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M I S H I M A

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DESCRIPTIONS OF A NEW SPECIES AND A NEW SUBSPECIES  
OF PEMPHREDONINAE FOUND IN JAPAN  
(HYMENOPTERA, SPHECIDAE)

By K. Tsuneki

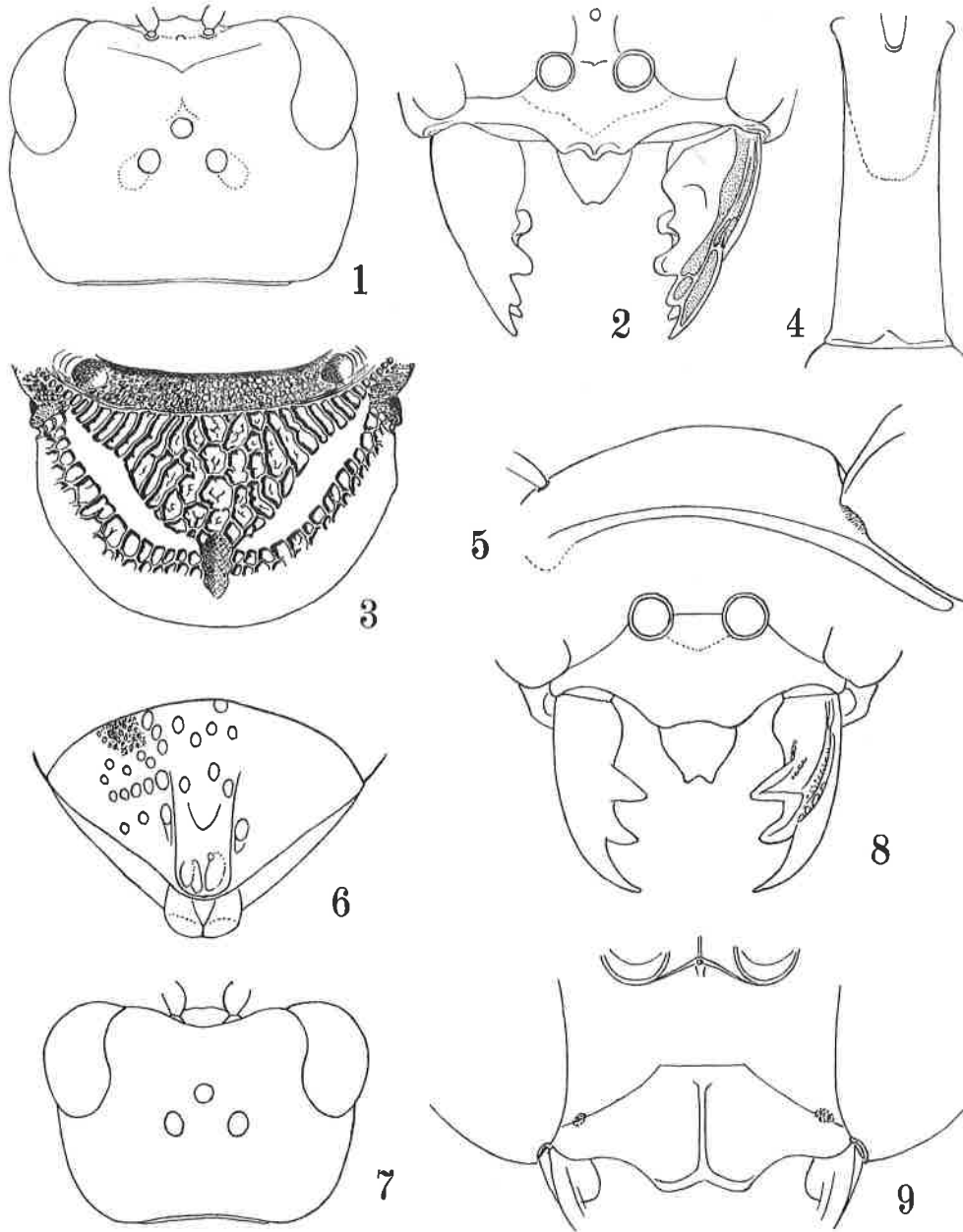
I. PEMPHREDON (CEMONUS) SUDAORUM sp. nov.

Recently a male and a female specimens of the genus Pemphredon collected by Mr. and Mrs. Suda in Yamanashi Prefecture have been sent to me for identification. They were a couple of an undescribed species having a close resemblance to Pemphredon (Cemonus) lethifer, but with differences in the structure of the clypeus (♀) and the gastral sternites (♂).

♀. Length 8.8 mm. Wholly black, with palpi, tibial spurs and tarsi of legs more or less brownish. Hairs white, normal, wings hyaline, veins brownish black and apically more brownish.

Head from above: Fig. 1. OOD : POD : OCD = 10 : 7 : 18 (head width relatively 53). Head seen in front with interocular space at anterior verge of upper frons and at the level of lower margins of antennal sockets relatively 32 : 27 (almost the same as in lethifer, curvature of inner orbits also similar), OAD : WAS : IAD = 8 : 3.5 : 5. Clypeus, labrum and mandibles: Fig. 2, clypeus somewhat similar in structure of apical margin to Pemphredon (Pemphredon) laeviceps Gussakovskij, but less porrect anteriorly, mandible similar to that of P. (C.) diervillae Iwata, but differs from that of lethifer (in this species the basal-most marginal tooth lacking). Antennal joint 3 in widest view twice, in narrowest view 2.5 times as long as wide at apex, slightly longer than joint 4 (8:7). Head in profile with posterior margin of temple roundly convergent below, ratio of maximum width of eye and temple 13 : 20 (all under the same scale). Thorax similar in structure to that of the two species compared, but mesoscutum medianly longitudinally weakly (at the central area somewhat strongly) impressed as in diervillae (in lethifer usually not impressed), propodeum in lateral view with the dorsal curvature as in diervillae, more strongly rounded than in lethifer, smooth and glittering posterior rim of area dorsalis (Fig. 3) narrower than in lethifer and posteriorly narrowed as in diervillae (hence the enclosed area much broader than in lethifer) and interrupted in middle by a comparatively broad smooth longitudinal furrow. Gastral petiole in dorsal view: Fig. 4, with relative length to maximum and minimum width 18 : 8 : 6, in lateral view: Fig. 5. Pygidial area: Fig. 6, slightly longitudinally hollowed, not distinctly margined on the sides, only on apical area roundly enclosed by a carina. In fore wing with recurrent vein 2 ending very slightly in front of the apex of cubital cell 1; mid tibia with outer apical longitudinal row of short spines (6-7) and hind tibia with sparse spines on outer side (3 and 2 in two rows in the specimen) as in the compared species, each spine of hind tibia at base weakly tuberculate as in diervillae (almost not in lethifer).

Punctures on vertex, upper and lower frons, mesoscutum, mesopleuron and scutellum generally similar in size and in pattern of arrangement to those of the large-sized specimen of P. lethifer, but on vertex slightly sparser, on frons slightly finer and sparser, more regular, less rugosely confluent, only on the sides more or less longitudinally rugosely fused together; on mesoscutum at the inner area of parapsidal suture somewhat larger, longitudinally elongate and partly confluent, on medio-posterior area rounded and very sparse, but at the extreme apex much finer and somewhat closer. Punctures on clypeus slightly lar-



Figs. 1-9. 1-8: Pemphredon (Cemonus) sudaerum sp. nov. 1-6, ♀; 7-8, ♂.  
 9: Psen (Psen) nitidus hikosanus ssp. nov., ♂.

1 and 7: Head. 2, 8 and 9: Anterior part of head. 3: Propodeum. 4: Gastral petiole (dorsal). 5: Ditto (lateral). 6: Pygidial area.

ger than those on upper part of lower frons and sparsely but uniformly scattered (in *lethifer* posteriorly finely and anteriorly grossly punctured), on temple medium-sized, rounded and sparse, only on upper part (at the side of vertex) close and partly connected with the adjacent ones (in *lethifer* more closely subrugoso-punctate), postscutellum minutely closely irregularly subgranulately reticulate (in *lethifer* variable, but weaker usually, with more or less glittering puncture-interspaces in the medial part). Sculpture of dorsal aspect of propodeum as in Fig. 3, with punctures outside the area dorsalis coarser and stronger than in *lethifer*. Dorsal aspect of gastral petiole finely closely irregularly punctured; tergites very sparsely scattered with minute punctules, the punctules posteriorly somewhat close, but much weaker; sternite 2 finely (but larger than those of basal tergites) sparsely punctured, remaining sternites more finely and more closely punctured, but the punctures posteriorly sparser and larger on each segment.

♂. Length 7.3 mm. In colouration and pilosity similar to ♀, but hairs more abundant. Head from above: Fig. 7, OOD : POD : OCD = 9 : 6.5 : 13, seen in front with ratio of upper and lower IODs relatively 28:20. Clypeus, labrum and mandible: Fig. 8. Head seen in profile with temple very slightly narrower than eye (13:14). Antennal joint 3 in widest view 1.8 times, in narrowest view 2.2 times as long as wide at apex and slightly longer than joint 4, joints 4-12 slightly reducing in length towards apex, joint 8 widest and attenuating to both ends, each joint strongly roundly swollen out beneath. Gastral petiole with relative length and maximum and minimum width 21:7:6, medianly less narrowed than in ♀. Each sternite without transverse impression before apical margin. Mid and hind tibiae without spine on outer side. In wing venation similar to ♀, but recurrent vein 2 of left fore wing subinterstitial.

Punctuation generally similar in pattern to ♀, but generally closer and stronger, especially on vertex, disc of mesoscutum and gastral petiole.

Holotype: ♀, Panorama-dai, Kami-Isshiki Village, Yamanashi Pref., 22. VII. 1975, T. Y. and H. Suda leg. (Coll. Tsuneki).

Paratype: 1 ♂, the same data.

## II. PSEN (PSEN) NITIDUS HIKOSANUS ssp. nov.

Psen (Psen) nitidus van Lith, 1959, was first described from Java and the adjacent islands and later discovered in Formosa (ssp. takasago Tsuneki, 1967), S. India, Sumatra (nitidus s. str.) and Nepal (ssp. himalayensis van Lith, 1973). Recently two male specimens of this species have been reared by Dr. M-T. Chujō, Kyushu University, and sent to me for identification. The study of the specimens reveals that it is a new local race of the species mentioned which is new to the fauna of Japan.

The new subspecies differs from the typical and Formosan forms at least in the following characters: Punctures on head and thorax much larger, on mesoscutum appr. twice as large as those in takasago and much closer, with puncture interspaces 1-2 (partly 3) times as wide as the puncture diameter, punctures along notauli, admedian line and parapsidal sutures much close. Head and thorax almost dull and opaque due to strong bluish bronzy shine (in takasago fairly well shining, with much weaker plumbeous lustre). Antennal joints relatively somewhat longer than in takasago, joint 3 amply twice, joint 7 about 1.5 times as long as broad at apex (in takasago 1.7 times and 1.3 times so respectively, in the typical form unknown). Petiole beneath distinctly convex (in takasago flattened and in nitidus nitidus concave). Tibiae and tarsi of legs more darkened than in takasago. The long silvery hairs on collar, posterior margins of tubercle, scutum and scutellum and somewhat radiating ones on postscutellum finer, less stiff and much less glittering than in takasago.

The present subspecies can be distinguished from the known Japanese relatives by the combination of the following distinctions: Petiole above smooth and pol-

ished, mid metatarsus normal, gastral tergites without fringe of long golden hairs, gastral sternites 3 and 4 fringed densely with a tuft of long hairs at the medio-apical margin, mandible not particularly broadened, antennal flagellum simple, without tyloidea, posterior rim of area dorsalis broadly smooth and polished. From the other Eurasian species excluding the above by the following: Posterior aspect of propodeum irregularly, very coarsely reticulate, dorsal and posterior aspects of propodeum in lateral view forming a nearly right angle, but the angled part broadly rounded, both recurrent veins of fore wing received by cubital cell 2, acetabular carina slightly more than half the length of the distance between omauli.

♂. Length about 9 mm. Black; fore tibia largely, fore and mid tarsi wholly and hind tibia partly and beneath, ferruginous; but fore femur black. Transverse post-ocellar furrow and longitudinal interocellar furrow well defined. Interantennal transverse carina arisen directly from beneath the antennal sockets, raised towards middle and subtoothed at the top. Clypeus: Fig. 9. Antenna gradually thickened towards apex, but in length joints 5-12 subequal, hence the relative length to width gradually smaller apically, joint 3 from above 2.7 times as long as broad at apex, much less than joints 4 and 5 combined, 7 about 1.5 times, penultimate 1.3 times as long as broad at apex, ultimate joint twice as long as broad at base. Relative length of IOD at vertex and at base of antennae appr. 4 : 3. Scute-scutellar furrow distinctly foveolate. Propodeum with area dorsalis deeply depressed and on posterior margin distinctly outlined by an acute edge, the surface longitudinally very coarsely striate, posterior rim roundly raised and broadly smooth and polished (smooth area of van Lith), at the side it is broadly expanded to posterior inclination and margined by carinae, with the surface more or less striolate and rugulose. Petiole as long as hind tibia, subquadrate in cross section and strongly carinated at the corners. Gastral tergites more strongly punctured than in the Formosan race.

♀, unknown.

Holotype: ♂, Mt. Hiko, Kyushu, emerged from the cocoon on June 18, 1976.

Paratype: 1 ♂, the same. Both reared by Dr. M.T. Chûjô.

Biology. According to the information given by Dr. Chûjô the two specimens came out of the cocoons that were dug out of the rotten trunk of Cryptomeria japonica D. Don. in the campus of the Hikosan Biological Laboratory of Kyushu University, located at the midway to the summit of Mt. Hiko. The cocoon was subcylindric, with both ends rounded, 11 x 6 mm in dimensions, whitish brown in colour and opaque, having the vein-like deep brown striae irregularly and sparsely running over the surface which is parchment-like in tissue and covered with the remains of prey insects. Of the prey it is certain that at least three species of Cercopidae, Hemiptera, are included, one of which is, judging from the characteristic colour pattern of the wings, no doubt Obiphora intermedia Uhler. The number per cell is, from the remains attached to the cocoon and found in the brood-cell, at least more than five. The cocoons are irregularly cut and teared open near the cephalic end.

Remarks. In the remarks to Psen nitidus takasago I give that the antennae of the specimen are markedly female-like and it may be an abnormal specimen. Upon the examination of the present specimens it is made clear that such a subclavate antenna is normal to the male of this species and one of the important specific distinctions.

On this occasion I correct my key to the Formosan species of Psen given in Etizenia, 57 (1971):

- 13 Subantennal transverse carina triangularly raised, with a distinct median tooth, anterior margin of clypeus in middle without lunate undersurface ..... 13'

- Subantennal transverse carina almost roundly raised, without median tooth, anterior margin of clypeus in middle with lunate undersurface ..... 14
- 13' Hind tibia ferruginous, antenna slender and long, joint 3 appr. 3.7 times, joint 7 twice as long as broad at apex (posterior rim of area dorsalis not so broadly smooth and polished)  
Psen (Psen) tanoi Tsuneki, 1967
- Hind tibia brown to dark brown, antenna gradually thickened apically, joint 3 appr. 2.7 times, joint 7 appr. 1.5 times as long as broad at apex (posterior rim of area dorsalis broadly smooth and polished)  
Psen (Psen) nitidus takasago Tsuneki, 1967

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