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The Discovery of the Male of *Nomada erythra* Mitai *et al.*, 2007 (Hymenoptera, Apidae) from Amami-Ôshima Is., Japan

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Abstract. The hitherto unknown male of *Nomada erythra* is described from Amami-Ôshima Is., Japan.

Keywords: taxonomy, description, Hymenoptera, Apidae, *Nomada*, Amami-Ôshima Is.

Introduction

The cleptoparasitic genus *Nomada* contains 51 species in Japan (Mitai & Tadauchi, 2007; Mitai *et al.*, 2007; Mitai & Tadauchi, 2008). Of those species, three are known from Amami-Ôshima Is., which is located in the Nansei Islands, the southern subpart of the Japanese Islands: *Nomada amamiensis* Hirashima, 1960, *N. erythra* Mitai *et al.*, 2007, and *N. xanthan* Mitai *et al.*, 2007. Although the present authors described *Nomada erythra* based on the female specimen only, in fact one male specimen had been found in the Entomological Laboratory of Faculty of Agriculture, Kyushu University. However, the male specimen was not in good condition so that the authors did not contain the description of the male in the original description of the species. Recently, by the courtesy of Associate Professor H. Yoshitomi of Ehime University, we were able to examine *Nomada* specimens preserved in the collection of Ehime University, and found two males of *N. erythra* in good condition.

Here we are going to give the description of the hitherto unknown male of *N. erythra*. All specimens examined are deposited in the collections of the Entomological Laboratory in Kyushu University, and the Laboratory of Environmental Entomology of Faculty of Agriculture in Ehime University.

Before going further, we would like to express our heartfelt thanks to Associate Professor H. Yoshitomi for giving us the opportunity of examining the valuable specimens.

This is a contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 6, No. 94).

Nomada erythra Mitai *et al.*, 2007 (Figs. 1 -2)

Nomada erythra Mitai *et al.*, 2007, Esakia, (47):54-56
[Holotype: Female. Type locality: Shinokawa, Amami-Ôshima, Is. the Nansei Islands, Japan]

Description of male (new to science)

Color: Head and thorax black; the following portions are yellow to dark yellow: mandible except apical one-fourth red, labrum, narrow apical margin of clypeus, malar area, lower paraocular area extending up along inner margin to level of upper margin of clypeus. Pronotal lobe reddish brown. Scutellum with a pair of small red maculae (two specimens) or wholly black (one specimen). Antennae black posteriorly, brown anteriorly, the more apical flagellar segments darker, so that apical several segments nearly wholly black. In a bright specimen, abdomen largely dark brown; T1 black on basal half, with a pair of small black spots in the dark brown portion; the following segments with basal and apical margin darkened. In other two specimens, black portion developed, apical three segments wholly darker. Legs dark brown; following portions are black: all coxae except apically, all trochanter except anteriorly, fore and mid femora ventrally, hind femur except dorsally (the black on anterior

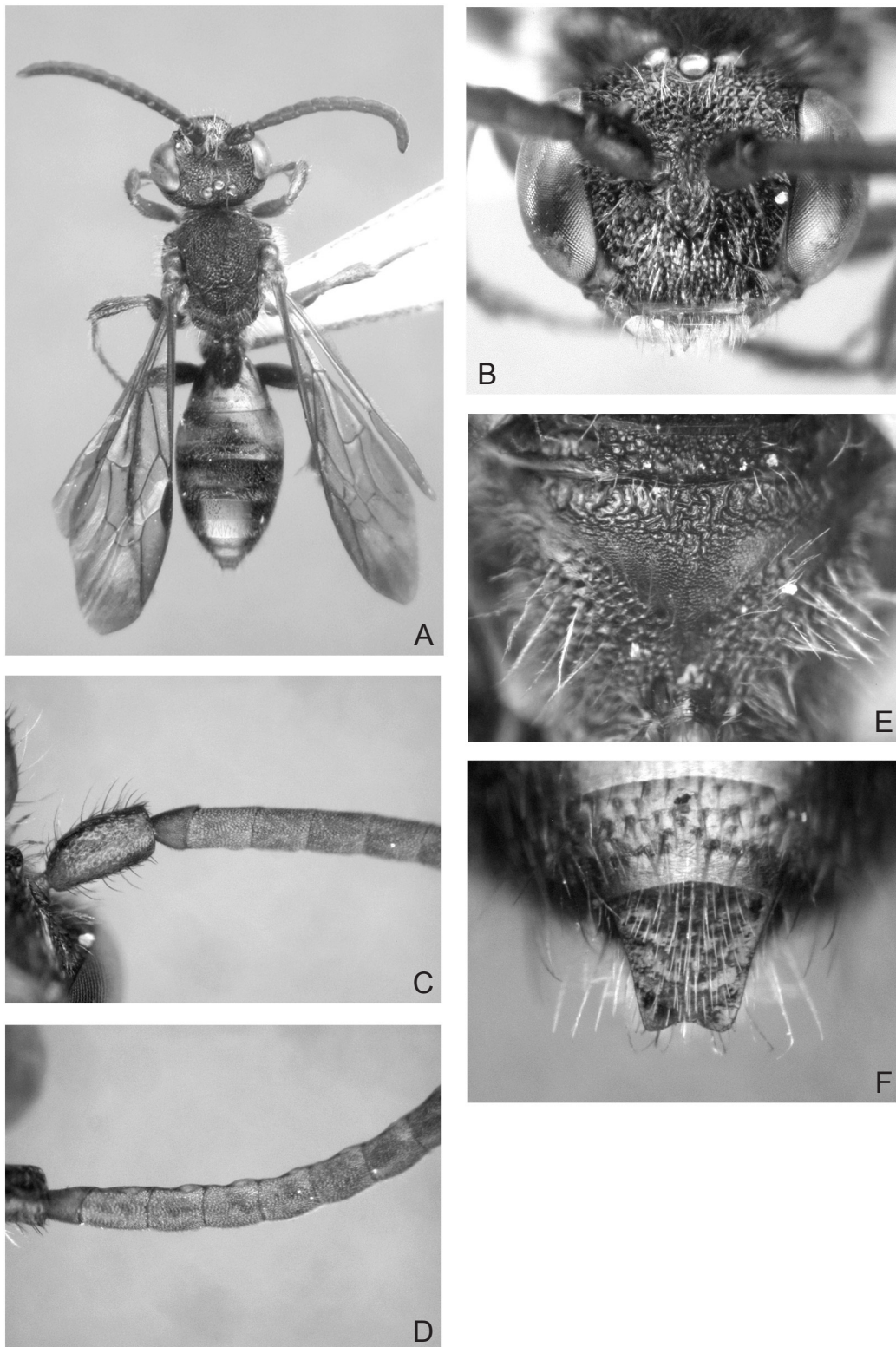


Fig. 1: A-F. *Nomada erythra* Mitai *et al.*, male. A: habitus, dorsal view. B: face. C, D: antenna. E: propodeal triangle. F: pygidial plate.

surface gradually narrower and disappears toward ventral side of segment).

Sculpture: Punctures on labrum indistinct and dense. Those on clypeus and supraclypeal area distinct and denser, separated less by a puncture diameter. Those on lower paraocular area separated more by a puncture diameter in places. Upper half of face above antennal socket densely areolate. Scutum and scutellum deeply areolate. Mesopleuron also areolate, somewhat shallower than scutum. Propodeum densely and shallowly areolate (denser than mesopleuron) on lateral and dorsal sides outside triangle, except sparsely rugose portion under spiracle; propodeal triangle irregularly coarsely rugose on basal half, remaining portion tessellate or polished. Terga faintly microsculptured with hair-bearing punctules.

Vestiture: Vestiture on labrum white, strongly plumose, erect. That on clypeus and supraclypeal area similar to that on labrum but appressed, not dense to obscure integument. Those on lower genal area near hypostoma erect, longer than on labrum, plumose. Those on scutum and scutellum pale brown tinged with golden, erect, weakly plumose (on scutellum slightly longer). That on mesopleuron fine, plumose, white, longer than on scutum, moderately dense, erect. That on posterolateral to dorsal surface of propodeum outside triangle similar to that on scutum, but paler in color, slightly sparser. That on metasomal terga sparse, fine, short, and appressed. Vestiture on ventral surface of fore femur as long as or slightly shorter than the maximum width of segment, that on ventral surface of mid femur much shorter than the maximum width of segment.

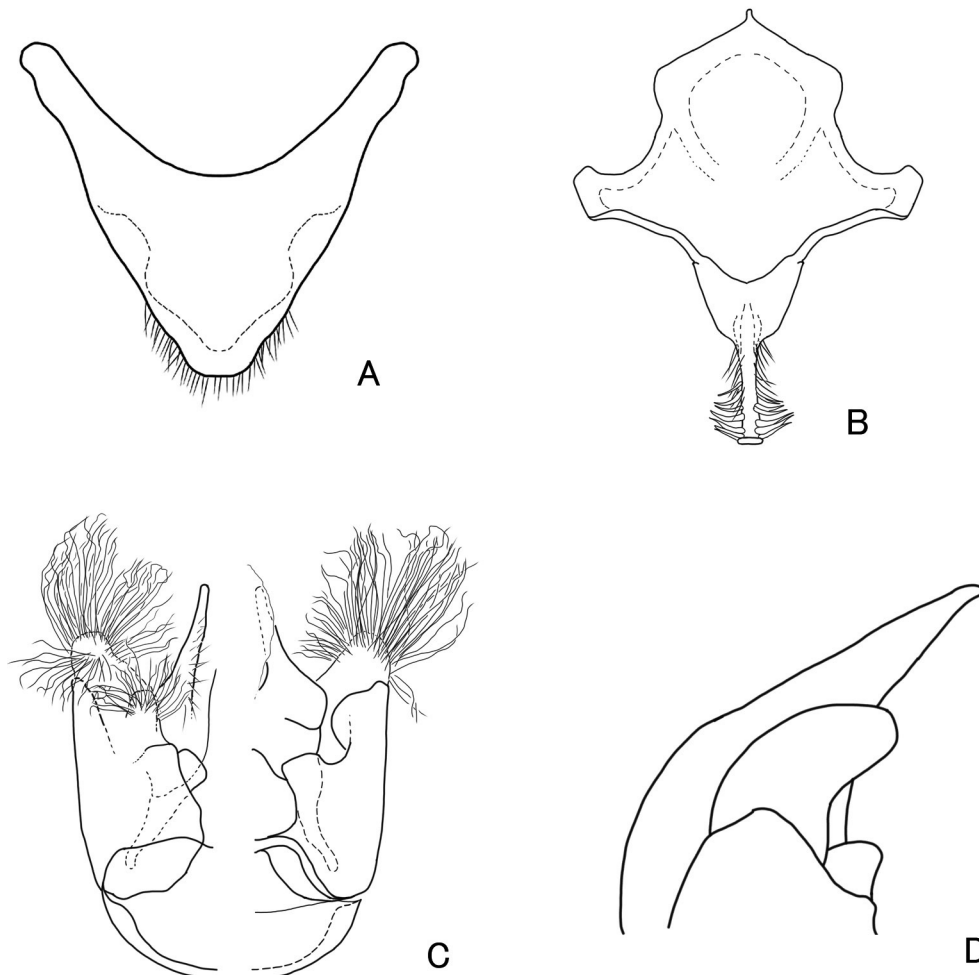


Fig. 2: A-D. *Nomada erythra*, male. A: 7th metasomal sternum, ventral view. B: 8th sternum, dorsal view. C: genital capsule (left, ventral view; right, dorsal view). D: penis valve and gonostylus, lateral view (vestiture omitted).

Structure: Body length 7.0-8.5 mm. CD:UID:LID 50:50:45. OCD/LOD 1.7. Interantennal elevation moderately raised, with highly raised keeled carina. inner eye margins moderately convergent below. Clypeus moderately raised and weakly produced. Labrum 1.7 times as wide as long; distinct labral tooth present at the center, not accompanied by carina on each side; apical portion below labral tooth moderately produced anteriorly and weakly upcurved; apical margin weakly serrated with a small triangular protuberance medially. Mandible somewhat slender, strongly curved at the midpoint. Relative length of 1st-3rd antennal flagellar segments 1: 2.0: 1.7, relative length to apical width of 1st segment 0.8 times, second 1.5- 1.6 times, third 1.1-1.2 times; tyloidea developed on second and following segments (Fig. 1-D), those on second to sixth highly raised, oval (those on third and fourth nearly circular), narrower and lower successively on following segments as so to become a ridge-shaped on last two segments. Scutellum highly raised, anterior facet flat, median furrow wide and deep. Fore femur slender. Apicomedian setae on hind tibia three or four in number, slender, pale brown, moderately long, similar in length, well-separated. Hind femur moderately built; basoventral flattened surface not reaching to midpoint of segment, shallowly depressed in posterior view, with sparse, erect, moderately long hairs. Pygidial plate as in Fig.1-F.

Terminalia: 7th metasomal sternum as in Fig. 2-A, 8th sternum as in Fig. 2-B. Gonostylus (Fig. 2-C, D) short, rounded at apex; vestiture simple, moderately dense, sinuate apically; basoventral lobe greatly produced, with simple, long, sinuate vestiture. Penis valve produced posteriorly beyond gonostylus, apex extending much

beyond apex of gonostylus in lateral view. Gonocoxites with moderately deep dorsal invagination; inner dorsal lobe wider than long, with apex truncate.

Specimens examined. [Japan: Nansei Islands] All three males are from Mt. Yuwan, Amami-Ōshima Is. Of those, two are at 19. iv. 1971 (M. Sakai), one at 27. iv. 2000 (H. Inoue).

Remarks. This male can be easily separated from the other two congeners occurring in Amami-Ōshima Is. by the well-developed tyloidea on antenna. This male is similar to the male of *Nomada shirakii* Yasumatsu et Hirashima, 1951, but differs from the latter in the shape of scutellum and the coloration. The male of *N. erythra* has the higher and widely furrowed scutellum, and no yellow macula on mesopleuron and metasoma, although sometimes males of *N. shirakii* also lack yellow macula on mesopleuron.

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