

Potter wasps of the genus *Stenodyneriellus* Giordani Soika (Hymenoptera: Vespidae: Eumeninae) from Vietnam, with description of a new species

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Abstract. Four species of the genus *Stenodyneriellus* Giordani Soika, 1962 are recorded from Vietnam. Of them, *S. capillus* Nguyen, new species from Back Kan province is described and illustrated. In addition, one species, *S. similiguttulatus* Li & Chen, 2016 is newly recorded from Vietnam. A key to species from Vietnam is given.

Key words. *Stenodyneriellus*, solitary wasps, new species, new record, key, Vietnam

INTRODUCTION

The genus *Stenodyneriellus* Giordani Soika, 1962 distributed in Oriental and Australia, and to this date consists of 67 species and 5 subspecies (Borsato, 1993–1994, 2003; Giordani Soika, 1994, 1995, 1996; Gusenleitner, 1996, 2007, 2008, 2013; Li & Chen, 2016; Selis, 2016; Girish Kumar et al., 2017, Li & Carpenter, 2019). Of those, three species characterised by distinct hairs on surface of the compound eye described by Giordani Soika (1994) and Selis (2016) are *Stenodyneriellus boholensis* (Schulthess, 1934), *S. laevis* Giordani Soika, 1994, and *S. rufoflavus* Selis, 2016. Three species of the genus have been recorded from Vietnam: *Stenodyneriellus guttulatus* (de Saussure, 1862), *S. heterospilus* (Cameron, 1907), and *S. maculatus* Gusenleitner, 2013 (Nguyen et al., 2014, 2018; Li & Carpenter, 2019). During a field trip to Ha Giang province in the northern part of Vietnam, a species with hair on compound eyes that is different with three species mentioned by the previous authors was collected.

In this paper, based on specimens deposited in the Institute of Ecology and Biological Resources (IEBR), Hanoi, Vietnam, a new species is described and a species is newly recorded for the Vietnamese fauna. Distributions and a key to four species are also provided.

MATERIAL AND METHODS

All material including the holotype of new species is deposited in Institute of Ecology and Biological Resources, Hanoi, Vietnam (IEBR). The adult morphological and colour characters were observed using pinned and dried specimens under a stereoscopic microscope. Measurements of body parts were made with an ocular micrometer attached to the microscope. “Body length” indicates the length of head, mesosoma and the first two metasomal segments combined. Terminology follows Yamane (1990). Photographic images were made with a Nikon 800N Stereo Microscope, using Helicon Focus 7 software; the plates were edited with Photoshop CS6.

TAXONOMIC ACCOUNTS

Genus *Stenodyneriellus* Giordani Soika, 1962

Stenodyneriellus Giordani Soika, 1961: 65, 71; Carpenter, 1986: 85; van der Vecht & Carpenter, 1990: 55; Giordani Soika, 1994: 5, 48–49.

Type species. *Stenodyneriellus turneriellus* Giordani Soika, 1961, by original designation.

Diagnosis. Metasoma not petiolate, forewing with second submarginal cell not petiolate, prestigma half the length of the pterostigma (measured along posterior part); propodeum without deep fossae; metanotum without tubercles; anterior face of pronotum without foveae; submarginal carina and valvulae not produced; T1 not carinate; tegula pointed posteriorly, emarginate adjoining parategula, shorter than parategula posteriorly; axillary fossa in dorsal view slit-like; palpal formula 6:4.

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Figs 1–7. *Stenodyneriellus capillus*, new species, holotype, male. 1, head, frontal view; 2, vertex and pronotum, dorsal view; 3, head, lateral view; 4, right antenna; 5, mesoscutum, scutellum, metanotum, propodeum, T1&2, dorsal view; 6, propodeum, dorsoposterior view; 7, habitus. Scale = 1 mm.

***Stenodyneriellus capillus*, new species**

(Figs. 1–7)

Material examined. Holotype, male, labeled “VIETNAM: Binh Trai, Nam Xuan Lac NR, Bac Kan, alt. 760 m, 22°19'45"N 105°28'31"E, 23.v.2018, L.T.P. Nguyen (IEBR). Paratypes (IEBR): VIETNAM: 1 male, same data as holotype.

Diagnosis. Based on the key to species from Giordani Soika (1994), this species can be distinguished from other *Stenodyneriellus* by eyes with short hairs on all its surface, the clypeus slightly higher than wide, occipital carina complete and widen at lower half of the gena, mesoscutum with two longitudinal carina, propodeum protruding to form two teeth behind metanotum, T2 without apical lamella, F11 not reaching the base of F10 in curved position, interspace between punctures on pronotum, mesoscutum and mesepisternum with minute punctures.

Description. Male (Fig. 7). Body length 10.5–11 mm (holotype: 10.5 mm); fore wing length 8.6–9.6 mm (holotype: 8.6 mm). Head in frontal view subcircular, 1.1× as wide as high (Fig. 1). Vertex sloping down behind posterior ocelli towards occipital carina, with cephalic foveae each bearing dense pubescence, situated close to each other with distance between foveae about half diameter of front ocellus. Distance from posterior ocelli to apical margin of vertex 1.5× distance from posterior ocelli to inner eye margin (Fig. 2). Gena much narrower than eye, in lateral view 0.3× as wide as eye (Fig. 3). Occipital carina complete, present clearly along entire length of gena, widen at lower half of the gena. Inner eye margins strongly convergent ventrally; in frontal view 1.5× as further apart from each other at vertex as at clypeus. Clypeus in lateral view convex at basal two-third, then straight to apical margin; in frontal view slightly higher than wide (Fig. 1), with basal margin slightly concave medially and distinctly separated from antennal sockets; apical margin emarginate medially (Fig. 1); width of emargination greater than 1/3 width of clypeus between inner eye margins (about 0.38×). Mandible with prominent teeth, fourth tooth long and pointed apically. Antennal scape 3.3× as long as its maximum width; F1 short, 1.2× as long as wide, F2 slightly longer than wide, F3–9 wider than long, F10 small, as long as wide, F11 slightly curved, slightly more than 2× as long as its basal width, not reaching the base of F10 (Fig. 4).

Mesosoma longer than wide in dorsal view. Pronotal carina slightly raised, reaching ventral corner of pronotum. Mesoscutum convex, slightly shorter than wide between tegulae, with two longitudinal carina (close to tegulae and parategulae) running from apical margin to the half length of the mesoscutum (Fig. 5); anterior margin broadly rounded. Disc of scutellum slightly convex. Metanotum almost flat. Propodeum excavated medially, with posterior surface distinctly concave, protruding upward to form two blunt teeth behind metanotum, propodeal groove distinct from a long and narrow fovea to apex (Fig. 6).

T1 in dorsal view 1.75× as wide as long, rounded basally, gradually widen near base to apical margin (Fig. 5); T2 in

dorsal view 1.2× as wide as long, without apical lamella; S2 in lateral view depressed basally at basal half, and slightly convex to apical margin.

Body covered with long silver setae. Clypeus with undefined large punctures at center, punctures at sides smaller. Mandible with several shallow small punctures. Frons densely covered with deep large coarse punctures. Vertex and gena with deep and well-defined punctures, interspaces between punctures with minute punctures. Pronotum with coarse punctures, spaces between punctures with minute punctures, strongly raised to form reticulation. Mesoscutum densely and coarsely covered with deep and large punctures, puncture near apical margin (in between two carinae) very deep, spaces between punctures with minute punctures, strongly raised to form reticulation. Punctures on scutellum similar to those on mesoscutum but smaller. Punctures on metanotum very coarse and dense with flat-bottom, with interspaces raised to form reticulation. Mesepisternum with big and coarse punctures posterodorsally as in pronotum, barely punctured anteroventrally; border between posterodorsal and anteroventral parts indistinct. Metapleuron with strong striae in dorsal area, with sparse shallow punctures in ventral area. Propodeum with punctures on dorsal surface similar to those on metanotum, punctures on lateral parts less coarse than in dorsal part. T1 covered with shallow and small punctures, with interspace larger than puncture diameter at apical margin, punctures on T2 deeper than those on T1, coarser at lateral parts; punctures on T3–5 much smaller and weaker than those on T1–2; T6 with minute punctures; punctures on S2 sparse, deep and large.

Colour. Black. The following parts yellow: clypeus except round black spot in the middle and light brown margins at apical half, mandibles except black base and teeth, a band from ocular sinus to clypeus, an irregular large mark between antenna extended to near front ocellus, antennal scape beneath, long line at vertex behind eye, thick transverse band at dorsal part of pronotum, almost all margin of tegulae, parategulae, transverse line on scutellum near anterior margin, four spots on propodeum, apical thick band on T1 and T2 (emarginated medially), apical thin band on T3–6, spot on lateral side of S2, a large spot at upper part of mesepisternum, all femora at apex, all tibia nearly entirely (except some brown mark), all tarsus. Propodeal valvulae, upper side at base of fore and mid- tibia, spot on fore and mid- femora at apex, dark brown. Wings dark brown, slightly infuscate, veins dark brown.

Female. Unknown.

Distribution. North Vietnam.

Remarks. This species can be distinguished from *S. rufoflavus* Selis, 2016 from Thailand and other *Stenodyneriellus* species by the combination of the following characters: eyes with short hairs on all its surface, ocular sinus punctured, propodeum without striations, T2 without apical lamella, and in the colour pattern.

Etymology. The specific name refers to the hairs (*capillus* in Latin) on the surface of the compound eyes.

***Stenodyneriellus guttulatus* (de Saussure, 1862)**

Odynerus guttulatus de Saussure, 1862: 200; van der Vecht, 1937: 285.
Ancistrocerus megaspilus Cameron, 1907: 85; Giordani Soika, 1994: 115.
Odynerus santabongensis Cameron, 1908: 562; Giordani Soika, 1994: 115.
Odynerus megaspilus: Dover, 1931: 255.
Odynerus guttulatus var. *heterospilus* van der Vecht, 1937: 286.
Odynerus guttulatus var. *nigradorsus* van der Vecht, 1937: 287; Giordani Soika, 1994 (syn. of *S. guttulatus* [de Saussure]).
Hylodynerus guttulatus: Gusenleitner, 1988: 180.
Stenodyneriellus guttulatus: Giordani Soika, 1994: 57, 115; Gusenleitner, 2006: 689.

This species has been recorded from Tuyen Quang province in the northern part (Nguyen et al., 2018). In this study, the species has a wide distribution range, recorded from north to south provinces of Vietnam.

Material examined. VIETNAM: Ha Giang: 2 females, Vi Xuyen, 19 October 2006, coll. LD Khuat; 1 female, Ngoc Duong, Vi Xuyen, 18 October 2006, coll. LD Khuat; 1 female, Can Ty bridge, Can Ty, Quan Ba, 23°6'37"N 105°4'10"E, 30 November 2014, coll. LX Truong, LPT Nguyen, MP Nguyen & DD Nguyen; 1 female, Tan Tien, Viet Vinh, Bac Quang, 23°11'45"N 105°11'24"E, 1 December 2014, coll. LX Truong, LPT Nguyen, DD Nguyen & MP Nguyen; Lao Cai: 1 male, Tong Sanh, Bat Xat, alt. 500 m, 22°26'N 103°56'E, 19 August 2006, coll. LPT Nguyen, F.Saito & J.Kojima; Tuyen Quang: 1 female, Road to Ban Bung, Na Hang NR, Na Hang, alt. 369 m, 22°16'59.5"N 105°26'01"E, 11 June 2015, coll. LPT Nguyen, DD Nguyen & LX Truong; 1 male, Cham Chu NR, Phu Luu, Ham Yen, alt. 74 m, 27 October 2018, 22°10'20"N 105°03'25"E, coll. LPT Nguyen, CQ Nguyen & TV Luong; 1 female, Cham Chu NR, Phu Luu, Ham Yen, Tuyen Quang, alt. 135 m, 27 October 2018, 22°12'37"N 105°03'21"E, coll. LPT Nguyen, CQ Nguyen & TV Luong; Lang Son: 1 male, Na Sen, Hoang Dong, 31.x.2014, 21°51'42"N 106°43'54"E, coll. DD Nguyen, LPT Nguyen, MP Nguyen; Dien Bien: 3 females, Muong Fang, alt. 500 m, 23 July 2009, coll. LPT Nguyen, HP Pham & J.Kojima; Son la: 1 male, Nam Pam, Muong La, alt. 660 m, 25 July 2009, coll. LPT Nguyen, HP Pham & J.Kojima; Phu Tho: 2 females, Lai Dong, Tan Son, 03 October 2011, coll. LD Khuat; Xuan Son, Tan Son [1 female, 11-15 July 2009; 1 female, 15-20 June 2009; 1 male, 20-30 June 2009; 1 female, 16-20 July 2009; 1 female, 20-25 July 2009], coll. LD Khuat; Vinh Phuc: 1 female, Tay Thien, 26 January 2004, 700m, coll. LX Truong; Bac Giang: 1 female, Dong Bay, An Lac, Son Dong, 21°20'42.8"N 106°56'31.1"E, 12 August 2012, coll. J.Kojima, H.Nugroho & IED-c; Hanoi (Ha Tay): 1 female, Suoi Mo, Yen Bai, Ba Vi, 100m, 01 June 2001, coll. LPT Nguyen; Hoa Binh: 1 male, Thanh Nong, Lac Thuy, coll. HP Pham; 1 female, 1 male Lac Thinh, Yen Thuy, 1-2 May 2002, coll. TV Hoang; 1 female, Lac Thinh, Yen Thuy, 6 May 2002, coll. TV Hoang; Thanh Hoa: 1

female, Xuan Hoa, Nhu Xuan, 30 May 2008, coll. ISD-c; 1 female, Xuan Lien NR, Hon Can, Van Xuan, Thuong Xuan, 106m, 23 August 2012, 19°52'27.5"N 105°14'20.8"E, coll. LPT Nguyen; Nghe An: 1 female, 1 male, Pu Mat NP, 26 July 2004, coll. LPT Nguyen; Quang Tri: 1 female, 1 male, Ta Rut, Dakrong, alt. 400-450mm, 17 July 2004, coll. ISD-c; Quang Nam: 1 male, PRao town, Dong Giang, alt. 500-600 m, 28 May 2006, coll. ISD-c; 1 male, Phuoc My, Phuoc Son, Lo Xo Pass, alt. 550m, 29 July 2004, coll. ISD-c; 1 female, Song Thanh NR, Cha Vai, Nam Giang, alt. 500-600 m, 28 May 2005, coll. ISD-c; Kon Tum: 2 females, Dak Mar, Dak Ha, 19 July 2012, coll. ISD-c; Gia Lai: 1 male, Kon Ka Kinh NP, alt. 700m, 13 July 2012, 14°11'156.7"N 108°17'19.5"E, coll. LPT Nguyen; 2 females, 3 males, waterfall, Ia Pal, Chu Se, alt. 369 m, 13°39'46.2"N 108°08'04.2"E, 20 July 2012, coll. LPT Nguyen; Dong Nai: 1 female, 1 male, Nam Cat Tien NP, Tan Phu, 9 August 2005, coll. LPT Nguyen & J.Kojima; Kien Giang: 1 female, Phu Quoc NP, Nui Chua mt, Bai Thom village, alt. 200 m, 19-20 September 2012, coll. ISD-c.

Distribution. India: Meghalaya, Sikkim; China: Yunnan; Myanmar; Thailand; Malaysia (including Sarawak); Singapore; Indonesia: Sumatra, Java; Vietnam.

***Stenodyneriellus heterospilus* (Cameron, 1907)**

(Figs. 8–10)

Odynerus heterospilus Cameron, 1907: 84, female – “Kuching, Borneo” (London, type no. 18.327).

This species has been recorded from Hoa Binh, Thanh Hoa, Quang Tri, and Quang Nam in the north and middle Vietnam (Nguyen et al., 2014), and in this study new distribution record of the species from Gia Lai province in the southern part is added.

Material examined. VIETNAM: Gia Lai: 1 male, near Tram Dam, Kon Chu Rang NR, Son Lang, Kbang, alt. 860 m, 14°28'57.9"N 108°30'59.8"E, 27 June 2016, coll. LPT Nguyen, DD Nguyen & NT Tran; 1 female, Kon Chu Rang NR, Kbang, 6 September 2018; 14°31'10.4"N 108°36'24.9"E, coll. TV Luong & LX Truong.

Distribution. Thailand; Vietnam; Malaysia (including Sarawak); Singapore; Indonesia: Sumatra, Java; Philippines.

***Stenodyneriellus similiguttulatus* Li & Chen, 2016**

(Figs. 11, 12)

Stenodyneriellus similiguttulatus Li & Chen, 2016: 113–116, figs. 1–9, female, male - “China”. (holotype female, Institute of Entomology and Molecular Biology, Chongqing Normal University, Chongqing, China).

This species is newly recorded from Vietnam.

Material examined. VIETNAM: Thai Nguyen: 1 female, Phu Luong, Thai Nguyen, 15 April 2017, coll. HT Dang.

Distribution. China: Yunnan; Vietnam (new record).



Figs. 8–12. 8–10, *Stenodyneriellus heterospilus*. 8, female, head, frontal view; 9, male, head, frontal view; 10, female; habitus. Scale = 1 mm. 11, 12, *Stenodyneriellus similiguttulatus*, female. 11, head, frontal view; 12, habitus. Scale = 1 mm.

Remarks. Beside yellow colouration as in the female described by Li & Chen (2016), the female has the clypeus without two yellow spots near apical margin, and mesoscutum with two small yellow spots at the middle part.

***Stenodyneriellus maculatus* Gusenleitner, 2013**

Stenodyneriellus maculatus Gusenleitner, 2013: 121, 123, figs. 5–8, female, male - “Thailand, S: Ko Lanta S., Krabi” (holotype female Oberösterreichischen Landesmuseums Linz).

This species has been recorded from Vietnam by Li & Carpenter (2019). In this study, no specimens of the species are available.

Distribution. Thailand, Vietnam.

Key to species from Vietnam

The characters used are applicable to both sexes unless the sex is specified. The characteristics of *S. maculatus* are taken from the description of the species (Gusenleitner, 2013).

1. T2 with a developed translucent apical lamella.....2
 - T2 without a translucent apical lamella or with a narrow translucent apical lamella.....4
2. Propodeum with two teeth behind metanotum dorsally3
 - Propodeum without tooth behind metanotum
.....*S. heterospilus* (Cameron)
3. Compound eye with short hairs. T1 with yellow spots.....
.....*S. guttulatus* (de Saussure)
 - Compound eye without hair. T1 without yellow spot.....
.....*S. similiguttulatus* Li & Chen
4. Compound eye with short hairs. Propodeum protruding to form two teeth behind metanotum dorsally.....
.....*S. capillus*, new species
 - Compound eye without hair. Propodeum normal, without teeth behind metanotum
.....*S. maculatus* Gusenleitner

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