Morlaix, 14.VI. 1 female (BMNH); Paris, 1-2 V, 1 male (AEIC). Germany. Eschwege, with host pupa, 1 male (ZSMC); Hannover, ex *Pristiphora pallipes* LEPELETIER, 1 female, 1 male (ZSMC); Mittelhessen, IV, 1 female (ZSMC); no further locality data, collected by VON SIEBOLD, KRIECHBAUMER collection, 2 females (ZSMC); no further locality data, 4 females (BMNH, ZSMC). Netherlands. Vught, 15.V, 1 female (AEIC); no further locality data, 15.V, 1 female (AEIC). Scotland. Scourie, 31 V, 1 male (BMNH). Sweden. Skanor, VI, 2 females (AEIC). Europe. Locality not legible, 1 male (AEIC).

Oetophorus taiwanensis sp. nov.

Diagnostic characters. Mandible with lower tooth slightly longer than upper. Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 8). Propodeum with carinae complete, distinctly raised (Fig. 9). Head of females and males with face yellow, vertex black. Mesosoma of female black, of male black, except mesopleuron at anterior margin with small yellow macula.

Description. Adult female, male. Head: Mandible with lower tooth slightly longer than upper. Antennal flagellum with 28-31 articles, m = 30.1 +/- 1.14 (n = 11); that of males with apical articles not expanded into a club. Mesosoma: Notauli indistinctly discernible from base towards middle. Forewing with areolet slightly petiolate, sloped; 1 m-cu with ramus absent (Fig. 7). Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 8). Propodeum with carinae complete, distinctly raised (Fig. 9). Metasoma: First metasomal tergum without median longitudinal groove or impression, with lateral longitudinal carinae distinct from base to apex, sharp (Fig. 10). Sculpture: First and second metasomal terga strongly rugose; setal punctures very fine, obscurely outlined, space between punctures not clearly defined; sculpticells very convex, in "daisy-like" pattern, and impressed towards setal puncture. Colour: Female: Body mostly black. Head black; face, genae in ventral part, clypeus, mandibles pale yellow; face at middle below antennal sockets with median yellow macula; mandibles each at apex reddish-brown; antennae reddish brown, scape and pedicel on anterior surface yellow, flagellar articles reddish-yellow. Mesosoma black; propleuron in apical half reddish-brown; mesopleuron at anterior margin with narrow reddish-brown band, at dorsal margin with pale yellow macula. Fore an middle legs with coxae and trochanters pale yellow; femora, tibiae, and tarsi reddish-yellow; basal tarsomeres each in basal two-thirds pale yellow, apical tarsomeres each at immediate apex pale yellow. Hind legs with coxae reddish-brown, trochanters yellow, femora and tibiae reddish-brown, each at apex darker reddish-brown, tarsi dark reddish-brown, tarsomeres each at immediate apex pale yellow. Propodeum black. Metasomal terga black, each tergum at immediate apex pale yellow, terga beyond first each at sides with longitudinal pale yellow stripe, terga towards apex with yellow stripe increasingly broader. Male: Colour same as female, except female with propleuron in apical half reddish-brown; propleuron of amel with apical half pale yellow. Female with mesopleuron black, male with mesopleuron black, at anterior margin medially with smal pale reddish-yellow macula. Hind legs of female with coxae and tibiae reddish-

brown, tibiae each in apical third dark reddish-brown. Hind legs of male with coxae black, tibiae reddish-brown, in apical half dark reddish-brown.

Variation. Hind legs of some females with coxae at base and on dorsal surface black.

Remarks. The specific epithet, *taiwanensis*, refers to the locality of this species.

Hosts. Not known.

Distribution. Taiwan.

Specimens examined: 10 females, 1 male.

Type material. Holotype, adult female, Meifeng, Taiwan, 2150 m, 3.V.1983, H. TOWNES (AEIC). Paratypes. Taiwan. Meifeng, 2150 m, 3.V.1983, 2 females (AEIC); Wushe, 1150 m, 23.III, 2,7,19,26.IV.1983, 7 females, 1 male (AEIC).

Oetophorus cornutus sp. nov.

Diagnostic characters. Mandible with lower tooth slightly longer than upper. Antennae of males with flagellum at apex club-shaped. Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 13). Propodeum with carinae complete, except area basalis at base not defined (Fig. 14). Head of females black. Face of males yellow, vertex black. Mesosoma of female black, except scutellum, mesopleuron in dorsal half reddish-brown. Mesosoma of male black with extensive pale yellow maculae; mesopleuron at anterior margin with small median yellow macula.

Description. Adult female, male. Head: Mandible with lower tooth slightly longer than upper. Antennal flagellum with 38-45 articles, m = 41.1 +/- 1,62 (n = 15); that of males with apical articles axpanded transversely into a distinct club, as in Fig. 12 (BARRON 1997). Mesosoma: Notauli indistinctly discernible at base. Forewing with areolet distinctly petiolate, sloped; 1 m-cu with ramus absend (Fig. 12). Hind wing with cu-a intercepted by Cu1 distinctly below middle (Fig. 13). Propodeum with carinae complete, except area basalis at base not defined, basal transverse carina present (Fig. 14). Metasoma: First metasomal tergum without median longitudinal groove or impression, with lateral longitudinal carinae distinct form base to apex, sharp (Fig. 15). Sculpture: First and second metasomal terga strongly rugose; setal punctures very fine, obscurely outlined, space between punctures not clearly defined; sculpticells very convex, in "daisy-like" pattern, and impressed towards setal puncture. Colour. Female: Body mostly black, mesopleuron in dorsal half reddish. Head black; clypeus, mandibles yellow tinged reddish; clypeus at immediate base black; mandibles each at apex reddish-brown; antennae reddish-brown, scape, pedicel, and flagellar articles on anterior surface pale yellow. Mesosoma black; pronotum in anterior part reddish-yellow; scutellum 2 reddish-brown; mesopleuron in dorsal half reddish-brown. Legs pale yellow tinged reddish. Fore and middle legs with tibiae and tarsomeres each at apex slightly darker reddish-yellow; hind legs with tibiae each at apex much darker. Hind legs with tarsomeres dark reddish-brown, each at immediate base paler. Propodeum black. Metasomal terga black, each tergum beyond first on each side with longitudinal yellow stripe, terga towards apex with yellow stripe increasingly broader. Male. Body black, with extensive yellow maculae. Head black. Face, clypeus, malar space, mandibles yellow, mandibles each at apex dark reddish-brown; antennae reddish-brown, scape, pedicel, flagellar articles on anterior surface yellow; apical six flagellar articles, forming club, black. Mesosoma black, reddish-brown, and yellow. Propleuron yellow; pronotum at anterior corner black; scutum 2 black, at each side with yellow macula; scutellum 2 reddish-brown. Mesopleuron reddish-brown, at ventral part with longitudinal yellow band. Fore and middle legs yellow tinged reddish, tarsi reddish-brown, tarsomeres each at base pale yellow. Hind legs darker, pale reddish-brown; coxae and femora reddish-brown, each on posterior surface paler reddish-yellow; trochanters yellow; tibiae reddish-yellow, each at base pale reddish-yellow, at apex dark reddish-

brown, tarsi dark reddish-brown, tarsomeres each at immediate base pale yellow. Propodeum black. Metasomal terga black, each tergum beyond first at sides with longitudinal yellow stripe, apical terga with yellow stripe increasingly broader, as in females.

Variation. The malar space of the female holotype is reddish instead of black, as the rest of the head and as in the other female. There is slight variation in the size of yellow macula on the body of males, but all have the same general colour pattern.

Remarks. The specific epithet, cornutus, refers to the apical articles of the antennae of males which are expanded transversely to form a club. The antennae of males is similar to those of *O. clavatus* (Fig. 12, BARRON 1997).

Hosts. Not known.

Distribution: Japan. Specimens examined: 2 females, 17 males.

Type material. Holotype, adult female, Kinasa, Nagano, Japan, 400 m, 8.V.1962 T. HAYASAKA (CNCI, type number 21877). Paratypes. Japan. Nagano: Gomi Lake, 1100 m, 15.V.1961, 1 male (CNCI); Kinasa, 600-1000 m, 25.IV.1962, 1 male (CNCI); Nagano, 400-800 m, 6,13.V.1962, 4 males (CNCI); Yamada, 200, 1800 m. 11,18.V.1962, 7 males (CNCI). Tokyo: Murrayama, 21.IV.1960, 1 male (CNCI); Tachikawa, 22.V.1931, 1 female, 2 males (AEIC); Tokyo, 8.V.1934, 1 male (AEIC).

Oetophorus koreensis sp. nov.

Diagnostic characters. Adult female. Mandible with lower tooth distinctly longer than upper. Hind wing with cu-a intercepted by Cu1 a middle (Fig. 18). Propodeum with carinae complete, except area basalis not defined, basal transverse carina at middle absend (Fig. 19). Head black.Mesosoma black, except scutellum reddish-brown, mesopleuron with smal reddish-brown macula.

Description. Adult female. Head: Mandible with lower tooth distinctly longer than upper. Antennal flagellum with 46 articles (n = 1); that of males with apical articles not expanded into a club. Mesosoma: Notauli very indistinctly discernible. Forewing with areolet slightly petiolate; 1 m-cu with ramus absent (Fig. 17). Hind wing with cu-a intercepted by Cu1 at middle (Fig. 18). Propodeum with carinae complete, except area basalis not defined, basal transverse carina at middle absent (Fig. 19). Metasoma: First metasomal tergum without median longitudinal groove or impression, with lateral longitudinal carinae distinct from base to apex, sharp (Fig. 20). Sculpture: First and second metasomal terga with setal punctures large, clearly defined, about 0.5 diameter of puncture apart, clearly outlined, sculpticells convex. Colour: Female: Body mostly black, with some reddish-brown or reddish-yellow maculae. Head black; clypeus, mandibles, antennae reddish-yellow, mandibles each at apex dark reddish-brown; antennae, including scape and pedicel, on anterior surface paler reddish-yellow. Mesosoma mostly black; scutum 2 at each side reddish-brown, each side of middle with longitudinal reddish-brown band; scutellum 2 mostly reddish-brown; mesopleuron with small reddish-brown macula. Fore and middle legs yellow; tibiae, tarsomeres each at apex darker reddish-yellow. Hind legs darker reddish-yellow; tibiae each at apex distinctly darker reddish-brown; tarsomeres reddish-brown, each at immediate base pale yellow. Propodeum black. Metasomal terga black; terga beyond first with horizontal reddish-yellow band, terga towards apex with band increasingly broader; terga beyond first on each side at margin with longitudinal reddish-yellow stripe; terga towards apex with stripe increasingly broader.

Remarks: The specific epithet, koreenses, refers to the locality of this species. The body of this one known female is two times the length of other individuals of *Oetophorus*. A male collected in Seigen, Korea, 5.V.1931, K. SATO (AEIC) is not included in the type series because it is not certain that the female and male are conspecific. The material available is too limited to interpret the limits of variation within and possibly between the

species. The male differs from the female as follows: Mandible with lower tooth slightly longer than upper. Hind wing with cu-a intercepted by Cu1 distinctly below middle. Colour: Head mostly pale yellow; vertex black, face, orbits, and clypeus pale yellow. Mesosoma mostly pale yellow, dorsally mostly black, at sides and ventrally pale yellow. Propodeum mostly black. Metasomal terga black; terga beyond first each at apex and sides pale yellow, terga with yellow bands increasingly broader apically.

Hosts. Not known.

Distribution. Korea. One female was examined.

Type material. Holotype, adult female, Seigen, Korea, 4.IX.1939, K. SATO (AEIC).

Relationships

As noted by BARRON (1997) autapomorphies that define the genus *Oetophorus* are: each paramere bears "spine-like" seta on the inner side is strongly curved at the apex and the apex is in the form of an oblique flat disk (not known elsewhere in the Perilissini), and the strongly pectinate tarsal claws. The aedeagus of individuals of *Lathrolestes* is also strongly curved at the apex but not in the form an an oblique flat disk and the parameres do not bear a "spine-like" seta (BARRON 1994b). The genus *Perilissus* was characterized by BARRON (1992, 1994a) by the synapomorphies: the tarsal claws are sparsely, finely pectinate and cu-a of the hind wing is intercepted by Cu1 at or above the middle, whereas the tarsal claws of adults of *Oetophorus* are distinctly pectinate and cu-a of the hind wing is intercepted by Cu1 below, at, or above the middle.

Polarities of the character states within *Oetophorus* were determined by comparison with the outgroup *Oetophorus pleuralis* (CRESSON) of the Nearctic region in which the face in dorsolateral profile is convex, as in all Palaearctic species of *Oetophorus*, the lower tooth of the mandible is only slightly longer than the upper, the antennae are not modified, the second trochanter of the hind legs is not modified, the clypeus is entirely punctate, and the propodeal carinae are complete. All of the Palaearctic species of *Oetophorus* share the synapomorphy of the first metasomal tergum without a median longitudinal groove or impression. Individuals of *O. cornutus* share with those of *O. koreeensis* the synapomorphy of the area basalis of propodeum not defined. Males of *O. cornutus* share with those of the Nearctic species *O. clavatus* the synapomorphy of the apex of the antenna is expanded transversely into a distinct club. The species *O. koreensis* shares with the Nearctic species *O. maculatus* the character state of the lower tooth of the mandible distinctly longer than upper instead of only slightly longer. The relationship between eastern Asiatic and eastern North American species is similar to many such relationship between sister species of plants. The relationship between *O. neavius* and *O. taiwanensis* are unresolved.

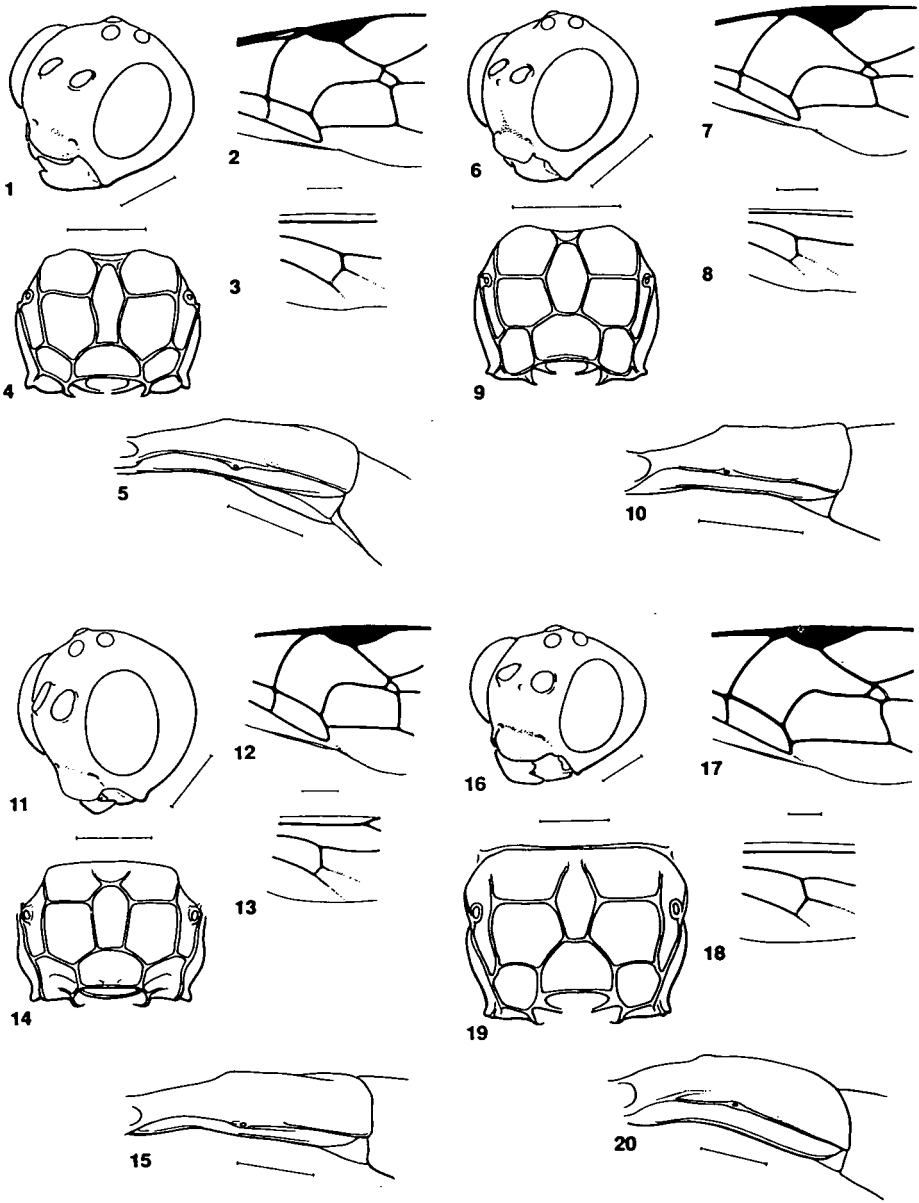
Captions for figures

Figures 1-5. *Oetophorus naevius* (GMELIN): 1, face and clypeus, dorsolateral view; 2, forewing, in part; 3, hind wing, in part; 4, propodeum, dorsal view; 5, first tergum, dorsolateral view.

Figures 6-10. *Oetophorus taiwanensis* sp. nov.: 6, face and clypeus, dorsolateral view; 7, forewing, in part; 8, hind wing, in part; 9, propodeum, dorsal vew; 10, first tergum, dorsolateral view.

Figures 11-15. *Oetophorus cornutus* sp. nov.: 11, face and clypeus, dorsolateral view; 12, forewing, in part; 13, hind wing, in part; 14, propodeum, dorsal view; 15,first tergum, dorsolateral view.

Figures 16-20. *Oetophorus koreensis* sp. nov.; 16, face and clypeus, dorsolateral view; 17, forewing, in part; 18, hind wing, in part; 19, propodeum, dorsal view; 20, first tergum, dorsolateral view.



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Literaturbesprechung

RINALDI, R. 1997: Australien. - Jahr Verlag, Hamburg, 159 S.

"Australien" ist ein großformatiger Bildband der Reihe "Enzyklopädie der Unterwasserwelt" - ein Abenteuer-Bericht, der von der kalten Tasmansee über die Wunder von Neusüdwales bis zum Großen Barriere-Riff führt. Durchgeführt wurde diese Tauch-"Expedition" von Roberto RINALDO, der als Fotograf im Team von Jacques-Yves Cousteau auf der "Calypso" arbeitete und jetzt als freier Journalist tätig ist. Über die Bilder gibt es nicht viele Worte zu verlieren: Selten sieht man Unterwasser-Aufnahmen von solcher Schärfe und Brillianz, die fast auf einem künstlerischen Arrangement beruhen. Egal ob Fische oder Wirbellose, mit oder ohne Taucher, die Fotos sind ein Genuß aus Farben, Brillianz und Bildkomposition. Die kurzen, informativen Texte unterstreichen das "Live-Erlebnis".

Ein Bildband der Superlative. Roland GERSTMEIER

Pons/IBM 1998: Personal Translator 98 plus Übersetzungssoftware. - v. Rheinbaben & Busch Verlag, 1 CD-ROM, Handbuch.

Nach gründlicher Überarbeitung und gespickt mit zahlreichen Neuerungen liegt nun die PC-taugliche Übersetzungssoftware deutsch-englisch/englisch-deutsch vor. Der Laie fragt sich erstaunt, wie es denn möglich sei, eine komplexe und individuell geprägte Materie wie die menschliche Sprache in einem Computerprogramm zugänglich und übersetzbar zu machen. Die vorliegende Software bedient sich hierzu raffinierter Methoden. Ein eingebautes Wörterbuch mit 360000 Begriffen sowie ein Idiomatikwörterbuch mit 35000 Redewendungen bilden den "Sprachschatz" und damit die Grundlage der Übersetzungsarbeit. Das Wörterbuch kann vom Anwender erweitert werden. Vor der eigentlichen Übersetzung hat die Software jedoch einige Hürden aufgestellt. So sollte der zu übersetzende Text möglichst in nüchternem Stil geschrieben sein und keine langen Schachtelsätze enthalten. Daß damit zahlreiche komplizierte Texte ungeeignet sind, sei nur am Rande erwähnt. Mit Hilfe der Rechtschreibprüfung des Textverarbeitungsprogrammes muß der Text auf Rechtschreibfehler untersucht werden, um diese vor der Übersetzung zu korrigieren. Sodann wird der Text von der Software automatisch auf unbekannte Wörter überprüft. Diese sollten in das Wörterbuch übernommen werden. Die nun zu startende Übersetzung gliedert sich in die automatisch ablaufenden Arbeitsschritte "lexikalische Suche", "syntaktische Analyse", lexikalischer Transfer" und "struktureller Transfer". Das sehr ergonomisch aufgebaute Fenster der Benutzeroberfläche ist in die Boxen "Quelltext" und "Zieltext" gegliedert, sodaß sich die Übersetzung gut überprüfen läßt. Bemerkenswert ist, daß die Software vom Anwender auf Spezialgebiete geeicht werden kann. So stehen unter dem Begriff "Biologie" die Bereiche "Botanik", "Vogelkunde" und "Zoologie" zur Verfügung.

Doch nun zu den Ergebnissen: Die Verlagswerbung verspricht nicht zuviel, wenn die hohe Übersetzungsleistung dieser Software hervorgehoben wird. Eigene Übersetzungsversuche ergaben folgendes Bild: Der Vergleich mit einer von einem professionellen englischsprachigen Übersetzer vorgenommenen Übersetzung eines deutschsprachigen entomologischen Manuskriptes ergab, daß zahlreiche Sätze einwandfrei übersetzt wurden, es Ihnen aber am letzten sprachlichen Schliff fehlte. Dieser prosaische und recht langweilige Stil ist nicht jedermanns Sache. Einige Sätze mit nicht ganz trivialem Inhalt konnte das Programm nicht richtig erkennen und übersetzte völligen Unsinn.

Fazit: Sicher ein unglaublich leistungsfähiges Übersetzungspogramm, das für Übersetzungsaufgaben wie Geschäftsbriefe gut geeignet ist. Von der Qualität einer "menschelnden" Übersetzung bei komplexen und adjektivbeladenen Sachverhalten ist Kollege Computer aber immer noch meilenweit entfernt. Michael CARL

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