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Cephalcia antennata sp. nov. (Hymenoptera, Pamphiliidae) from Central Honshu, Japan[1)]

By

Akihiko SHINOHARA

Department of Zoology, National Science Museum, Tokyo

Abstract A new species of conifer-feeding pamphiliid sawfly, *Cephalcia antennata*, is described and illustrated on the basis of a male specimen collected in Kusatsu, Gunma Prefecture, Honshu. It is well characterized by its almost entirely black head, thorax and abdomen, long, apically whitish antenna, largely black legs, and blackish band across the forewing.

Cephalcia PANZER is a Holarctic genus of conifer-feeding pamphiliid sawflies. It is represented by nearly 20 Palearctic and ten Nearctic species, including some economically important pests on spruce and larch. Japanese species of *Cephalcia* were studied by TAKEUCHI (1938), those occurring in Hokkaido were revised by UCHIDA (1949), and a new species was described by SHINOHARA (1985).

In the following lines, I will describe a new species of the genus from a single male specimen collected in Kusatsu, a mountain resort area in central Honshu. The new species is peculiar in having almost entirely black head, thorax and abdomen, long, apically whitish antenna, largely black legs, and blackish band across the forewing.

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Cephalcia antennata sp. nov.

(Figs. 1–6)

Male (holotype, Fig. 1). Length about 11 mm. Forewing length about 9.5 mm. Head black, with very obscure pale spot on paraantennal field; mandible pale reddish brown, yellowish towards base and dark at apex; antenna black, with apical third (16th to 28th segments) creamy white, except for blackish terminal (29th) segment. Thorax and abdomen entirely black. Legs black, with apices of fore and mid femora and mid tibiae pale brown (fore and mid tibiae apically darkened, particularly in the latter) and hind tibia and all tarsi blackish brown. Wings hyaline, weakly stained with black; distinct dark band below stigma across forewing; stigma and veins blackish brown to black.

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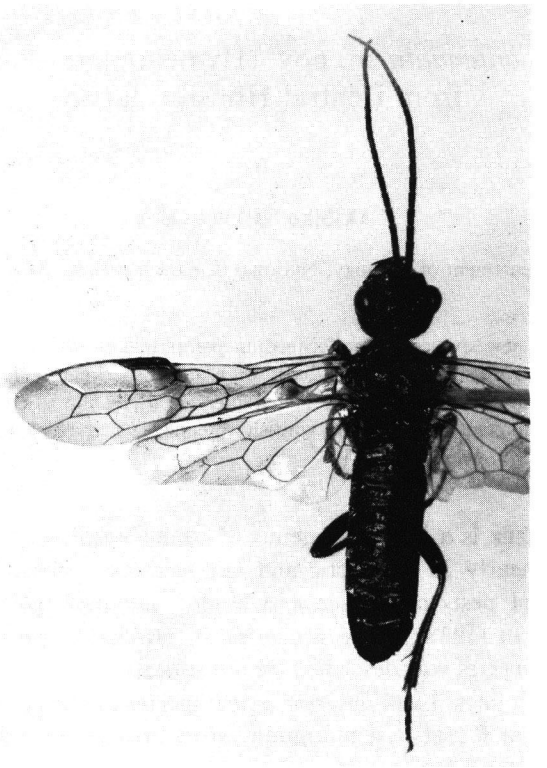

Fig. 1. *Cephalcia antennata* n. sp., male, holotype.

Head in dorsal view strongly narrowed behind eyes; postgenal carina low, narrow but recognizable; transverse, lateral transverse, and coronal sutures absent; upper part of frons weakly convex; ocellar basin represented only by a small depression just in front of median ocellus, no distinct furrow around median ocellus; each ocellus located on outer surface of swelling, which is separated from each other by shallow Y-shaped furrow; median fovea indistinct; facial crest low, rounded; clypeus as in Fig. 2, medially moderately elevated; gena rather flattened, without conspicuous grooves, except for narrow, rather shallow groove extending from malar space along outer orbit and fading at the level of antenna.

Head behind line connecting posterior margins of eyes and clypeus covered with dense large deep punctures, smooth or weakly coriaceous interspaces half or less than diameter of a puncture; area between this line and dorsal margin of clypeus coarsely rugose and punctate, except for nearly impunctate, coriaceous, ventrally rugose paraantennal field; gena coarsely rugose and coriaceous, but with few distinct punctures. Head, except for glabrous paraantennal field, covered with blackish, lanate hairs, those on vertex about 1.5 times as long as ocellar diameter. Both antennae 29-segmented, with 3rd segment about 2.4 times as long as 4th.

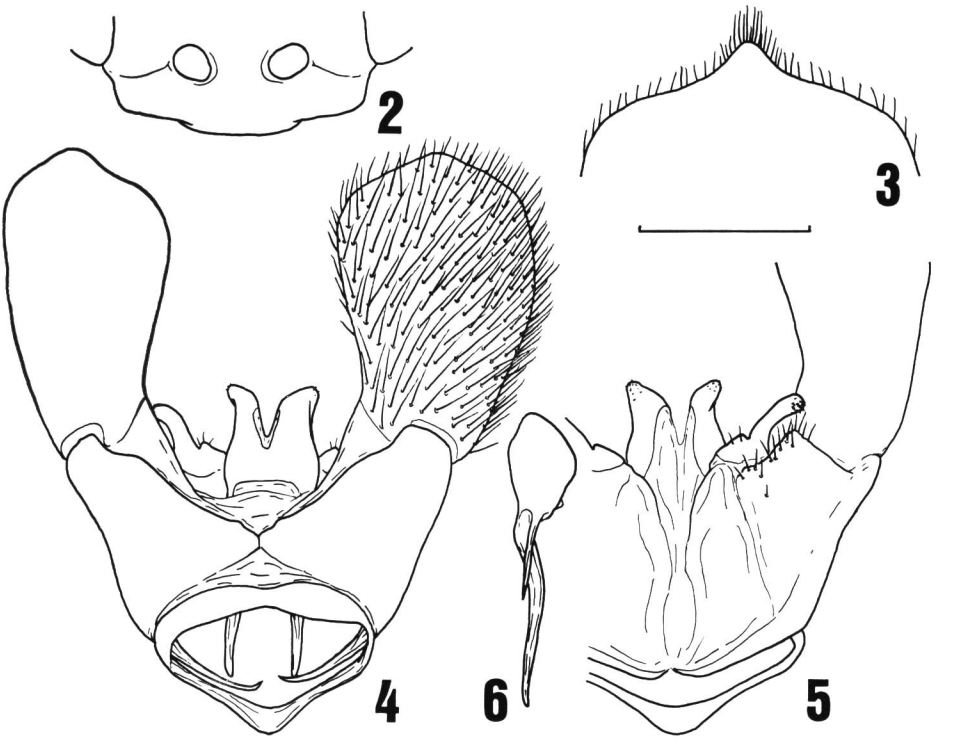

Fig. 2–6. *Cephalcia antennata* n. sp., male, holotype. 2, Clypeus, frontal view; 3, subgenital plate, dorsal view (genitalia removed); 4, genitalia, dorsal view; 5, ibid., ventral view; 6, penis valve, lateral view. Scale: 1.25 mm for Fig. 2 and 0.5 mm for Figs. 3–6.

Forewing with cell C rather sparsely pilose and stub of m+cu–a short but distinct; hindwing with apical stub of 2 A absent. Subgenital plate strongly produced to form narrowly rounded setose apex (Fig. 3). Genitalia as in Figs. 4–6; harpes asymmetrical; digitus with basal tooth or projection.

Female. Unknown.

Distribution. Japan (Honshu).

Holotype: ♂, "Kusatsu, Momi ?, 23. V. 1951, Kabe leg." Deposited in National Science Museum (Nat. Hist.), Tokyo.

Type locality. Kusatsu is known as a hot spring resort about 1,200 m high on the eastern slope of Mt. Shirane-san (2,106 m alt.) in northwestern part of Gunma Prefecture, central Honshu.

Host-plant. Unknown. The collector noted "Momi ?" [meaning fir in Japanese] on the label, suggesting that the specimen was captured from a fir tree or he thought, for some reason, that the species is associated with fir.

Remarks. This new species is well characterized by its almost entirely black head,

thorax and abdomen, long, apically whitish antenna, largely black legs, and blackish band across the forewing. These characters will easily distinguish *C. antennata* from the species of *Cephalcia* known from Japan (TAKEUCHI, 1938; SHINOHARA, 1985). The only known Japanese *Cephalcia* with distinct blackish marking on the forewing is *C. stigma* TAKEUCHI, which is associated with *Abies firma* SIEB. et ZUCC. (OKUTANI, 1967). However, *C. stigma* is a predominantly pale brownish species with basally yellowish and apically blackish antenna and largely pale brown stigma, and the blackish mark on the forewing covers the basal part of stigma and the area just below it (cf. fig. 7 in TAKEUCHI, 1938), not reaching the anal margin of the forewing. Other Asian congeners treated by GUSSAKOVSKIJ (1935), VERZHUTSKIJ (1973), SHINOHARA (1991), SHINOHARA *et al.* (1991), and XIAO *et al.* (1991) are also readily distinguishable from the new species by the set of characters stated above.

In keys to the European species of the genus (BENEŠ, 1976; ACHTERBERG & AARTSEN, 1986), *C. antennata* would go close to *C. hartigii* (BREMI, 1849), a fir-feeding species distributed in Central Europe to Caucasus and Tunisia (BATTISTI & CESCATTI, 1992). These two species share almost entirely black head with long, black and creamy white (or pale yellow) antenna, entirely black thorax, distinct blackish band below stigma on the forewing, and a projection at the inner base of digitus in the genitalia. However, the new species differs from *C. hartigii* in the apically whitish antenna, developed, though not sharply defined, postgenal carina, presence of short stub of m+cu–a in the forewing, entirely blackish brown mid and hind tibiae and tarsi, entirely black abdomen, apically strongly produced subgenital plate, and distinctly asymmetrical harpes in the genitalia; in *C. hartigii*, the antenna is usually whitish medially, the postgenal carina is indistinct, the stub of m+cu–a is absent, the mid and hind tibiae and tarsi are entirely reddish brown, the abdomen is largely reddish brown, the subgenital plate is rounded apically, and the harpes is nearly symmetrical.

ACHTERBERG and AARTSEN (1986) stated that "vein 2-CU1a [=Cu_1a in the terminology of ROSS (1936) and RICHARDS (1977)] of fore wing [is] absent or nearly so (second stub from above near apex of fore wing)" in *C. hartigii*. This is, however, certainly a mistake for the crossvein m+cu–a (ACHTERBERG & AARTSEN, 1986) [="stub of Cu_1" in BENEŠ (1968), SHINOHARA (1985, 1991) and SHINOHARA *et al.* (1991) following ROSS (1936), "cu_1–a" in BENEŠ (1976), and "second cu–a cross-vein" in RICHARDS (1977, p. 30)], which is characteristically absent in *C. hartigii*, *C. issikii* TAKEUCHI and *C. ruficornis* SHINOHARA among the Palearctic members of the genus (SHINOHARA, 1985). An examination of a male of *C. hartigii* from Abkhazija (det. A. ZINOVJEV) has shown that the vein "2-CU1a" is normally developed in *C. hartigii* as in other Pamphiliidae (see also fig. 2 in BATTISTI & CESCATTI, 1992).

It should be noted that *C. stigma* and *C. hartigii* are the only known Palearctic species of *Cephalcia* feeding on firs in larval stage (OKUTANI, 1967; BATTISTI & CESCATTI, 1992), and *C. antennata* may be the third species (see comments under "Host-plant"). These three species seem to be isolated from the other congeners, most of which feed on spruce or larch, but their affinities are still unclear.

In the Nearctic fauna, *C. antennata* resembles *C. fascipennis* (CRESSON), to which it keys in MIDDLEKAUFF (1958). The new species is distinguished from the latter by the lack of pale marks on the clypeus and antennal scape, basally black and apically whitish flagellum, and largely black legs.

References

ACHTERBERG, C. van, & B. van AARTSEN 1986. The European Pamphiliidae (Hymenoptera: Symphyta), with special reference to the Netherlands. *Zool. Verh.*, (234): 1–98.

BATTISTI, A., & A. CESCATTI, 1992. Notes on host plant, larval features and life history of *Cephalcia hartigii* (BREMI) (Hym., Pamphiliidae). *Mitt. schweiz. ent. Gesellschaft*, **65**: 353–362.

BENEŠ, K., 1968. A new genus of Pamphiliidae from East Asia (Hymenoptera, Symphyta). *Acta ent. bohemoslov.*, **65**: 458–463.

——— 1976. Revision of the European species of *Cephalcia* PANZER, 1805 (Hymenoptera, Pamphiliidae). *Studie ČSAV*, **3**: 1–68.

GUSSAKOVSKIJ, V. V., 1935. Chalastogastra (pt. 1). Faune de l'URSS (n. s. 1), Insectes Hyménoptères II (1). XVIII+453 pp. Édition de l'Academie des Sciences de l'URSS, Moscow, Leningrad. (In Russian with German summary.)

MIDDLEKAUFF, W., 1958. The North American sawflies of the genera *Acantholyda*, *Cephalcia* and *Neurotoma* (Hymenoptera: Pamphiliidae). *Univ. Calif. Publs. Ent.*, **14**: 51–174.

OKUTANI, T., 1967. Food plants of Japanese Symphyta (I). *Jap. J. appl. Ent. Zool.*, **11**: 43–49. (In Japanese.)

RICHARDS, O. W., 1977. Hymenoptera. Introduction and key to families. *Handbk. Ident. Br. Insects*, **6** (1): i–iv+1–100.

ROSS, H. H., 1936. The ancestry and wing venation of the Hymenoptera. *Annals ent. Soc. Am.*, **29**: 99–111.,

SHINOHARA, A., 1985. Two new species of Cephalciinae from Japan (Hymenoptera, Pamphiliidae). *Konchû, Tokyo*, **53**: 90–96.

——— 1991. Pamphiliid sawflies (Hymenoptera) from Taiwan. *Bull. natn. Sci. Mus., Tokyo*, (A), **17**: 173–181.

———, T. NAITO, F.-S. HUANG, 1991. Some Pamphiliidae (Hymenoptera) from Sichuan Province, China. *Bull. biogeogr. Soc. Japan*, **46**: 155–160.

TAKEUCHI, K., 1938. A systematic study on the Suborder Symphyta of the Japanese Empire (I). *Tenthredo*, **2**: 173–229.

UCHIDA, T., 1949. Systematische Übersicht der *Cephalcia*-Arten aus Hokkaido (Pamphiliidae, Hymenoptera). *Insecta matsum.*, **17**: 6–10.

VERZHUTSKIJ, B. N., 1973. Opredelitel' Lichinok Rogokhvostov i Pilil'shchikov Sibiri i Dal'nego Vostoka. 140 pp. Nauka, Moskva.

XIAO, G.-r., X.-y. HUANG, S.-z. ZHOU, J. WU & P. ZHANG, 1991. Economic Sawfly Fauna of China (Hymenoptera, Symphyta). 226 pp. Tianze Eldonejo, Beijing. (In Chinese.)