TAXONOMIC NOTES ON THE GENUS *Euaspis* Gerstäcker
(Hymenoptera: Apoidea: Megachilidae) FROM VIETNAM

Tran Thi Ngat', Khuat Dang Long, Nguyen Thi Phuong Lien

Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology

**ABSTRACT:** Taxonomic notes on species of the genus *Euaspis* Gerstäcker, 1858 (Hymenoptera: Megachilidae) from Vietnam are presented. Three species of the genus are reported: *E. aequicarinata* Pasteels is recorded in the central highlands Vietnam (Kon Tum Province) beside the previous record of this species in the northwest (Hoa Binh Province); *E. polynesia* Vachal is widely recorded throughout Vietnam; the taxonomy of Vietnamese *Euaspis basalis* (Ritsema, 1874) is a misidentification, and it is indeed *Euaspis diversicarinata* Pasteels, 1980 and is a new record from Vietnam. A key to the females of Vietnamese species of *Euaspis* Gerstäcker and a redescription of the female of *E. diversicarinata* are given with illustrations.

**Keywords:** Apoidea, Megachilidae, *Euaspis*, new record, Vietnam.


*Corresponding author: tranthingat1012@gmail.com*

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**INTRODUCTION**

Wild bees are diverse and important in nature. Currently, however, diversity and their conservation status of bees from Vietnam are poorly studied (Le Xuan Hue, 2010; Khuat Dang Long et al., 2004; Khuat Dang Long et al., 2012), and megachiline bees are no an exception.

Genus *Euaspis* Gerstäcker, 1858 comprises 12 described species worldwide. Of them, two species are distributed in Africa and ten species are found in Asia (Ascher & Pickering, 2016; Michener, 2007). This genus is widespread in Africa, south and eastern Asia, from Nepal, India, Sri Lanka east through Indonesia to the Moluccas and Kai and north through the Philippines, Taiwan, Japan, Korea, China (Michener, 2007). *Euaspis* resembles *Pachyanthidium* in the following characters: red metasoma, flat scutellum and the distally enlarged but round male gonostyli, the trilobed male sternum 7, two apical spines on the fore and middle tibiae. However, *Euaspis* can be distinguished from *Pachyanthidium* in lacking a scopa, a carina or lamella on the preoccipital ridge behind the vertex and a broad toothed apex of the mandible of the female, in having the juxtantennal carinae and a vertical carina on the meseipistemum in front of the middle coxa. *Euaspis* parasitizes species of the genera *Lithurgus* and chalicodomiform *Megachile* (Michener, 2007).

In previous studies, three species of this genus were recorded in Vietnam: *Euaspis aequicarinata* Pasteels, *E. basalis* (Ritsema) and *E. polynesia* Vachal. In this study, a misidentification is corrected.

**MATERIALS AND METHODS**

Bee specimens examined in the present study is deposited in the Hymenoptera collections of the Institute of Ecology and Biological Resources (IEBR), Ha Noi, Vietnam. The materials were collected by sweeping net from various surveys in the north and south Vietnam.

Morphological and color characters of the pinned and dried specimens were observed under a dissecting stereomicroscope. Body length refers the length of head and first two metasomal segments combined. Photographic images were made with a Leica M80 Digital
Stereo Microscope (Leica Microsystems GmbH, Wetzlar, Germany), using LAS exclusive microscopy software (LAS EZ 3.1.1); the plates were edited using Photoshop CS6. The following abbreviations are used, NE: northeast, NP: National Park, NR: Nature Reverse; S and T refer to numbered metasomal sterna and metasomal terga, respectively; for the morphological terminology used in this paper, see Michener (2007); and ‘Apoi. + number’ = code number indexing for specimens of the Apoidea in the collection.

RESULTS AND DISCUSSION

Taxonomy

Key to the females of Vietnamese species of Euaspis Gerstäcker

1a. S6 without well-defined basal platform and well-developed laterobasal teeth (fig. 9)..................................................................................................................Euaspis polynesia Vachal, 1903

1b. S6 with well-defined basal platform, weak or absent laterobasal teeth........................................2

2a. Clypeus with a median longitudinal stout keel (fig. 1). Spots on of lateral margins of scutellum and lateral margins of axillae pale yellow (fig. 2). Basal platform of S6 strongly raised and occupying the main part of the disc (fig. 3).................................E. aequicarinata Pasteels, 1980

2b. Clypeus without a median longitudinal stout keel (fig. 4). Lateral margins of scutellum and axillae black (fig. 5). Platform of S6 subrectangular, strongly raised apically, apex of S6 subacute (fig. 6)..................................................................................................................E. diversicarinata Pasteels, 1980

Systematics

Genus Euaspis Gerstäcker, 1858

Euaspis Gerstäcker, 1858: 461. Type species: Thynnus abdominalis Fabricius, 1793, by original designation.

Diagnosis. Diagnosis of the genus Euaspis was given by Michener (2007) as follows: Body black, sometimes faintly bluish, and lack of yellow markings, but the metasoma commonly red. The interantennal area elevated, with a strong, curved juxtantennal carina mesal to each antennal base and also with a smooth, longitudinal, median ridge or carina. Hind coxa with a strong longitudinal carina on the inner margin, outer surface strongly expanded laterally to form a projecting lobe. Scutellum strongly produced posteriorly, projecting over the propodeum. Scopa absent. T7 of the male trilobed, small, extending little beyond T6.

Euaspis aequicarinata Pasteels, 1980 (Figs 1-3)


Euaspis aequicarinata is known to occur in China, Laos, Thailand, Malaysia and Java (Ascher & Pickering, 2016; Baker, 1995). In Vietnam, this species was recorded by Baker (1995) based on a specimen collected in northwest Vietnam, Hoa Binh Province (Tonkin, Hoabinh [Tongking Hoa Binh], Agu. 1918, R. V. de Salvaza). In this study, this species is reconfirmed to occur in Vietnam, in Kon Tum Province as a new distribution record.

Material examined. Kon Tum: 1 ♀, Chu Mom Ray NP, Sa Thay, 19°47′24.5″N, 104°59′46.5″E, 729m, 25.iv.2016, Nguyen TP Lien, Nguyen D Dai, Tran T Ngat.

Diagnosis. Female: Clypeus with a median longitudinal stout keel (fig. 1). Scutellum subtrucate, with the median apical depression obsolete (fig. 2). S6 with large, sharply margined, strongly raised platform, occupying the main part of the disc (fig. 3). Scutellum with very coarse punctures (fig. 2). Spots on lateral margins of scutellum and lateral margins of axillae pale yellow (fig. 2).

Euaspis diversicarinata Pasteels, 1980 (Figs 4-6)

Euaspis diversicarinata Pasteels, 1980: 78, 80, Sabah: ♀ (holotype), in the Natural History Museum, London.

This species is only known to occur in
Sabah Province of Malaysia (Baker, 1995; Ascher and Pickering, 2016).


Based on a specimen collected in Phu Tho Province, Khuat Dang Long et al. (2012) recorded Euaspis basalis (Ritsema, 1874) from Vietnam. However, careful examination of the specimen allows us to conclude that it is indeed E. diversicarinata Pasteels, not E. basalis. Because in E. diversicarinata, latero-basal teeth of S6 vestiges and metastoma wholly red but in E. basalis, latero-basal teeth of S6 well-developed and T1 black. And in this study, E. diversicarinata was so recorded with one female specimen in Bac Giang Province, northeast Vietnam.

Euaspis diversicarinata is recorded from Vietnam here for the first time. The female of this species was described in 1980 by Pasteels. In this study, the female is redescribed with illustrations.

Diagnosis. Female: Apical margin of scutellum with a medially shallow dimple (fig. 5). Platform of S6 subrectangular, strongly raised apically, apex of S6 subacute (fig. 6). Scutellum with dense, unequal punctures, with coarse and close punctures centrally, the punctures arranged to form longitudinal middle lines from near basal to near apical margins, a small dimple at apical margin medially, inside this dimple with minute punctures (fig. 5). Axillae with coarse and dense punctures, except its lateral margins with smaller punctures (fig. 5).

Body black except near apical vertical of mandible brown red, metastoma wholly red and all tarsi brownish red apically.

Lateral and apical margins of clypeus, paraocular area from apical margin to over antenna socket, genal area, fore and middle coxae, trochanter and fore femur ventrally with long pubescences. Basitarsus and all tarsi at inner side with red bristles and outer side with white bristles.

Euaspis polynesia Vachal, 1903 (Figs 7-10)

Euaspis polynesia Vachal, 1903a: 97, Celebes: ♂ (holotype), in the University Museum, Oxford.

Euaspis polynesia Vachal, 1903b: 173.

Euaspis polynesia is known to occur in China to Indonesia, and Japan (Ascher & Pickering, 2015; Baker, 1995). In Vietnam, this species was recorded by Baker (1995) based on one female collected in Hoa Binh Province (Tonkin, Hoabinh, viii. 1918 (R. V. de Salvaza)) and by Ascher & Pickering (2016) based on one female collected in Dong Nai Province (Trang Bom Arboretum, Bien Hoa, 1.ix.1932, M. Poilane), one female collected in Dak Lak Province (Dak Lak, 100m, 6.iv.2009, H. Ngo). In this study, this species is recorded in Dien Bien, Bac Kan, Son La, Phu Tho, Vinh Phuc, and Thanh Hoa as new records.

Material examined. Dien Bien: 1♀, 21°26′43″N, 103°02′42″E, 24.viii.2006, Nguyen LTP, Saito F & Kojima J; Bak Kan: 1♀, Na Lan, Lang Ngam, Ngan Son, 21°48′15″N, 105°44′30″E, 257m, 17.x.2015, Nguyen LTP, Nguyen DD & Nguyen MP; Son La: 2♀♂, Nam
Diagnosis. This species is similar to *E. diversicarinata* but can be distinguished by the following characteristics:

**Female**: Apical margin of scutellum with a medially deep dimple (fig. 8). S6 without well-defined basal platform and well-developed laterobasal teeth, weak median carina apically (fig. 9). Central area of scutellum with coarse and sparse punctures (fig. 8). Mandible black (fig. 7).

**Male**: Marginal teeth of T7 very prominent (fig. 10). S6 with a rudimentary apical carina medially (fig. 10). Spots on lateral margins of scutellum dark red (in one specimen, scutellum wholly black).

**Figures 1-3. Euaspis aequicarinata** (Female)

**Figures 4-6. Euaspis diversicarinta** (Female)

**Figures 7-10. Euaspis polynesia** (g-i: female, j: male)
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**REFERENCES**


VỀ VỊ TRÍ PHÂN LOẠI GIÓNG Euaspis Gerstäcker (Hymenoptera: Apoidea: Megachilidae) Ở VIỆT NAM

Trần Thị Ngất, Khuất Đăng Long, Nguyễn Thị Phương Liên
Viện Sinh thái và Tài nguyên sinh vật, Viện Hàn lâm KH và CN Việt Nam

TÔM TẤT

Bài báo đưa ra một số nhận xét về vị trí phân loại ba loại ong thuộc gióng Euaspis Gerstäcker, 1858 (Hymenoptera: Apoidea: Megachilidae) ở Việt Nam. Đến nay, đã ghi nhận có ba loại thuộc gióng này, đó là: Euaspis aequicarinata Pasteels, Euaspis polynesia Vachal và Euaspis diversicarinata Pasteels. Trong số đó Euaspis aequicarinata trước đây chỉ được ghi nhận ở vùng Tây Bắc (tỉnh Hòa Bình), nay được ghi nhận ở vùng Tây Nguyên của Việt Nam (Kon Tum); Euaspis polynesia Vachal được ghi nhận ở toàn lãnh thổ Việt Nam; còn loại Euaspis basalis (Ritsema, 1874) trước đây đã được ghi nhận nhưng trên thực tế chưa thu được mẫu của loại E. basalis, khi kiểm tra lại mẫu vật trước đây đã được trên thực tế xác định loại này thực tế là loại Euaspis diversicarinata Pasteels, 1980 và loại này đã được xem như ghi nhận mới cho khu vực của Việt Nam. Dựa trên mẫu ong cái, bài báo cũng đưa ra khả năng phân loại 3 loại đã biết thuộc gióng Euaspis Gerstäcker ở Việt Nam và bổ sung mô tả loài Euaspis diversicarinata.

Từ khóa: Apoidea, Megachilidae, Euaspis, ghi nhận mới, Việt Nam.