



The scientific expedition benefited from the help of the local communities who participated in setting up the camps and transporting equipment and food.
(Photo © Xavier Desmier).

Species of the subgenus *Synaldis* Foerster, 1863 (Hymenoptera: Braconidae: Alysiinae: *Dinotrema* Foerster, 1863) in Papua New Guinea: descriptions of three new species and a key to the Australasian taxa

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ABSTRACT

A revision of all Australasian species of subgenus *Synaldis* Foerster, 1863 (from the genus *Dinotrema* Foerster, 1863) is provided and three new species from Papua New Guinea are described and illustrated: *Dinotrema (Synaldis) expeditionum* n. sp., *D. (S.) mamuchiae* n. sp., and *D. (S.) wilhelmense* n. sp. The new combination *Dinotrema (Synaldis) baloghi* (Fischer, 1993), n. comb. is suggested. A key for determination of the Australasian *Synaldis* species is provided.

RÉSUMÉ

Révision des espèces australasiennes du sous-genre *Synaldis*.

Une révision de toutes les espèces australiennes du sous-genre *Synaldis* Foerster, 1863 (genre *Dinotrema* Foerster, 1863) est présentée et trois nouvelles espèces de Papouasie-Nouvelle-Guinée sont décrites et illustrées: *Dinotrema (Synaldis) expeditionum* n. sp., *D. (S.) mamuchiae* n. sp., et *D. (S.) wilhelmense* n. sp. La nouvelle combinaison *Dinotrema (Synaldis) baloghi* (Fischer, 1993), n. comb. est suggérée. Une clé pour la détermination des espèces australasiennes du genre *Synaldis* est fournie.

INTRODUCTION

Biodiversity study of braconids has a great importance because of their enormous ecological interest to their role in the control of the population of phytophagous insects, causing direct effects on the host species' population size and indirect ones in the diversity and survival of host plants (La Salle & Gauld 1992; Peris-Felipo *et al.* 2014a).

The subfamily Alysiinae, with 2,450 catalogued species worldwide (Yu *et al.* 2016), has potential use in biocontrol thanks to the interaction with a wide variety of Cyclorrhapha-Diptera as leaf or stem miners (Griffiths 1964; Wharton 2002).

The subgenus *Synaldis* comprises about a hundred species described worldwide (Fischer 1962, 1967a, 1967b, 1971, 1993a, 1993b, 2003, 2005; Belokobylskij 2002, 2004a, 2004b; Belokobylskij & Tobias 2007; Peris-Felipo *et al.* 2014a; Peris-Felipo & Belokobylskij 2017). Members of *Synaldis* are often reared from agaric mushrooms and recorded as parasitoids of the larvae and pupae of the dipterous families Phoridae (mainly) and Drosophilidae (doubtfully) (Hussey 1960; Fischer 2005; Yu *et al.* 2016).

Despite the studies carried out in the last years (Fischer 2014; Peris-Felipo *et al.* 2014a, 2014b; Peris-Felipo & Belokobylskij 2017) the knowledge of this subgenus is still insufficient. Therefore, expeditions such as "Our Planet Reviewed – Papua New Guinea" carried out by the Muséum national d'Histoire naturelle (Paris, France) in 2012 it is very important to increase our knowledge about the biology and distribution of its members.

In this paper, three species of the subgenus *Synaldis* are described and illustrated for Papua New Guinea, *Dinotrema (Synaldis) expeditionum* n. sp., *D. (S.) mamuchiae* n. sp., and *D. (S.) wilhelmense* n. sp., and the new combination *D. (S.) baloghi* (Fischer, 1993) n. comb. is suggested.

MATERIALS AND METHODS

Specimens were collected with Malaise traps during the expedition "Our Planet Reviewed – Papua New Guinea (PNG)" between 25 October and 10 November 2012, at eight sites located every 500 m along an altitudinal transect set up on the north-eastern face of Mt Wilhelm and at Wanang (Swire) Research Station (175 m asl) a lowland forest 63 km north of Mt Wilhelm. At each sampling site, four Malaise traps were set up every 100 m following the same contour line. The captures were preserved with 90% ethyl alcohol (Robillard *et al.* 2016).

For the terminology of morphological features, sculpture and measurements (including for mandibles) see Peris-Felipo *et al.* (2014); for wing venation nomenclature see van Achterberg (1993); for measurements of the marginal cell see Peris-Felipo & Belokobylskij (2017). Material was imaged using a Digital Microscope Keyence® VHX-2000 and Adobe Photoshop® imaging system. The types of described species are deposited in the collection the Muséum national d'Histoire naturelle (Paris, France; MNHN), Museum of Natural History of Vienna (Vienna, Austria; NHMW) the Zoological Institute of the Russian Academy of Sciences (St Petersburg, Russia; ZISP), and the F.J. Peris-Felipo Entomological Collectio, (Basel, Switzerland; PFEC).

TAXONOMIC PART

Order HYMENOPTERA Linnaeus, 1758
Family BRACONIDAE Nees, 1811
Subfamily ALYSIINAE Leach, 1815
Tribe ALYSIINI Leach, 1815

Genus *DINOTREMA* Foerster, 1863

Type species. *Dinotrema erythroga* Foerster, 1863.

Subgenus *SYNALDIS* Foerster, 1863

DIAGNOSIS — Mandibles tridentate, teeth of differing shape and length. Paraclypeal fovea short, far removed from inner edge of eyes. Mesoscutal pit present or absent. Precoxal sulcus always present, usually not reaching anterior and posterior margins of mesopleuron. Pterostigma very long and narrow. Vein 2-SR always absent; break between veins r and 3-SR absent and abscissae here only gently and rather widely curved. Veins m-cu and cu-a always postfurcal.

HOSTS — Diptera larvae, mainly of the family Phoridae and possibly Drosophilidae.

Dinotrema (Synaldis) baloghi (Fischer, 1993), n. comb.

Figures 1-11

Synaldis baloghi Fischer, 1993a: 458. — 2003: 21; 2014: 113; Yu *et al.* 2016.

TYPE MATERIAL — Holotype, ♀, **Papua New Guinea**. [New-Guinea], Mt. Wilhelm, Keglsugl, 11.viii.1969 (Dr. J. Balogh leg.) [No. NGMt-U.8.] (NHMW) [examined]. Paratype, 1 ♂, **Papua New Guinea** [New-Guinea], NE, Wau, Bddy Creek, 2050 m, 30.viii.1968 (Dr. J. Balogh leg.) [No. NG-W.C.13] (NHMW).

DESCRIPTION — *Female* (holotype).

Head. In dorsal view 1.8 times as wide as long, 1.3 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Eye in lateral view 1.5 times as high as wide and 1.8 times as wide as temple medially. POL 1.2 times OD; OOL 3.5 times OD. Face 1.6 times as wide as high; inner margins of eyes subparallel. Clypeus 3.1 times as wide as high, slightly concave ventrally. Paraclypeal fovea short, reaching half distance between clypeus and eye. Mandible not widened towards apex, 1.4 times as long as its maximum width. Upper tooth very small, shorter than middle tooth; middle tooth small, wide basally and pointed apically; lower tooth short, as long as upper tooth, rounded. Antenna 22-segmented, 1.2 times as long as body. Scape 1.8 times as long as pedicel. First flagellar segment 4.1 times as long as its apical width, 1.1 times as long as second segment. Second flagellar segment 3.8 times, third to 12th segments 3.6 times, 13th to 19th segments 2.8 times, and 20th (apical) segment 3.0 times as long as their maximum width, respectively.

Mesosoma. In lateral view 1.1 times as long as high. Mesoscutum (dorsal view) 0.9 times as long as its maximum width. Notauli mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, without lateral carinae, 1.3 times as long as its maximum width. Precoxal sulcus present, crenulate, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with complete and distinct medio-longitudinal carina from its base to apex and with smooth fields. Propodeal spiracle small, its diameter 0.2 times as wide as distance from spiracle to anterior margin of propodeum.

Wings. Length of fore wing 2.4 times its maximum width. Marginal cell ending at apex of wing, 4.1 times as long as its maximum width. Vein SR1 2.6 times as long as vein 3-SR. Vein cu-a distinctly postfurcal. First subdiscal cell 4.0 times as long as its maximum width. Hind wing 5.3 times as long as its maximum width.

Legs. Hind femur 5.6 times as long as its maximum width. Hind tibia weakly widened to apex, 9.4 times as long as its maximum subapical width, 1.2 times as long as hind tarsus. First segment of hind tarsus 2.5 times as long as second segment.

Metasoma. First tergite weakly widened towards apex, 2.6 times as long as its apical width, weakly striate. Ovipositor sheath 1.6 times as long as first tergite, 0.4 times as long as metasoma and 0.9 times as long as hind femur.



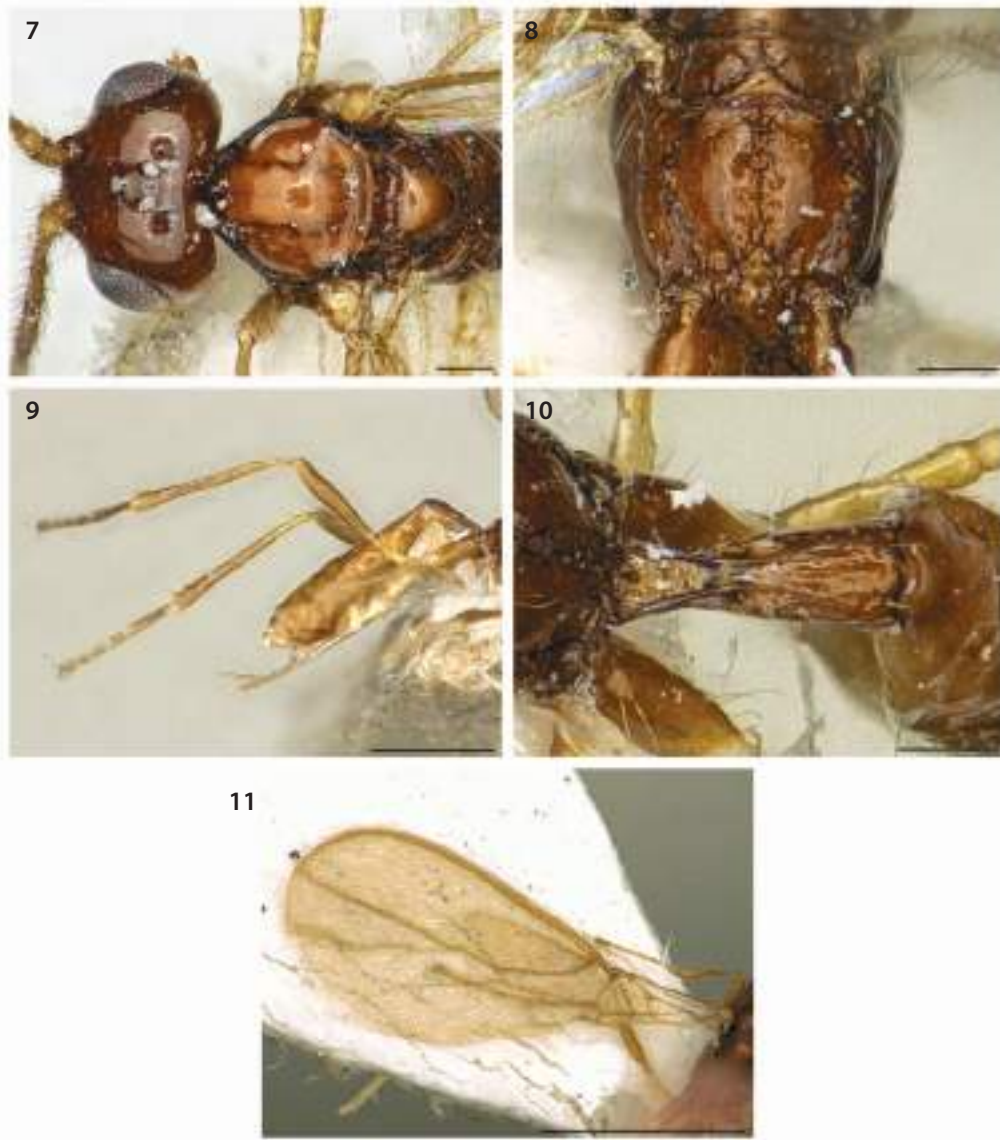
FIGURES 1-6

Dinotrema (Synaldis) baloghi. (1, 3-6 – female, holotype; 2 – male, paratype). 1, 2, Habitus, lateral view. 3, Head and mesosoma, lateral view. 4, Mandible. 5, Antenna. 6, Head, anterior view. Scale bars: 1 mm (1-2, 5); 0,5 mm (3); 0,1 mm (4, 6).

Colour. Body and antenna dark brown. Mandible and legs brown. First-third metasomal tergites similarly coloured. Wings hyaline.

Length. Body 1.7 mm, fore wing 2.0 mm, hind wing 1.3 mm.

Male. Body length 1.5 mm, fore wing length 1.8 mm, hind wing length 1.1 mm. Antenna with more than 16-segmented (apical segments missing). First flagellar segment 4.0 times as long as its maximum width. Hind femur 5.2 times as long as its maximum width. Otherwise similar to female.



FIGURES 7-11

Dinotrema (Synaldis) baloghi. (female, holotype). **7**, Head and mesoscutum, dorsal view. **8**, Propodeum, dorsal view. **9**, Hind legs, metasoma and ovipositor, lateral view. **10**, First metasomal tergite, dorsal view. **11**, Fore and hind wings. Scale bars: 0,1 mm (7-8, 10); 0,5 mm (9); 1 mm (11).

COMPARATIVE DIAGNOSIS — This species is similar to *Dinotrema (Synaldis) mamuchiae* n. sp. (Papua New Guinea) and to *D. (S.) wilhelmse* n. sp. (Papua New Guinea), but differs from both in having the mandible 1.4 times as long as its maximum width (2.2 times in *D. mamuchiae* and 2.3 times in *D. wilhelmse*) and first metasomal tergite 2.6 times as long as its apical width (2.2 times in *D. mamuchiae* and *D. wilhelmse*). In addition, clypeus 3.1 times as wide as high (2.1 times in *D. wilhelmse*) and hind femur 5.2-5.6 times as long as its maximum width (4.2 times in *D. wilhelmse*); first flagellar segment 4.1 times as long as its maximum width (5.0 times in *D. mamuchiae*) and mesoscutal pit absent (present in *D. mamuchiae*).

Dinotrema (Synaldis) expeditionum Peris-Felipo n. sp.

Figures 12-23

TYPE MATERIAL — Holotype, ♀, **Papua New Guinea**. Province Madang, Mt. Wilhelm, UTM (-5.758978, 145.1861), 2200 m, 18-19.x.2012, Malaise trap, Plot 1, understorey (Mogia, Lilip, Novotny, Leponce leg.) [MAL-MW2200A-03/16-d03] (MNHN). Paratypes, 1 ♀, **Papua New Guinea**. Same locality as holotype but, 24-25.x.2012 [MAL-MW2200A-09/16-d09] (MHNM); 1 ♀, same locality as holotype but, 26-27.x.2012, Plot 4 [MAL-MW2200D-11/16-d11] (MHNM); 1 ♀, same locality as holotype but, 27-28.x.2012 [MAL-MW2200A-12/16-d12] (MHNM); 2 ♀, same locality as holotype but, 28-29.x.2012, Plot 4 [MAL-MW2200D-13/16-d13] (ZISP); 1 ♀, same locality as holotype but, 8-9.xi.2012, UTM (-5.720874, 145.2695), 1200 m, Plot 4 (Philip, Alois, Novotny, Leponce leg.) [MAL-MW1200D-15/16-d15] (MHNM); 2 ♀, same locality as holotype but, 31.x-1.ix.2012, Plot 2 [MAL-MW2200B-16/16-d16] (PFEC); 1 ♀, same locality as holotype but, 18.v.2013, UTM (-5.71961, 145.2522), 700 m, Coll. by Sam *et al.* [site: MW0700-01, P4705, vial: 20833, MAL-MW0700'A-05/16-d05] (MNHN); 1 ♀, same locality as holotype but, 25-26.v.2013, UTM (-5.731961, 145.2522), 700 m, Coll. by Sam *et al.* [site: MW0700-03, P4745, vial: 20602, MAL-MW0700'C-13/16-d13] (MNHN); 1 ♂, same locality as holotype but, 25 - 26.x.2012, UTM (-5.720874, 145.2695), 1200 m (Philip, Alois, Novotny, Leponce leg.) [MAL-MW1200A-01/16-d01] (MHNM).

DESCRIPTION — *Female* (holotype).

Head. In dorsal view 1.8 times as wide as long, 1.3 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Eye in lateral view 1.2 times as high as wide and 2.8 times as wide as temple medially. POL 0.8 times OD; OOL 2.3 times OD. Face 1.7 times as wide as high; inner margins of eyes subparallel. Clypeus 2.8 times as wide as high, weakly concave ventrally. Paraclypeal fovea short, not reaching half of distance between clypeus and eye. Mandible weakly widened towards apex, 1.5 times as long as its maximum width. Upper tooth small, slightly shorter than middle tooth; middle tooth short, wide basally and pointed apically; lower tooth short, wide, rounded. Antenna 22-segmented and 1.7 times as long as body. Scape 1.6 times as long as pedicel. First flagellar segment 4.0 times as long as its apical width, about as long as second segment. Second flagellar segment 3.4 times as long as its maximum width, third to 11th segments 3.6 times, 12th to 20th (apical) segments 4.0 times as long as their width, respectively.

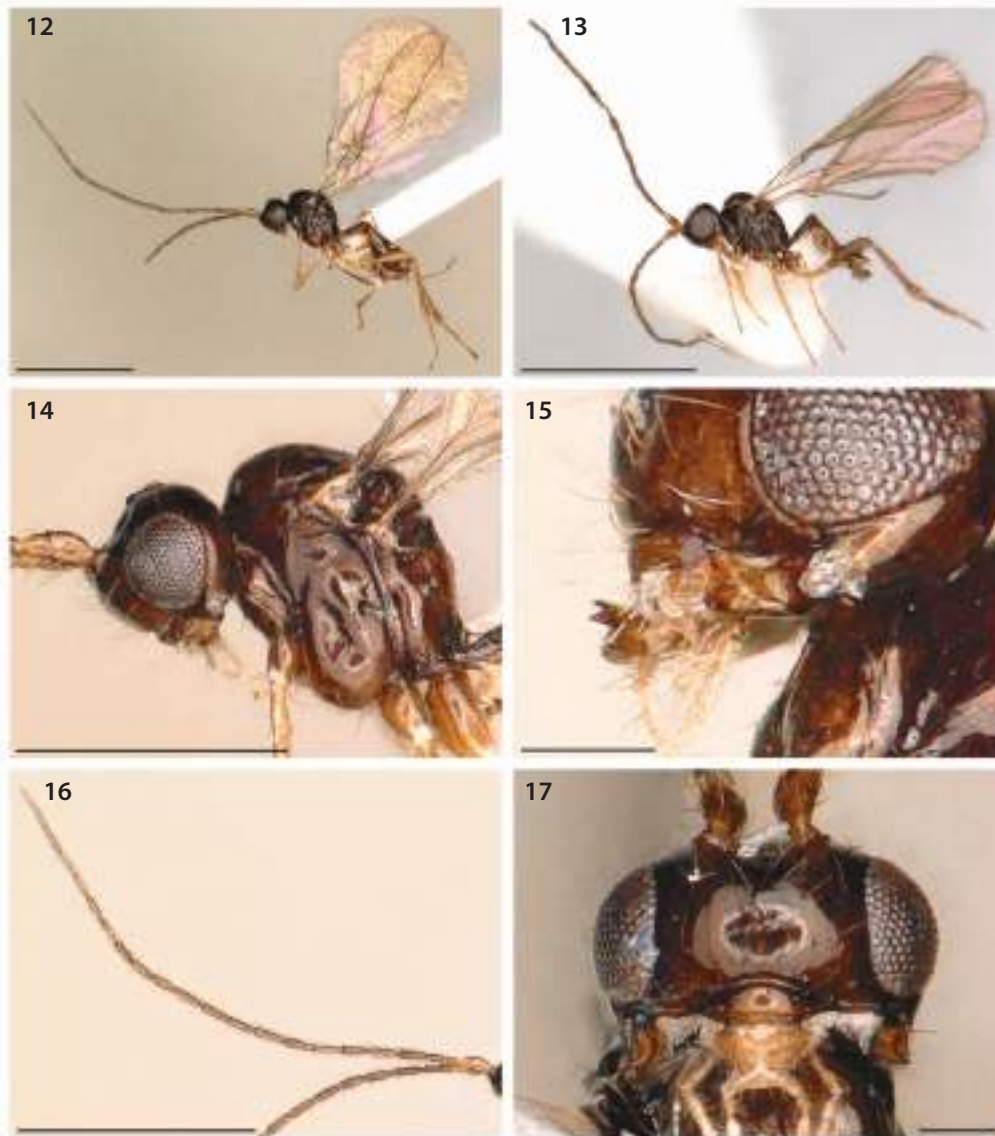
Mesosoma. In lateral view about as long as high. Mesoscutum (dorsal view) about as long as its maximum width, smooth. Notauli mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, without median and lateral carinae. Precoxal sulcus present, weakly crenulate (mainly smooth), not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum smooth, with short medio-longitudinal carina from its base to half distance of propodeum. Propodeal spiracle small, its diameter about 0.2 times as large as distance from spiracle to anterior margin of propodeum.

Wings. Length of fore wing 2.3 times its maximum width. Marginal cell ending at apex of wing, 4.2 times as long as its maximum width. Vein SR1 3.2 times as long as vein 3-SR. Vein cu-a distinctly postfurcal. First subdiscal cell 2.8 times as long as its maximum width. Hind wing 13.3 times as long as its maximum width.

Legs. Hind femur 4.8 times as long as its maximum width. Hind tibia weakly widened to apex, 8.4 times as long as its maximum subapical width and 1.2 times as long as hind tarsus. First segment of hind tarsus 2.7 times as long as second segment.

Metasoma. First tergite weakly widened towards apex, 2.1 times as long as its apical width, striate. Ovipositor sheath 2.2 times as long as first tergite, 0.8 times as long as metasoma, 1.5 times as long as hind femur.

Colour. Body, pterostigma and flagellar segments of antenna brown to dark brown; legs and remainder of antenna brown. First-third metasomal tergites similarly coloured. Wings hyaline.

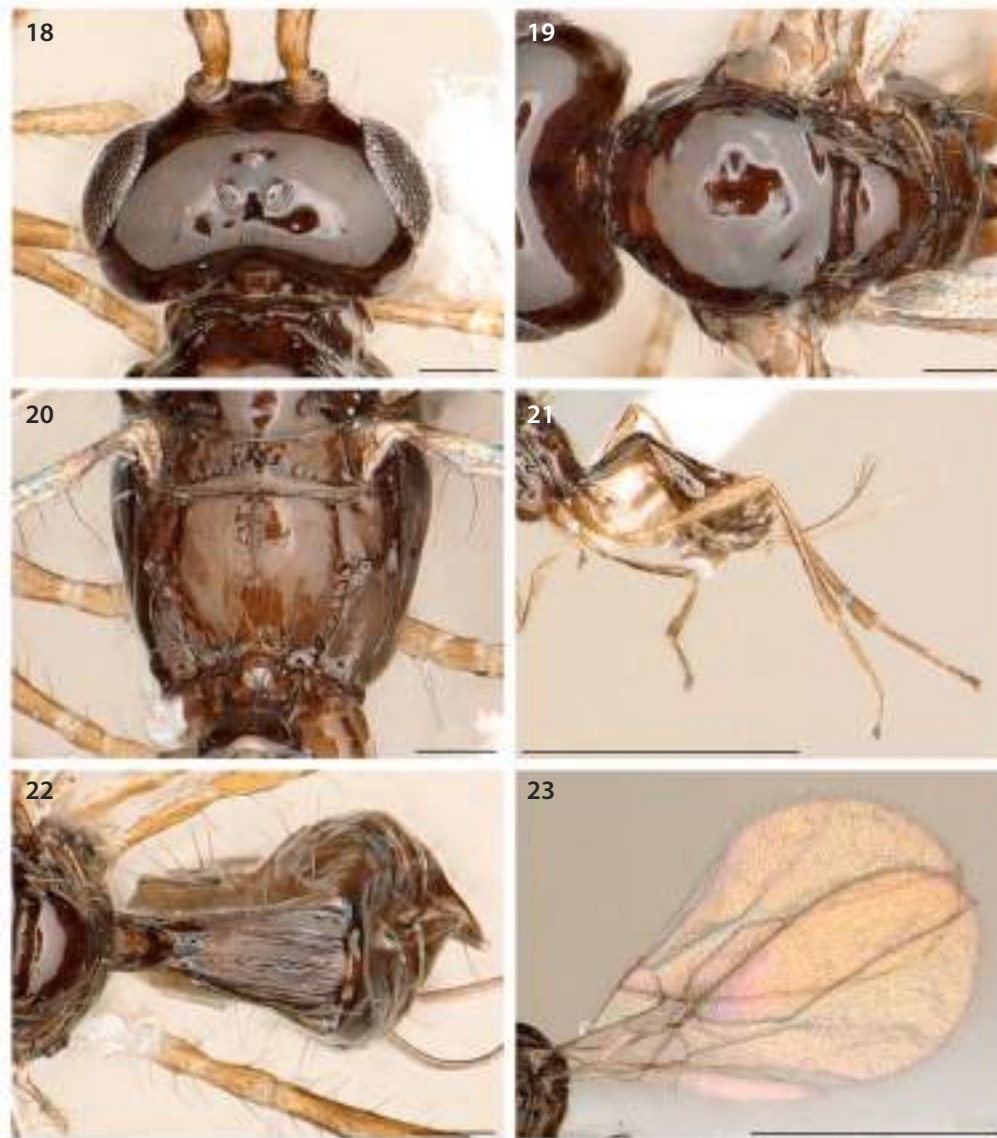


FIGURES 12-17

Dinotrema (Synaldis) expeditionum. (12, 14-17 – female, holotype; 13 – male, paratype). **12, 13**, Habitus, lateral view. **14**, Head and mesosoma, lateral view. **15**, Mandible. **16**, Antenna. **17**, Head, front view. Scale bars: 1 mm (12-13, 16); 0,5 mm (14); 0,1 mm (15, 17).

Length. Body 1.4 mm, fore wing 1.8 mm, hind wing 1.1 mm.

Variation. Body length 1.1-1.4 mm; fore wing length 1.4-1.8 mm; hind wing length 0.9-1.1 mm. Antenna 21-24-segmented. Eye in lateral view 2.8-3.2 times as wide as temple medially. Face 1.4-1.7 times as wide as high. Clypeus 2.8-3.0 times as wide as high. Mandible 1.5-1.7 times as long as its maximum width. First flagellar segment 3.7-4.0 times as long as its apical width. Sixth flagellar segment 3.3-3.6 times as long as its maximum width. Hind femur 4.5-4.8 times as long as its maximum width. First metasomal tergite 2.1-2.3 times as long as its apical width. Ovipositor sheath 0.8-1.0 times as long as metasoma.



FIGURES 18-23

Dinotrema (Synaldis) expeditionum. (female, holotype). **18**, Head, dorsal view. **19**, Mesoscutum, dorsal view. **20**, Propodeum, dorsal view. **21**, Hind leg, metasoma and ovipositor, lateral view. **22**, First metasomal tergite, dorsal view. **23**, Fore and hind wings. Scale bars: 0,1 mm (18-20, 22); 1 mm (21-23).

Male. Body length 1.1 mm, fore wing 1.4 mm, hind wing 1.0 mm. Antenna more than 16-segmented (apical segments missing). First flagellar segment 3.8 times as long as its maximum width. Middle flagellar segments (fourth to 10th) 2.7-2.8 times as long as their maximum width. Hind femur 4.3 times as long as its maximum width. Otherwise similar to female.

ETYMOLOGY — The name is referring to the 2012 expedition because of the important role that expeditions play in the increasing knowledge of PGN biodiversity.

COMPARATIVE DIAGNOSIS — This new species is similar to *Dinotrema (Synaldis) baloghi* (Fischer, 1993) (Papua New Guinea) but differs from it by having the propodeum with a short median longitudinal carina from its base to half distance of propodeum (with complete medio-longitudinal carina in *D. (S.) baloghi*); eye in lateral view 2.8-3.2 times as wide as temple medially (1.8 times in *D. (S.) baloghi*); hind femur 4.3-4.8 times as long as its maximum width (5.2-5.6 times in *D. (S.) baloghi*); prescutellar depression smooth, without median and lateral carinae (with median carinae in *D. (S.) baloghi*) and ovipositor sheath 0.8-1.0 times as long as metasoma (0.4 times in *D. (S.) baloghi*).

Dinotrema (Synaldis) mamuchia Peris-Felipo n. sp.

Figures 24-34

TYPE MATERIAL — Holotype, ♀, **Papua New Guinea**. Province Madang, Mt. Wilhelm, UTM (-5.758978, 145.1861), 2200 m, 31.x-01.xi.2012, Malaise trap, Plot 1, understorey (Mogia, Lilip, Novotny, Leponce leg.) [MAL-MW2200A-16/16-d16] (MNHN). Paratypes, **Papua New Guinea**. 1 ♀ and 1 ♂, same data as holotype but, 16-17.x.2012 [MAL-MW2200A-01/16-d01] (♂ MNHN, ♀ ZISP); 1 ♀, same data as holotype but, 27-28.x.2012, 1700 m, Plot 4 (Valeba, Tulei, Novotny, Leponce leg.) [MAL-MW1700D-03/16-d03] (PFEC).

DESCRIPTION — **Female** (holotype).

Head. In dorsal view 1.6 times as wide as long, 1.4 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Eye in lateral view 1.4 times as high as wide and 1.6 times as wide as temple medially. POL 1.2 times OD; OOL 4.0 times OD. Face 1.4 times as wide as high; inner margins of eyes subparallel. Clypeus 3.0 times as wide as high, slightly concave ventrally. Paraclypeal fovea reaching half way distance between clypeus and eye. Mandible very narrow, not widened towards apex, 2.2 times as long as its maximum width. Upper tooth very small, distinctly shorter than middle tooth; middle tooth small, pointed apically; lower tooth short, as long as upper tooth and rounded. Antenna 22-segmented, 1.3 times as long as body. Scape 2.0 times as long as pedicel. First flagellar segment 5.0 times as long as its apical width, 1.4 times as long as second segment. Second to 13th segments 3.4 times, 14th to 20th (apical) segments 3.0 times as long as their maximum width, respectively.

Mesosoma. In lateral view almost as long as high. Mesoscutum (dorsal view) almost as long as its maximum width, smooth. Notauli mainly absent on horizontal surface of mesoscutum. Mesoscutal pit present and round. Prescutellar depression smooth, without lateral carinae, 1.4 times as long as its maximum width. Precoxal sulcus present, crenulate, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured with a distinct medio-longitudinal carina from its base to apex and with smooth fields. Propodeal spiracle relatively small, its diameter 0.1 times as wide as the distance from spiracle to anterior margin of propodeum.

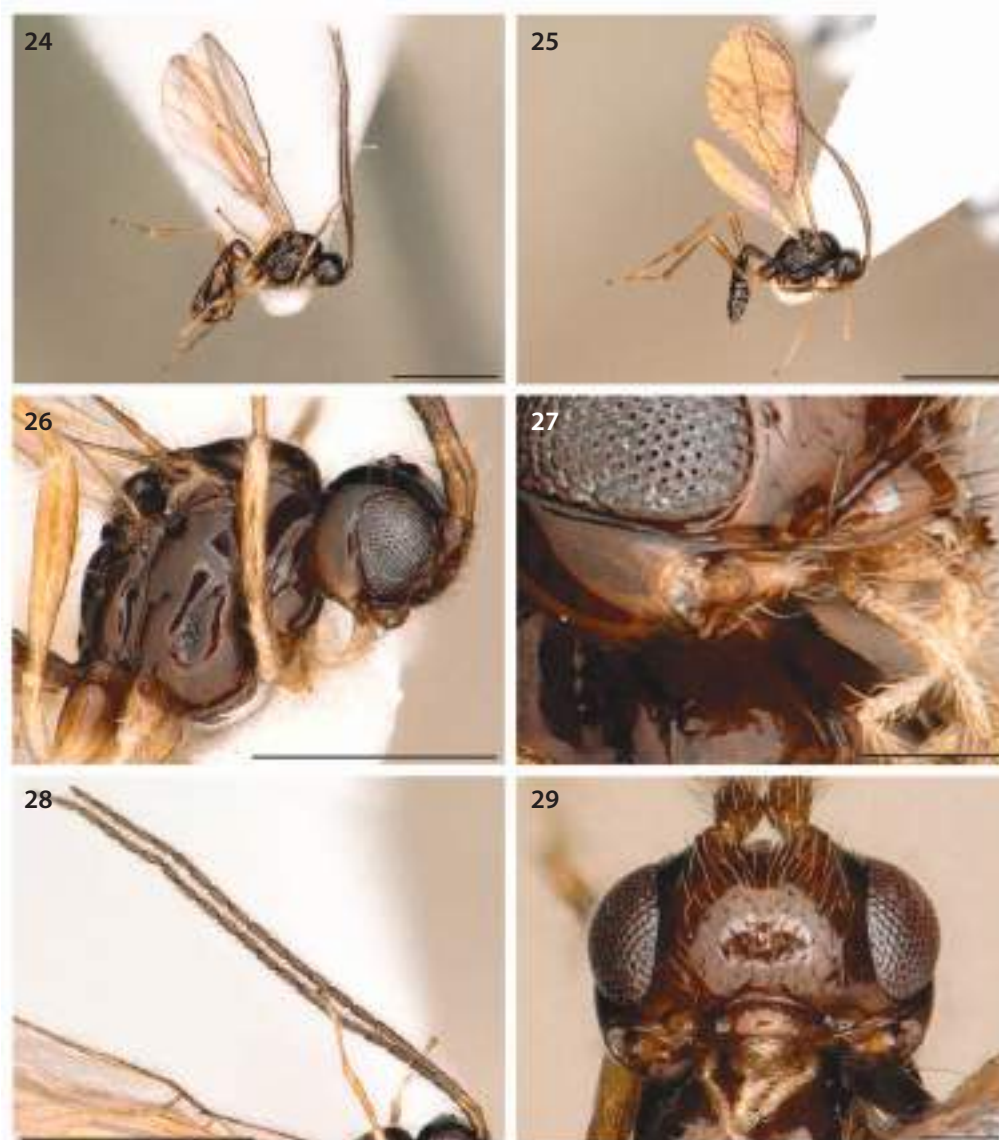
Wings. Length of fore wing 2.2 times its maximum width. Marginal cell ending at apex of wing, 4.3 times as long as its maximum width. Vein SR1 2.9 times as long as vein 3-SR. Vein cu-a distinctly postfurcal. First subdiscal cell 3.1 times as long as its maximum width. Hind wing 5.6 times as long as its maximum width.

Legs. Hind femur 5.4 times as long as its maximum width. Hind tibia weakly widened to apex, 8.6 times as long as its maximum subapical width and 1.2 times as long as hind tarsus. First segment of hind tarsus twice as long as second segment.

Metasoma. First tergite weakly widened towards apex, 2.2 times as long as its apical width, weakly striate in apical half. Ovipositor sheath 1.6 times as long as first tergite, 0.5 times as long as metasoma and almost as long as hind femur.

Colour. Body, pterostigma and flagellar segments of antenna brown to dark brown. Legs brownish yellow. First-third metasomal tergites similarly coloured. Wings hyaline.

Length. Body 1.7 mm, fore wing 2.1 mm, hind wing 1.4 mm.

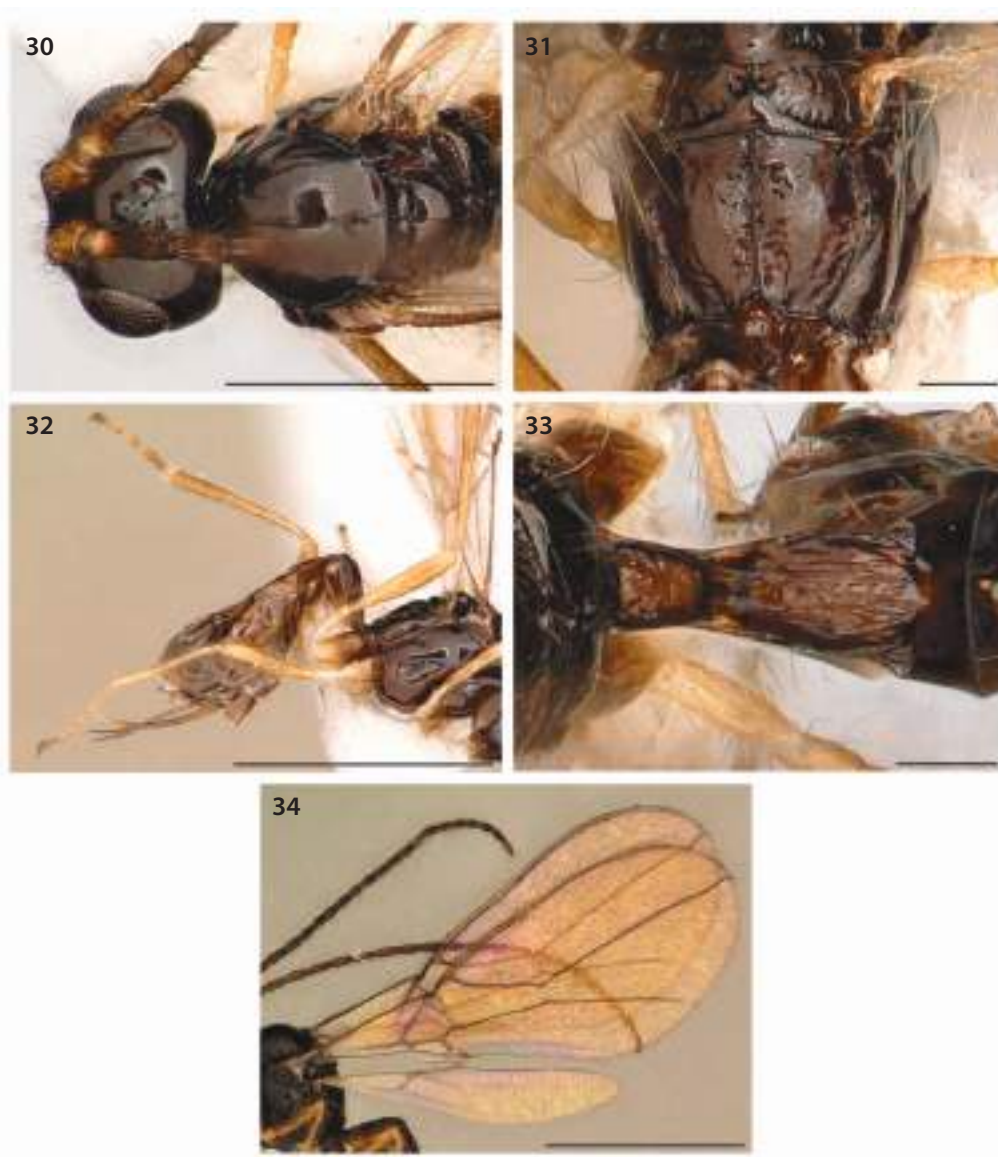


FIGURES 24-29

Dinotrema (Synaldis) mamuchiae (24, 26-29 – female, holotype; 25 – male, paratype). **24, 25**, Habitus, lateral view. **26**, Head and mesosoma, lateral view. **27**, Mandible. **28**, Antenna. **29**, Head, anterior view. Scale bars: 1 mm (24-25, 28); 0,5 mm (26); 0,1 mm (27, 29).

Variation. Body 1.6-1.8 mm; fore wing 2.0-2.2 mm; hind wing 1.3-1.5 mm. Antenna 22-24-segmented. Hind femur 5.2-5.4 times as long as its maximum width. First metasomal segment 2.1-2.3 times as long as its apical width.

Male. Body length 1.8 mm, fore wing 2.2 mm, hind wing 1.4 mm. Antenna 25-segmented and 1.4 times as long as body. First flagellar segment 4.0 times as long as its maximum width. Hind femur 5.8 times as long as its maximum width. Otherwise similar to female.



FIGURES 30-34

Dinotrema (Synaldis) mamuchiae. (female, holotype). **30**, Head and mesoscutum, dorsal view. **31**, Propodeum, dorsal view. **32**, Hind leg, metasoma and ovipositor, lateral view. **33**, First metasomal tergite, dorsal view. **34**, Fore and hind wings. Scale bars: 0,5 mm (30); 0,1 mm (31, 33,); 1 mm (32, 34).

ETYMOLOGY — Named is derived from “mami”, referring to the mother of the first author for her support and her encourage to continue working with insects.

COMPARATIVE DIAGNOSIS — This new species is similar to *Dinotrema (Synaldis) wilhelmense* n. sp. (Papua New Guinea), but differs from it in having the mesoscutal pit present (absent in *D. wilhelmense*); hind femur 5.4 times as long as its maximum width (4.2 times in *D. wilhelmense*); first flagellar segment 5.0 times as long as its maximum width (3.6 times in *D. wilhelmense*); second segment 3.4 times (2.7 times in *D. wilhelmense*); sixth segment 3.4 times (2.4 times in *D. wilhelmense*) and clypeus 3.0 times as wide as high (2.1 times in *D. wilhelmense*).

Dinotrema (Synaldis) wilhelmense Peris-Felipo n. sp.

Figures 35-44

TYPE MATERIAL — Holotype, ♀, **Papua New Guinea**. Province Madang, Mt. Wilhelm, UTM (-5.759269, 145.2356), 1700 m, 25-26.x.2012, Malaise trap, Plot 4, understorey (Valeba, Tulei, Novotny, Leponce leg.) [MAL-MW1700D-01/16-d01] (MNHN). Paratype, **Papua New Guinea**. 1 ♀, same data as holotype (ZISP).

DESCRIPTION — *Female* (holotype).

Head. In dorsal view 1.6 times as wide as long, 1.4 times as wide as mesoscutum, smooth, with temple rounded behind eyes. Eye in lateral view 1.4 times as high as wide and 1.4 times as wide as temple medially. POL 1.1 times OD; OOL 3.8 times OD. Face 1.5 times as wide as high, completely covered by numerous setae; inner margins of eyes subparallel. Clypeus 2.1 times as wide as high, slightly concave ventrally. Paraclypeal fovea short, reaching half distance between clypeus and eye. Mandible weakly widened towards apex, 2.3 times as long as its maximum width. Upper tooth very small, shorter than lower and middle teeth; middle tooth short and pointed apically; lower tooth short, rounded. Antenna 10-segmented (incomplete, apical segments missing). Scape 1.5 times as long as pedicel. First flagellar segment 3.6 times as long as its apical width, 1.2 times as long as second segment. Second flagellar segment 2.7 times, third to eight flagellar segments 2.4 times as long as their maximum width, respectively.

Mesosoma. In lateral view 1.1 times as long as high. Mesoscutum (dorsal view) about as long as its maximum width. Notauli mainly absent on horizontal surface of mesoscutum. Mesoscutal pit absent. Prescutellar depression smooth, without carinae and 1.2 times as long as its maximum width. Precoxal sulcus present, crenulate, not reaching anterior and posterior margins of mesopleuron. Posterior mesopleural furrow smooth. Propodeum sculptured, with complete and distinct medio-longitudinal carina from its base to apex and with smooth fields. Propodeal spiracle small, its diameter 0.2 times as wide as the distance from spiracle to anterior margin of propodeum.

Wings. Length of fore wing 2.6 times its maximum width. Marginal cell ending at apex of wing, 4.1 times as long as its maximum width. Vein SR1 2.8 times as long as vein 3-SR. Vein cu-a distinctly postfurcal. First subdiscal cell 3.0 times as long as its maximum width. Hind wing 6.0 times as long as its maximum width.

Legs. Hind femur 4.2 times as long as its maximum width. Hind tibia weakly widened to apex, 9.6 times as long as its maximum subapical width and 1.1 times as long as hind tarsus. First segment of hind tarsus twice as long as second segment.

Metasoma. First tergite weakly widened towards apex, 2.2 times as long as its apical width, weakly striate. Ovipositor sheath 1.1 times as long as first tergite, 0.5 times as long as metasoma and 1.8 times as long as hind femur.

Colour. Body, flagellar segments of antenna and pterostigma brown. Legs brownish yellow. First-third metasomal tergites similarly coloured. Wings hyaline.

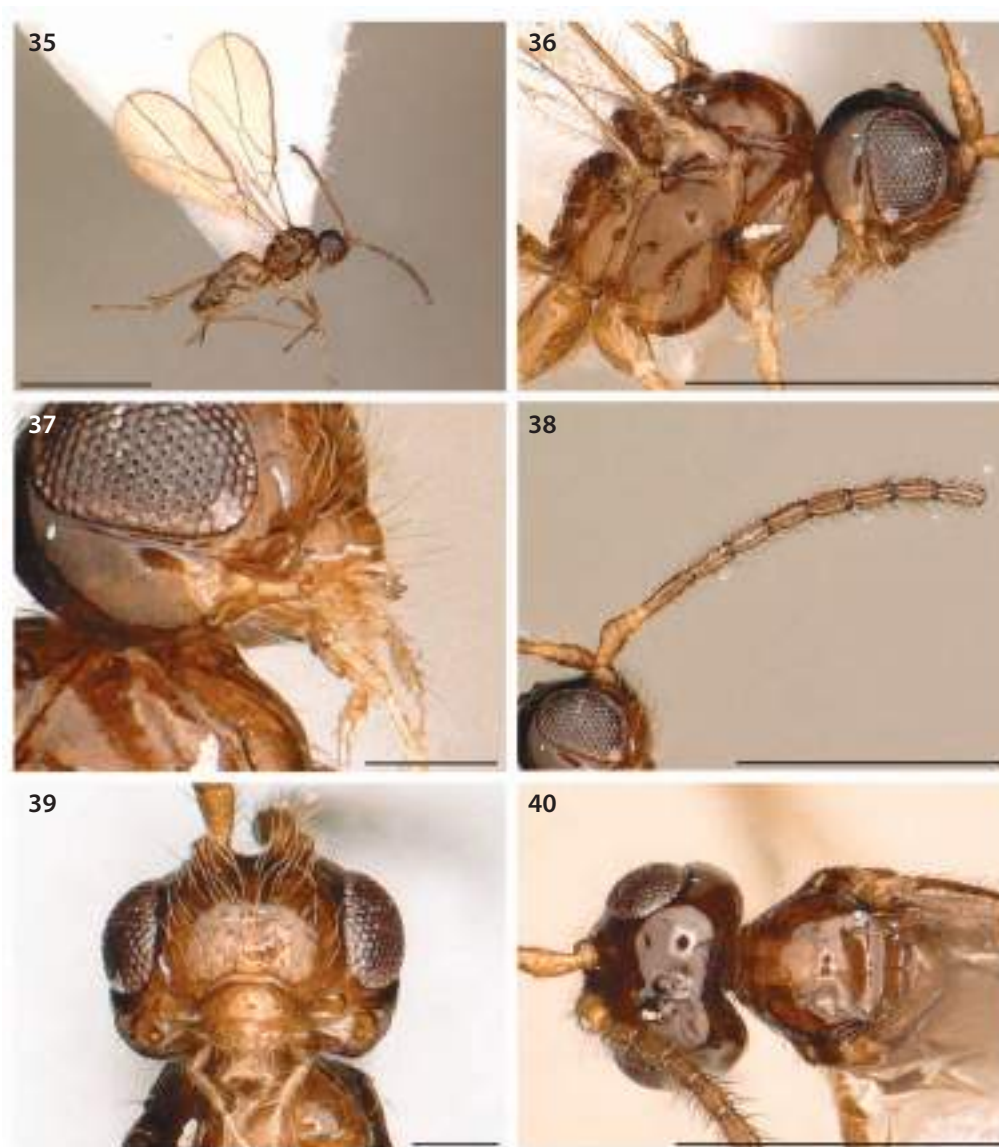
Length. Body 1.3 mm, fore wing 1.6 mm, hind wing 1.1 mm.

Variation. Body 1.3-1.4 mm, fore wing 1.6-1.8 mm, hind wing 1.1-1.2 mm.

Male. Unknown.

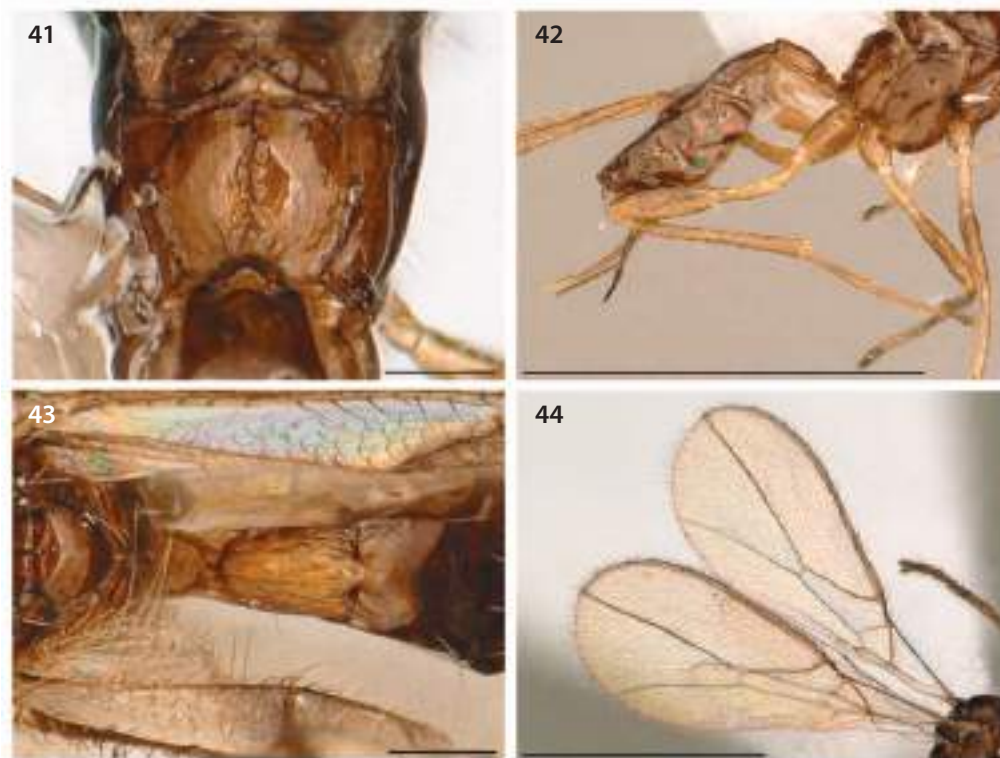
ETYMOLOGY — The name is referring to the type locality of the new species, Mount Wilhelm (Papua New Guinea).

COMPARATIVE DIAGNOSIS — This new species is similar to *Dinotrema (Synaldis) mamuchia* n. sp. (Papua New Guinea); for the differences between both species see under the latter species.



FIGURES 35-40

Dinotrema (Synaldis) wilhelmense. (female, holotype). **35**, Habitus, lateral view. **36**, Head and mesosoma, lateral view. **37**, Mandible. **38**, Antenna. **39**, Head, anterior view. **40**, Head and mesoscutum, dorsal view. Scale bars: 1 mm (35); 0,5 mm (36, 38, 40); 0,1 mm (37, 39).



FIGURES 41-44

Dinotrema (Synaldis) wilhelmense (female, holotype). **41.** Propodeum, dorsal view. **42.** Hind leg, metasoma and ovipositor, lateral view. **43.** First metasomal tergite, dorsal view. **44.** Fore and hind wings. Scale bars: 0,1 mm (41, 43); 1 mm (42, 44).

KEY TO THE AUSTRALASIAN *DINOTREMA* SPECIES; SUBGENUS *SYNALDIS*

1. Propodeum smooth, with short medio-longitudinal carina in basal half of propodeum (Figure 20). Prescutellar depression without median carina (Figure 19). Eye in lateral view 2.8-3.2 times as wide as temple medially (Figure 14). Ovipositor sheath 0.8-1.0 times as long as metasoma (Figure 21). [Antennae 21-24-segmented. Body length 1.1-1.4 mm. Papua New Guinea]. *Dinotrema (Synaldis) expeditionum* n. sp.
 – Propodeum sculptured, with complete medio-longitudinal carina (Figures 8, 31, 41). Prescutellar depression with median carina (Figures 7, 30, 40). Eye in lateral view 1.4-1.8 times as wide as temple medially (Figures 3, 26, 36). Ovipositor sheath 0.4-0.5 times as long as metasoma (Figures 9, 32, 42). 2
2. Mandible 1.4 times as long as its maximum width (Figure 4). First metasomal tergite 2.6 times as long as its apical width (Figure 10D). [Antenna 22-segmented. Body length 1.5-1.7 mm. Papua New Guinea].
 *Dinotrema (Synaldis) baloghi* (Fischer), n. comb.
 – Mandible 2.2-2.3 times as long as its maximum width (Figures 27, 37). First metasomal tergite 2.2 times as long as its apical width (Figures 33, 42) 3

- 3(2).** Mesoscutal pit present (Figure 30). Hind femur 5.4 times as long as its maximum width (Figure 32). First flagellar segment 5.0 times as long as its maximum width; second segment 3.4 times; sixth segment 3.4 times (Figure 28). Clypeus 3.0 times as wide as high (Figure 29). [Antenna 22-24-segmented. Body length 1.6-1.8 mm. Papua New Guinea]. *Dinotrema (Synaldis) mamuchiae* n. sp.
 – Mesoscutal pit absent (Figure 40). Hind femur 4.2 times as long as its maximum width (Figure 42). First flagellar segment 3.6 times as long as its maximum width; second segment 2.7 times; sixth segment 2.4 times (Figure 38). Clypeus 2.1 times as wide as high (Figure 39). [Body length 1.3-1.4 mm. Papua New Guinea].
 *Dinotrema (Synaldis) willhelmense* n. sp.

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