Two new species of the genus *Hartemita* Cameron, 1910 (Hymenoptera: Braconidae: Cardiochilinae) from Vietnam

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Two new species of the genus *Hartemita* Cameron, 1910 (Hymenoptera: Braconidae: Cardiochilinae) are described and illustrated: *Hartemita nigrina* sp. n. and *H. tamdaona* sp. n. from Vietnam.

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Introduction

The small genus *Hartemita* Cameron, 1910 (Braconidae: Cardiochilinae) has a distribution in the Oriental and East Palaearctic regions. Up to now, of the total 22 species known, three are from the East Palaearctic region, three are from an intermediate area (Nepal) and the other 16 occur in the Oriental region (Dangerfield & Austin 1990, Chou 1995, Chen et al. 1998, 2004, Belokobylskij & Ku 2001, Ahmad & Shujaiddin 2004, Belokobylskij 2005, Yu et al. 2005, Long & van Achterberg 2011). As far as known all species of Cardiochilinae are koinobiont endoparasitoids of lepidopterous larvae. Extensive Malaise trapping in Vietnam resulted in the collecting of seven species of the genus *Hartemita* (Long & van Achterberg 2011). In this paper two additional new species from Vietnam are described. The key to species by Long & van Achterberg (2011) is updated.

Material and methods

For recognition of the subfamily Cardiochilinae, see van Achterberg (1993), for a key to the genera of

Cardiochilinae, see Dangerfield et al. (1999) and for a diagnosis of the genus *Hartemita*, see Dangerfield & Austin (1990) and Long & van Achterberg (2011). For the terminology used in this paper, see Dangerfield & Austin (1990) and van Achterberg (1993). The drawings were made under an Olympus SZ40 binocular microscope; the scale bars in the plates indicate 1.0 mm. The specimens are deposited in the Braconidae collection in the Institute of Ecology and Biological Resources (IEBR) at Hanoi.

Checklist and distribution

- Hartemita basilaris* Dangerfield & Austin, 1990 – Indonesia
- Hartemita bruneiensis* Dangerfield & Austin, 1990 – Brunei and East Malaysia
- Hartemita buteae* Ahmad & Shujaiddin, 2004 – India
- Hartemita chapini* (Mao, 1945) – Philippines and Malaysia
- Hartemita chinensis* Chen, He & Ma, 1998 – China
- Hartemita coffeana* Long & van Achterberg, 2011 – Vietnam

Figs 1–4. *Hartemita nigrina*, female, holotype. – 1, head, frontal aspect; 2, apex of hind tibia and hind tarsus, lateral aspect; 3, head, dorsal aspect; 4, mesonotum, dorsal aspect.

Figs 5–8. *Hartemita tamdaona*, female, holotype. – 5, head, frontal aspect; 6, apex of hind tibia and hind tarsus, lateral aspect; 7, head, dorsal aspect; 8, fifth hind tibial segments and claw.

- Hartemita daklaka* Long & van Achterberg, 2011 – Vietnam
- Hartemita excavata* Chen, He & Ma, 1998 – China and Vietnam
- Hartemita flava* Chen, He & Ma, 1998 – China
- Hartemita khatbaolinhae* Long & van Achterberg, 2011 – Vietnam
- Hartemita latipes* Cameron, 1910 – Indonesia and Malaysia
- Hartemita maculata* Long & van Achterberg, 2011 – Vietnam, China and Nepal
- Hartemita muirii* (Fullaway, 1919) – Philippines and Japan
- Hartemita nigrina* sp. n. – Vietnam
- Hartemita nigrotestacea* Belokobylskij & Ku, 2000 – Japan and South Korea
- Hartemita punctata* Chen, He & Ma, 1998 – China
- Hartemita rhadinotarsa* Dangerfield & Austin, 1990 – India, Indonesia and Nepal
- Hartemita rudis* (Mao, 1945) – Philippines
- Hartemita similis* Long & van Achterberg, 2011 – Vietnam
- Hartemita singaporensis* (Mao, 1945) – Singapore, Laos, Malaysia and Vietnam
- Hartemita spasskensis* Belokobylskij, 2005 – Russia (Far East)
- Hartemita tamdaona* sp. n. – Vietnam
- Hartemita tounesi* Dangerfield & Austin, 1990 – China (Taiwan)
- Hartemita vietnamica* Long & van Achterberg, 2011 – Vietnam
- 92 l.c.) and 2.2–2.3 times wider than second hind tarsal segment 11a
- Ventral margin of clypeus concave or straight (Figs 12, 17, 35 l.c.), if weakly and evenly curved medially then hind basitarsus 0.9–1.1 times wider than apex of hind tibia (Figs 16, 22, 40, 49, 52, 55, 58, 61, 74, 89 l.c.) and 2.5–4.0 times wider than second hind tarsal segment, if rarely 0.8 times wider than apex of hind tibia then usually ventral margin of clypeus straight medio-ventrally or nearly so (Fig. 50 l.c.) 13
- 11a. Hind leg entirely black; fore and middle coxa black and contrasting to pale yellow femur, tibia and tarsus *H. nigrina*
- Hind leg yellow, except for coxa and basitarsus apically, tibia basally black or blackish brown; fore and middle coxa yellow or pale yellow 12

Description

Holotype, female, length of body 5.1 mm, length of fore wing 5.1 mm and of antenna 6.2 mm.

Head. Antennal segments 45; third segment 1.25 times as long as fourth segment; length of third, fourth and penultimate segments 2.0, 1.6 and 1.2 times their width, respectively; maxillary palp slightly longer than height of head; head twice wider than its median length; occiput deeply concave (Fig. 3); head behind eyes hardly narrowed posteriorly (Fig. 3); temple as long as transverse diameter of eye in dorsal view; OOL:POL:OD = 12:5:5; frons medially smooth and with median carina (Figs 3, 10); eye glabrous; width of face 1.5 times height of eye; clypeal margin evenly concave (Fig. 1), epistomal suture distinct; malar space as long as basal width of mandible; face and clypeus sparsely punctate; temple shiny and with sparse fine punctures; frons smooth.

Mesosoma. Length of mesosoma 1.3 times its height; pronotal trough rugose, smooth ventrally, striate medially; propleuron smooth; notauli deep, largely crenulate; mesoscutum rugose-punctate; scutellar sulcus with three carinae; scutellum rugose-punctate, depressed subapically (Fig. 4); mesopleuron largely rugose, but medially with smooth area; mesosternum punctate; metapleuron and propodeum largely rugose.

Wings. Length of fore wing 3.4 times its maximum width; length of pterostigma 3.5 times its median width; r:2-SR:3-SR = 11:16:32; second submarginal cell of fore wing 3.7 times longer than its maximum width; vein 1-CU1 0.3 times as long as vein 2-CU1; vein 3-SR joining SR1 at less than 100°. Length of hind wing 4.8 times its width; vein M+CU 0.4 times as long as vein 1-M; vein 2-SC+R more or less transverse.

Descriptions

Hartemita nigrina sp. n.

Figs 1–4, 10, 12

Type material. Holotype, female (IEBR), “Card. 024”, “[NW Vietnam]: Hoa Binh, Mai Chau, Hang Kia-Pa Co N.R., secondary forest, 21.iv.2002, K.D. Long”.

Diagnosis. The new species differs from all species of the genus by having the head, mesosoma and hind leg entirely black; in addition, the face, the metanotum and the propodeum are largely rugose.

The new species can be inserted in the key by Long & van Achterberg (2011) as follows:

11. Ventral margin of clypeus more or less curved medio-ventrally (Fig. 1; Figs 75, 90 l.c.) and hind basitarsus 0.8 times wider than apex of hind tibia (Fig. 2; Figs 77,

Figs 9–14. *Hartemita tamdaona*, female, holotype (9, 11, 13, 14) and *H. nigrina*, female, holotype (10, 12.) (photos); 9, 10, head, dorsal aspect; 11, 12, apical part of fore wing; 13, mesosoma, lateral aspect; 14, mesonotum, dorsal aspect.

Legs. Length of hind femur 4.6 times its width; length of hind tibia 6.0 times its apical width; hind basitarsus nearly parallel-sided, not produced apico-dorsally, 3.4 times longer than wide and as wide as apical width of hind tibia (Fig. 2); second-fifth hind tarsal segments 0.8 times as long as hind basitarsus; inner hind tibial spur 0.7 times as long as hind basitarsus; hind tarsal claw with three processes; hind coxa shiny and smooth; outer side of hind femur densely finely punctate; upper side of hind tibia with spines.

Metasoma. Second metasomal tergite 0.8 times as long as third tergite; second suture obsolescent; ovipositor curved down.

Colour. Black; antenna blackish brown; palpi, fore and middle femora, tibiae and tarsi, first, second, seventh and eighth metasomal segments and base of third-sixth tergites yellow; fore wing dark brown apically.

Male. Unknown.

Etymology

From “nigra” (Latin for black) because of the black body.

Distribution

NW Vietnam: Hoa Binh (Mai Chau).

Hartemita tamdaona sp. n.

Figs 5–8, 9, 11, 13, 14

Type material. Holotype, female (IEBR), “Card. 087”, “[NE Vietnam:] Vinh Phuc, Me Linh, Tam Dao, 200m, secondary forest, v.2008, N.T.P. Lien”.

Diagnosis. The new species is close to *H. townesi*, but differs by having the basitarsus slightly curved dorsally and not produced apico-dorsally (distinctly curved dorsally and with a distinct apico-dorsal prominence in *H. townesi*) and the metanotum without cross carinae (metanotum with 2 cross carinae in *H. townesi*). The new species is also close to *H. nigrotestacea*, but differs by having the second-fourth hind tarsal segments slender, distinctly longer than wide (second-fourth hind tarsal segments robust, hardly longer than wide in *H. nigrotestacea*).

The new species can be inserted in the key by Long & van Achterberg (2011) as follows:

- 8. Second-fourth hind tarsal segments slender, distinctly longer than wide (Fig. 6; Fig. 64 l.c.) 8a
- Second-fourth hind tarsal segments robust, hardly longer than wide (Figs 46, 67, 80 l.c.) .. 9
- 8a. Dorsal side of hind basitarsus distinctly more curved than nearly straight ventral side and with a rather distinct apico-dorsal prominence (Fig. 64 l.c.); frons smooth laterally; Oriental China, Nepal *H. townesi*
- Dorsal side of hind basitarsus slightly curved, nearly as straight as ventral side and without an apico-dorsal prominence (Fig. 6); frons with fine striae laterally (Fig. 9); Vietnam *H. tamdaona*

Description

Holotype, female, length of body 6.0 mm, length of fore wing 6.0 mm and of antenna 7.3 mm.

Head. Antennal segments 45; third segment 1.3 times as long as fourth segment; length of third, fourth and penultimate segments 1.9, 1.4 and 1.2 times their width, respectively; maxillary palp 1.1 times height of head; head width 2.3 times its median length; occiput deeply concave; head behind eyes roundly narrowed posteriorly (Fig. 7);

length of temple 1.2 times transverse diameter of eye in dorsal view; OOL:POL:OD = 29:13:10; frons with median carina and fine transverse striae laterally (Figs 7, 9); eye glabrous; width of face 1.4 times height of eye; clypeal margin concave medially (Fig. 5), epistomal suture distinct; malar space 1.2 times basal width of mandible; face punctate; clypeus punctate and with sparse long setae; temple sparsely punctate.

Mesosoma. Length of mesosoma 1.3 times its height; pronotal trough crenulate anteriorly, rugose posteriorly and smooth ventrally; propleuron with sparse but large punctures; notauli deep, crenulate anteriorly, largely rugose posteriorly (Fig. 14); mesoscutum rugose-punctate; scutellar sulcus with five cross-carinae; scutellum rugose; mesopleuron smooth medially, largely rugose anteriorly and ventrally (Fig. 13); mesosternum and metapleuron rugose; propodeum areolate-rugose.

Wings. Length of fore wing 2.9 times its maximum width; length of pterostigma 3.5 times its median width; r:2-SR:3-SR = 13:15:32; length of second submarginal cell of fore wing 3.3 times longer than its maximum width; vein 1-CU1 0.3 times as long as vein 2-CU1; vein 3-SR joining SR1 at 100°. Length of hind wing nearly 4.0 times its width; vein M+CU 0.4 times as long as vein 1-M; vein 2-SC+R almost quadrate.

Legs. Length of hind femur 4.0 times its width; length of hind tibia 4.3 times its apical width; hind basitarsus broadly laminate, weakly produced apically (Fig. 6), 2.6 times longer than wide and 3.1 times wider than apical width of hind tibia; second-fifth hind tarsal segments 0.5 times as long as hind basitarsus; inner hind tibial spur 0.7 times as long as hind basitarsus; hind tarsal claw with three processes (Fig. 8); hind coxa shiny smooth; outer side of hind femur densely finely punctate; upper side of hind tibia with spines.

Metasoma. Second metasomal tergite 0.5 times as long as third tergite; second suture distinct; ovipositor sheath wide; ovipositor very short and curved down.

Colour. Yellow; scapus dark brown laterally, flagellum blackish brown; maxillary palp yellow; labial palp yellowish brown; frons laterally and stemmaticum black; vertex with pair of black spots (Fig. 7); mesopleuron with black band ventrally; mesosternum black posteriorly; fore and middle legs pale yellow; hind coxa with black spot apically; hind trochanter and trochantellus black, but dorsally yellow.

Male. Unknown.

Etymology

Named after its type locality, Mt Tam Dao.

Distribution

NE Vietnam (Vinh Phuc, Tam Dao National Park).

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