

New species and records of the nomiine bee  
genus *Maculonomia* Wu, 1982 from Vietnam  
(Hymenoptera, Halictidae)

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COUVERTURE / COVER:

*Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., holotype male, facial view.

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# New species and records of the nomiine bee genus *Maculonomia* Wu, 1982 from Vietnam (Hymenoptera, Halictidae)

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## ABSTRACT

The nomiine bee genus *Maculonomia* Wu, 1982 is reported from Vietnam, with five species recognized, all belonging to the subgenus *Maculonomia s. str.* Three species are described as new to science: *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., *M. (M.) ferruginea* Engel, Tran & Nguyen, n. sp., and *M. (M.) rufomysteria* Engel, Tran, & A.D. Nguyen, n. sp. One species is new for the Vietnamese fauna: *M. (M.) rufocaudata* (Wu, 1988) while *M. (M.) terminata* (Smith, 1875) is found to be the most common species in the country. A new subgenus is established, *Spanionomia* Engel & Tran, n. subgen., and key to subgenera provided. A key is presented to the Vietnamese species of *Maculonomia s. str.*

## KEY WORDS

Apoidea,  
Nominae,  
key,  
Southeast Asia,  
new records,  
new species.

## RÉSUMÉ

*Nouvelles espèces et signalisations de l'abeille nomiine genre Maculonomia Wu, 1982 du Vietnam (Hymenoptera, Halictidae).*

Le genre d'abeilles nomades *Maculonomia* Wu, 1982 est signalé au Vietnam, avec cinq espèces reconnues, toutes appartenant au sous-genre *Maculonomia s. str.* Trois espèces sont décrites comme nouvelles pour la science : *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., *M. (M.) ferruginea* Engel, Tran, & Nguyen, n. sp., et *M. (M.) rufomysteria* Engel, Tran & A.D. Nguyen, n. sp. Une espèce est nouvelle pour la faune vietnamienne : *M. (M.) rufocaudata* (Wu, 1988) tandis que *M. (M.) terminata* (Smith, 1875) est l'espèce la plus commune dans le pays. Un nouveau sous-genre est établi, *Spanionomia* Engel & Tran, n. subgen. et une clé des sous-genres est fournie. Une clé est présentée pour les espèces vietnamiennes de *Maculonomia s. str.*

**MOTS CLÉS**  
Apoidea,  
Nominae,  
clé,  
Asie du Sud-Est,  
signalisations nouvelles,  
espèces nouvelles.

## TÓM TẮT

*Những phát hiện mới về giống ong Maculonomia Wu, 1982 ở Việt Nam (Hymenoptera, Halictidae).*

Nghiên cứu về giống *Maculonomia s.str.* Trong đó, phát hiện ba loài mới cho khoa học, bao gồm: *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., *M. (M.) ferruginea* Engel, Tran, & Nguyen, n. sp. và *M. (M.) rufomysteria* Engel, Tran, & AD Nguyen, n. sp. Ngoài ra, lần đầu tiên ghi nhận loài *M. (M.) rufocaudata* (Wu, 1988) cho khu hệ Việt Nam và *M. (M.) terminata* (Smith, 1875) là loài phổ biến nhất trong số các loài ghi nhận. Phân giống mới, *Spanionomia* Engel & Tran, n. subgen. được thiết lập và khoá định loại đến phân giống của giống *Maculonomia* được cung cấp. Khoá định loại cho các loài thuộc phân giống này ở Việt Nam cũng được đưa ra.

**TỪ KHOÁ**  
Apoidea,  
Nominae,  
khoá,  
Đông Nam Á,  
ghi nhận mới,  
loài mới.

## INTRODUCTION

Knowledge of the halictid fauna of Vietnam is limited and that of the nomiine bee genus *Maculonomia* Wu, 1982 is no exception. *Maculonomia* is a rather small genus comprising about 20 species and while most are uncommon a few species have wide ranges and are commonly encountered in the field (Michener 2007; pers. obs.), with most specimens captured with sweep nets at flowers. Within Vietnam the genus has been sampled over a rather broad elevational range from lowland habitats (less than 100 m) to mountainous forests at nearly 1600 m. Not surprisingly, given this elevational span, setal coloration can vary from yellowish to orange to black.

Despite the fact that at least one species can be quite common, the genus has rarely been recorded from Vietnam (Pauly 2009). During sampling for bees across the country several species have been captured and are recorded for the Vietnamese bee fauna for the first time, including three new species. We provide descriptions of these species and figures for all known species currently known from the country. In addition, we provide a list of all known species of the genus and organize them into two subgenera and species groups. A key is also presented to the species of the Vietnamese fauna.

## MATERIAL AND METHODS

Specimens examined in the present study are deposited in the collection of Hymenoptera of the Institute of Ecology and Biological Resources (IEBR), Hanoi, Vietnam and the Division of Invertebrate Zoology, American Museum of Natural History (AMNH), New York, USA. Adult morphological and color characters were examined with a Nikon SMZ745 stereomicroscope, while images were photographed with a Nikon SMZ800N

digital stereomicroscope, and with an attached ILCE-5000L/WAP2 digital camera. Stacked focus images were prepared using Helicon Focus 7. Lastly, all files were processed with Adobe Photoshop Cs6. Male terminalia were dissected from relaxed specimens and then treated with Proteinase K so as to remove tissue and partially clear the integument. The morphological terminology used in the descriptions follows Engel (2001) and Michener (2007), with the following body metrics (as used in our earlier papers: Tran *et al.* 2022, 2023): body length: measured from the base of the antennal torulus to metasomal apex (in dorsal view), head length: measured from the medioapical margin of the clypeus to the upper margin of the vertex (in facial view), head width: measured at the widest point of the head across the compound eyes (in facial view), compound eye width: the greatest width of the compound eye (in profile), genal width: the greatest width of the gena (in profile), intertegular distance: measured between the inner rims of the tegulae (in dorsal view). The abbreviations F, S, and T (followed by Arabic numerals) refer to numbered flagellomeres, metasomal sterna, and metasomal terga, respectively.

## ABBREVIATIONS

AMNH American Museum of Natural History, New York;  
IEBR Institute of Ecology and Biological Resources, Hanoi;  
ISD Insect Systematics Department (IEBR).

## SYSTEMATICS

Family HALICTIDAE Thomson, 1869  
Subfamily NOMIINAE Robertson, 1904  
Tribe Nomiini Robertson, 1904  
Genus *Maculonomia* Wu, 1982

*Maculonomia* Wu, 1982: 275.



## REMARKS

The genus *Maculonomia* was originally established as a subgenus of *Nomia* Latreille, 1804 (Wu 1982) and was kept within an ill-defined *Nomia* by Michener (2007), although as a synonym of *Acunomia* Cockerell, 1930. More recently *Maculonomia* has been recognized as a genus distinct from *Nomia* (e.g. Pauly 2009) and separate from *Acunomia* Cockerell, 1930 and *Curvinomia* Michener, 1944, which had also been placed within *Acunomia* (Michener 2007). *Maculonomia* is likely related to *Curvinomia* (Pauly 2009; Niu *et al.* 2017) but can be separated from the latter by the following characteristics: mesoscutal punctation generally finer and simple (deeper and often doubled in *Curvinomia*); anterior apical corner of forewing lightly to darkly infuscate (apical parts of wing faintly infumate in *Curvinomia*); outer metatibial spur of female simple (spur with strong subapical branch); metabasitibial plate of female elevated, triangular, and nearly

glabrous (shield-shaped and typically setose in *Curvinomia*); metafemur of male generally slender, smooth and concave ventrally (metafemur thicker and laterally compressed in *Curvinomia*). In addition, the metatibia in males has a distinct projection apicoventrally, metasomal sternum IV of males is broad and large, sternum V of males with medial triangular projection apically, sternum VII of males with double apical projections, dorsal gonostylar lobe expanded, flattened, and lamelliform mesally and with slender, narrow apical extension; ventral gonostylar bifid apically.

Herein, based on the significant differences of the legs, the genus is divided into two subgenera: *Maculonomia* Wu *s. str.* and *Spanionomia* Engel & Tran, n. subgen. (see key to subgenera, *infra*). The new subgenus is established based on the species *Maculonomia elegans* (Smith, 1857). The nominate subgenus can be further arranged into two species groups, distinguished largely by the presence or absence of the enameled bands on

KEY TO SUBGENERA OF *MACULONOMIA* WU, 1982

1. Metatibial scopa of female reduced; legs largely yellowish orange to light orange or orangish brown [Indonesia; Malaysia; Brunei] ..... *Spanionomia* Engel & Tran, n. subgen.
- Metatibial scopa of female abundant; legs largely dark brown to black [central-southern China southward into Malesia, westward to Nepal] ..... *Maculonomia* Wu, 1982 *s. str.*

KEY TO VIETNAMESE SPECIES OF *MACULONOMIA* WU, 1982 *s. str.*

The female of *Maculonomia* (*Maculonomia*) *rufomysteria* Engel, Tran, & AD Nguyen and the males of *M. (M.) ferruginea* Engel, Tran, & Nguyen and *M. (M.) rufocaudata* (Wu, 1988) remain unknown.

1. Females ..... 2
- Males ..... 5
2. Metasomal terga apically without enameled bands, black ..... 3
- Metasomal terga apically with enameled bands ..... 4
3. Mesoscutum and mesoscutellum dull, punctures deep, distinct, separated by less than a puncture width (Fig. 12B); frontal head, mesoscutum, mesoscutellum with black setae (Fig. 12A, B); discs of metasomal terga I-V with obvious ferruginous setae ..... *M. (M.) ferruginea* Engel, Tran, & Nguyen, n. sp.
- Mesoscutum and mesoscutellum shiny, punctures shallow, anteriorly and posteriorly separated by a puncture width or more (Fig. 14B); face, mesoscutum, and mesoscutellum with fulvous setae (Figs 13A; 14A), metasomal terga I-IV laterally and tergum V apically with ferruginous setae ..... *M. (M.) terminata* (Smith, 1875)
4. Clypeus laterally with punctures dense (Fig. 5A); discs of metasomal terga III-V with blackish setae; metasomal terga II-IV apically with thin, pale, yellowish-green enamel bands and tergum V black apically (Fig. 5D) ..... *M. (M.) alveolus* Engel & Tran, n. sp.
- Clypeus laterally with punctures sparse (Fig. 7A); discs of metasomal terga III-V with conspicuous reddish-orange setae; metasomal tergum II dull apically and terga III-V with orange enamel bands apically (Fig. 7D) ..... *M. (M.) rufocaudata* (Wu, 1988)
5. Metafemur with a squarish lamella orthogonal to podite axis ventrobasally (Fig. 16C); metasomal terga without enameled bands apically, black (Fig. 16E) ..... *M. (M.) terminata* (Smith, 1875)
- Metafemur without lamella ventrobasally; metasomal terga with enameled bands apically ..... 6
6. Metafemur swollen and with small trough bordered by longitudinal lamella ventrally (Fig. 2C); wing membrane largely clear with light infumate area apically (Fig. 1B); pterostigma brown; metasomal terga II-V with yellowish-green enamel bands apically (Fig. 2D); metasomal terga II-VIII and genitalia as in Figure 3 ..... *M. (M.) alveolus* Engel & Tran, n. sp.
- Metafemur normal, without small trough ventrally (Fig. 9C); wing membrane yellowed with pronouncedly infumate spot apically (Fig. 8A); pterostigma yellowish brown; metasomal terga V and VI with reddish-orange enamel bands apically (Fig. 9E); sterna IV-VIII and genitalia as in Figure 10 ..... *M. (M.) rufomysteria* Engel, Tran, & AD Nguyen, n. sp.

TABLE 1. — List of current species of the genus *Maculonomia* Wu, 1982 (based on Pauly 2009; Niu *et al.* 2017; Ascher *et al.* 2022). Note that we follow Pauly (2009) in considering *M. nitidata* (Strand, 1913) a junior synonym of *M. apicalis* (Smith, 1857).

Species	Sexes known	Distribution
Subgenus <i>Maculonomia</i> Wu, 1982 s. str.		
Colored-bands group ( <i>interrupta</i> group)		
<i>Maculonomia alveolus</i> Engel & Tran, n. sp.	♀♂	Vietnam
<i>Maculonomia aureipennis</i> (Gribodo, 1894)	♀♂	from Malaysia to southern China
<i>Maculonomia fuscipennis</i> Smith, 1857	♀♂	Indonesia (Sumatra), Singapore
<i>Maculonomia interrupta</i> (Cameron, 1904)	♀	from the Shillong mountains to northeastern India
<i>Maculonomia leucozonata</i> (Cameron, 1902)	♀♂	Borneo
<i>Maculonomia longitarsis</i> (Cockerell, 1916)	♀♂	Philippines
<i>Maculonomia medogensis</i> (Wu, 1988)	♀	South China
<i>Maculonomia penangensis</i> (Cockerell, 1920)	♀♂	from Malaysia to southern China
<i>Maculonomia planiventris</i> (Friese, 1911)	♀♂	Taiwan
<i>Maculonomia proxima</i> (Friese, 1911)	♀♂	Taiwan
<i>Maculonomia rufocaudata</i> (Wu, 1988)	♀	South China, Myanmar, Vietnam
<i>Maculonomia rufomysteria</i> Engel, Tran, & AD Nguyen, n. sp.	♂	Vietnam
<i>Maculonomia sanguinea</i> Pauly, 2009	♀♂	Indonesia, Malaysia, Thailand, Laos
<i>Maculonomia soekaboemiensis</i> Pauly, 2009	♀♂	Indonesia (Java, Sumatra)
<i>Maculonomia tigeri</i> Pauly, 2009	♂	Thailand
<i>Maculonomia viridicinctula</i> Cockerell, 1931	♀	China
Non-colored-bands group ( <i>apicalis</i> group)		
<i>Maculonomia anthophoroides</i> (Meade-Waldo, 1916)	♀	India (Sikkim), Myanmar
<i>Maculonomia apicalis</i> (Smith, 1857)	♀♂	from Java and Borneo to southern China
<i>Maculonomia ferruginea</i> Engel, Tran, & Nguyen, n. sp.	♀	Vietnam
<i>Maculonomia terminata</i> (Smith, 1875)	♀♂	from Java and Sumatra to southern China, Vietnam
<i>Maculonomia xiongjiuensis</i> Niu & Zhu, 2017	♀♂	China
Subgenus <i>Spanionomia</i> Engel & Tran, n. subgen.		
<i>Maculonomia concinna</i> (Smith, 1860)	♀♂	Indonesia (Sulawesi)
<i>Maculonomia elegans</i> (Smith, 1857)	♀♂	Brunei, Malaysia (Selangor, Sarawak), Singapore, Indonesia (Java, Kalimantan)

the metasomal terga apically: colored-banded species (the *interrupta* group, with 16 species) and non-colored-banded species (the *apicalis* group, with five species) (Table 1).

Subgenus *Maculonomia* Wu, 1982 s. str.

*Maculonomia* Wu, 1982: 275.

TYPE SPECIES. — *Nomia terminata* Smith, 1875, by original designation.

COLORED-BANDS GROUP (*INTERRUPTA* GROUP)

*Maculonomia (Maculonomia) alveolus*  
Engel & Tran, n. sp.  
(Figs 1-5)

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TYPE MATERIAL. — **Holotype.** Vietnam • ♂; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°15'19.4"N, 105°30'43.7"E; alt. 650 m; 15.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR.

**Paratypes.** Vietnam • 1 ♀; same data as holotype; IEBR • 2 ♀, 1 ♂; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°16'65"N, 105°11'08"E; alt. 780 m; 12.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR • 1 ♀; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°16'10"N, 105°31'09"E; alt. 827 m; 13.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; AMNH • 1 ♂; Cao Bang, Ha Lang, Duc Quang; 22°43'12"N, 106°39'21"E; alt.

454 m; 21.IX.2023; Nguyen L.T.P., Nguyen A.D., Tran N.T. leg.; AMNH • 1 ♀; Tuyen Quang, Ham Yen, Yen Thuan, Cao Duong, Cham Chu N.R.; 22°20'16.4"N, 103°51'09.4"E; alt. 670 m; 15.V.2019; Truong L.X., Nguyen C.Q., Mai T.V. leg.; IEBR • 2 ♀; Tuyen Quang, Ham Yen, Yen Thuan, Cao Duong, Cham Chu NR; 22°20'16.4"N, 103°51'09.4"E; alt. 670 m; 17.V.2019; Nguyen C.Q., Nguyen L.T.P. leg.; IEBR • 1 ♀, 1 ♂; Lang Son, Huu Lung, Huu Lien, Lan Chau, Huu Lien NR; 21°43'22.9"N, 106°22'40.2"E; alt. 370 m; 12.VI.2018; Nguyen L.T.P., Truong L.X., Tran N.T., Luong T.V., Nguyen H.T.T. leg.; IEBR • 1 ♀; Hoa Binh, Mai Chau, Hang Kia-Pa Co NR; 20°44'39"N, 104°53'30"E; alt. 1315 m; 19.V.2022; Nguyen L.T.P., Tran N.T. leg.; IEBR • 7 ♀; Hoa Binh, Kim Boi, Ha Bi, Mo Da; 12-14.VI.2019, Nguyen C.Q. leg.; IEBR.

DIAGNOSIS. — This species is most similar to *M. planiventris* (Friese, 1911) from Taiwan, as in both species the male metafemur has a lamella, parallel to the longitudinal axis of the metafemur, that spans nearly the entire length of the podite, and forms a narrow trough. Unlike *M. planiventris*, the apical margin of tergum I in both sexes is impunctate (punctate in *M. planiventris*).

ETYMOLOGY. — The specific epithet is the Latin noun *alveolus*, meaning, a “small trough”, “small hollow”, or “small channel”, and refers to the small channel that is formed by the lamella that extends across the metafemur. The name is a noun in apposition.

DESCRIPTION

*Male*

**Measurements.** . Body length 11.5-12 mm (n = 4; holotype = 12 mm). Forewing length 10.5-11 mm (n = 4; holotype = 11 mm). **Structure.** Head broader than long, approximately 1.3× as broad as long (Fig. 2A). Compound eyes about 1.4× genal width. Mandible simple. Clypeus broader than long, approximately 1.5× as broad as long and apical margin slightly



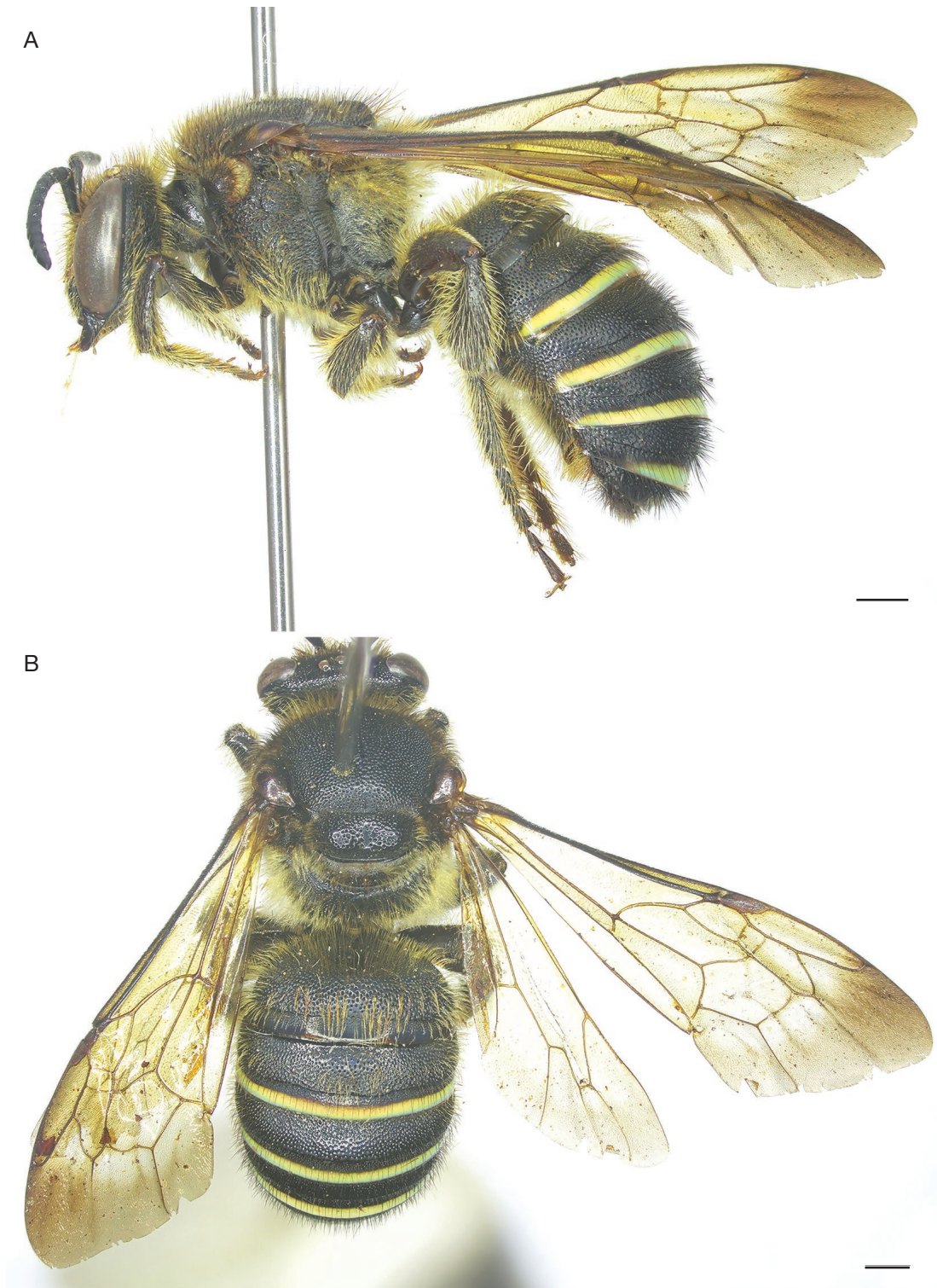


FIG. 1. — *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., holotype, male: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.

curved. Labrum with triangular process, broader than long, approximately 2.9× as broad as long and slightly swollen basally (Fig. 2A). Mesosoma longer than broad, about 1.2× as long as broad; mesoscutellum with medio-longitudinal depression apically and strongly bigibbous (Fig. 2B). Forewing with three submarginal cells, first and third submarginal cells

broader than second submarginal cell, 1m-cu entering near apex of second marginal cell (Fig. 1B). Metafemur swollen, ventral surface with a narrow trough extending along two-thirds length, metatibia gradually expanding toward apex and inner surface with an obvious spine at one-third length from base (Fig. 2C). Metasomal T2 half-basally concave (Figs 1A;





FIG. 2. — *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., holotype, male: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metafemur and metatibia in profile; **D**, metasoma in dorsal view. Scale bars: 1 mm.

2D). Metasomal S4 with deeply emarginate medioapically and bilobed, apical margin of each lobe raised medially (Fig. 3A). S5 thin basally, apically thickened and with an equilateral triangular process medio-apically (Fig. 3B). S6 emarginate medioapically, apical margin as in figure 3C. S7 with apical margin broadly and deeply concave, with apicolateral lobes at margins of concavity bearing tufts of elongate setae, minute lobe mesad apicolateral lobe and also with a few long setae (Fig. 3D). S8 with broad spiculum and apical margin slightly concave with broad protrudent plate medially (Fig. 3E). Gonostylus complex, with dorsal and ventral gonostylar lobes (referred to as individual gonostyli – dorsal and ventral – by some authors but the genitalia of Hymenoptera have a single gonostylus on each side, which may then be further subdivided). Dorsal gonostylar lobe expanded, flattened, and lamelliform mesally, with long, slender, apically spatulate process bearing, ventroapical margin with smaller lamella, before tapering to

short, slender process (i.e., apex bifid) (Fig. 3F), with elbowed mesal process proximally with thin, flattened plate apically (Fig. 3F, G). Ventral gonostylar lobe a thinner process with rounded apex, inner margin curved, outer margin slightly wavy (Fig. 3G).

**Sculpturing.** Clypeus medially with dense coarse punctures, punctures sparser latero-apically; supraclypeal area with dense, coarse, contiguous punctures; paraocular area with dense, contiguous punctures; scape with small, sparse, shallow punctures; frons with coarse, dense, contiguous punctures (Fig. 2A); vertex with dense punctures, generally puncture sizes larger and coarser than those on frons, except outer margin of ocellus with shiny, smooth, impunctate area. Mesoscutum with small, dense, round punctures; mesoscutellum with sparse punctures except latero-basally with dense round punctures (Fig. 2B). Metasomal T1 with dense (not contiguous), round punctures;



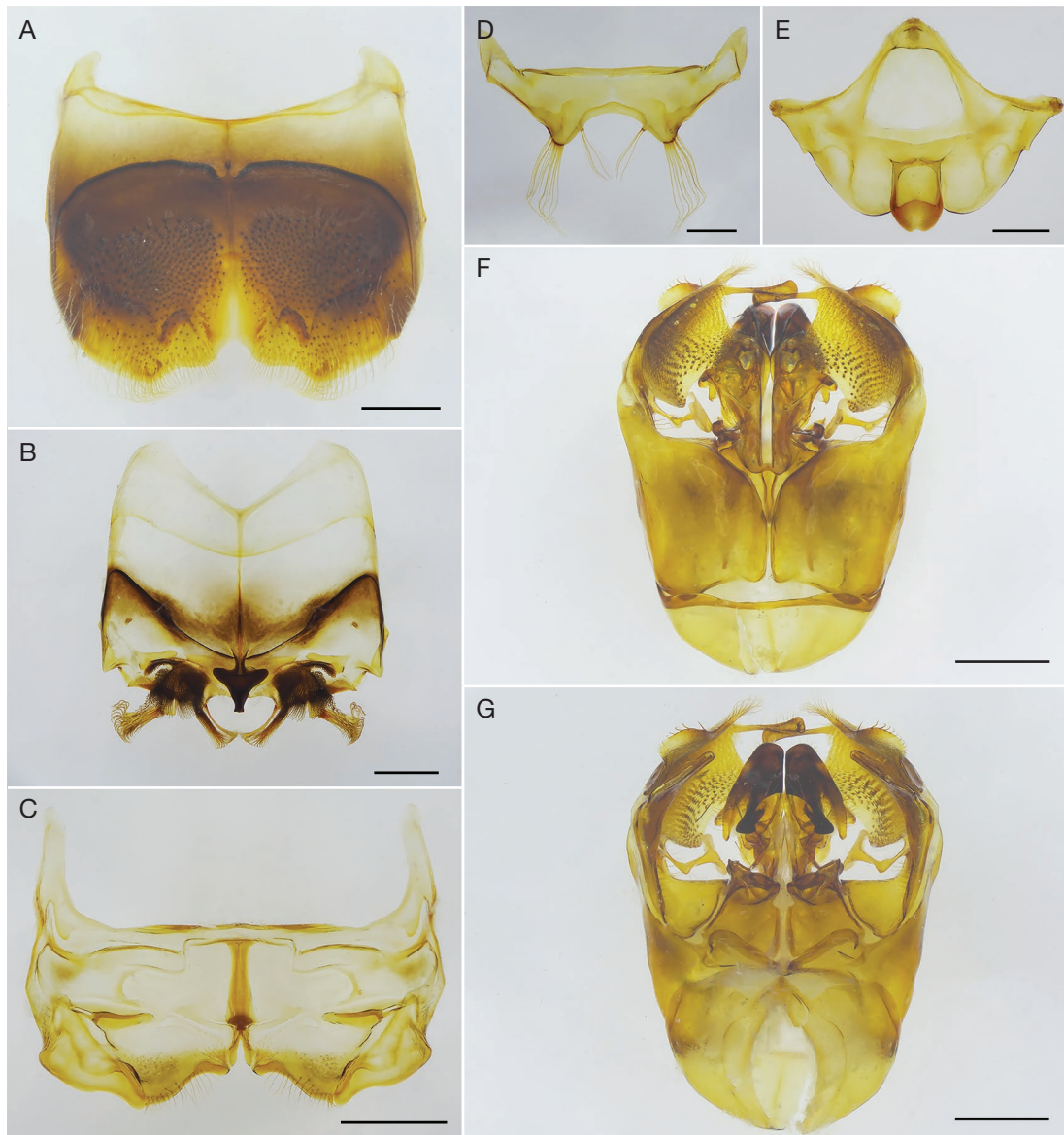


FIG. 3. — *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., paratype, male: **A**, S4 in frontal view; **B**, S5 in frontal view; **C**, S6 in frontal view; **D**, S7 in frontal view; **E**, S8 in frontal view; **F**, male genitalia in dorsal view; **G**, male genitalia in ventral view. Scale bars: A-C, F, G, 1 mm; D, E, 0.5 mm.

metasomal T2 disc half-basally with small, sparse punctures and larger and denser punctures on remainder, metasomal T3-T6 with small, dense (not contiguous) punctures except relatively sparse medially; marginal zones of T1-T5 basally with small, dense (not contiguous) punctures and smooth, shiny, and impunctate on remainder (Fig. 2D).

**Color.** Body generally black except mandible ferruginous medially (Fig. 2A). Forewing relatively hyaline except infumate apically (Fig. 1B). Metasomal T2-T5 with shiny, pale yellowish-green band apically (Figs 1; 2D).

**Pubescence.** Clypeus, supraclypeal area, and paraocular area extending from base to lower torular tangent with yellowish, plumose setae; scape with some short, yellowish setae; face above antennal torulus with tufts of long, yellowish, plumose

setae (Fig. 2A); frons and vertex with yellowish setae; gena with yellowish, relatively dense, plumose setae. Pronotum with short, dense, white setae intermixed with longer, yellowish, plumose setae. Pronotal lobe with blackish setae except outer margin with short, dense, whitish, plumose setae (Fig. 1A). Mesoscutum with short, yellowish setae intermixed with some blackish setae (Fig. 2B). Mesosoma laterally and ventrally with long, dense, yellowish, plumose setae (Fig. 1A). Propodeum laterally with tuft of yellowish, plumose setae (Fig. 1). Ventral surfaces of coxae, trochanters, pro- and mesofemora with tufts of yellowish, plumose setae. Outer surfaces of protibia, probasitarsus, mesotibia, and mesobasitarsus with short, yellowish setae and inner surfaces of these podites with bristle-like ferruginous setae. Outer surfaces of metafemur, metatibia, and metabasitarsus with yellowish setae. Inner surfaces of metatibia and metabasitarsus with bristle-like,

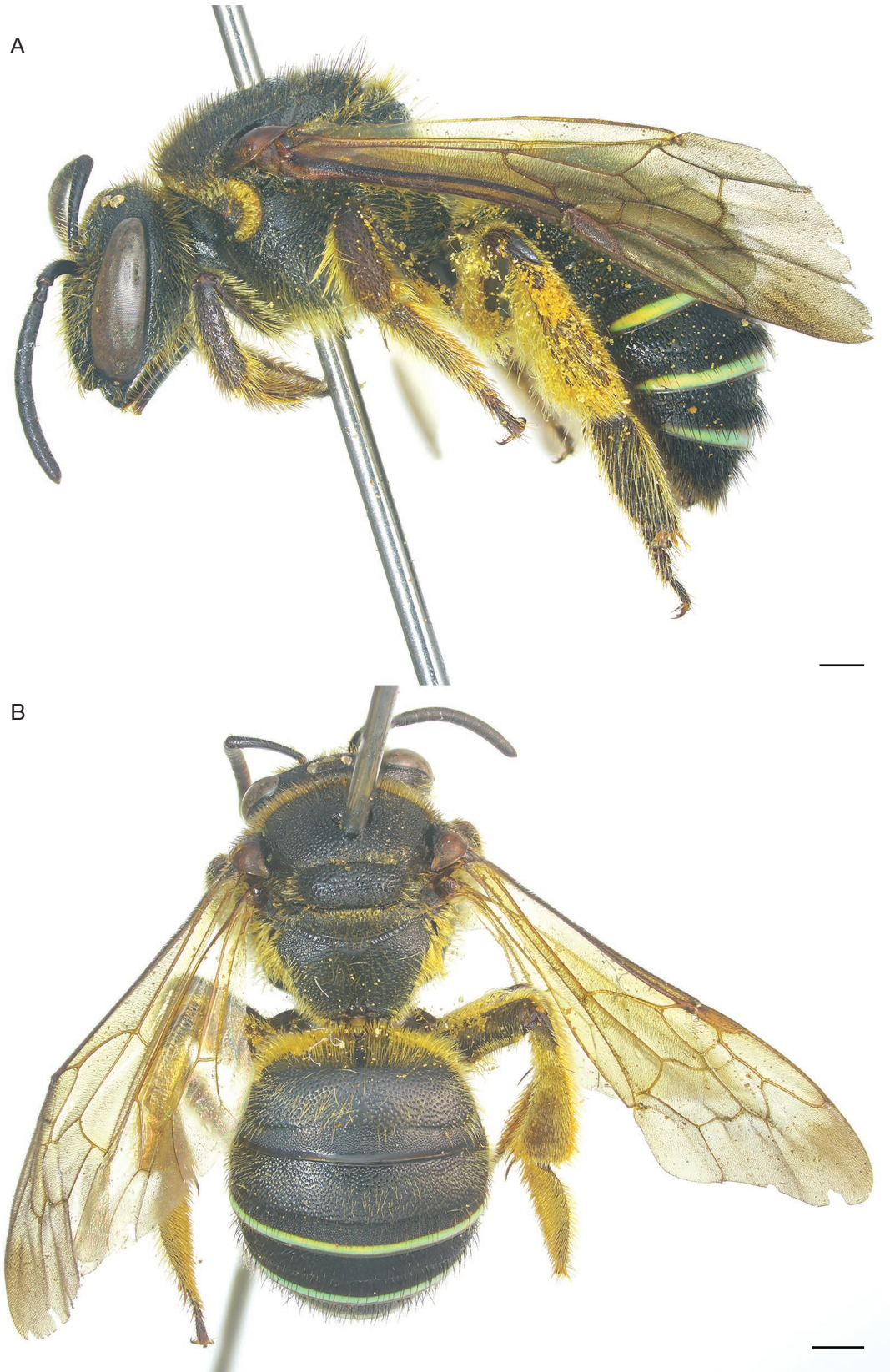


FIG. 4. — *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., paratype, female: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.





FIG. 5. — *Maculonomia (Maculonomia) alveolus* Engel & Tran, n. sp., paratype, male: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metatibia showing the basal plate; **D**, metasoma in dorsal view. Scale bars: A, B, D, 1 mm; C, 0.5 mm.

ferruginous setae. Metasomal T1 with yellowish setae, T2 with yellowish setae except some long, blackish setae apically, metasomal T3-T5 with blackish setae (Fig. 1).

#### Female

**Measurements.** Total body length about 10-11 mm, forewing length 9.5-10 mm (n = 16).

**Structure.** Basically similar as male (*vide supra*) except usual sex differences (e.g. mandible with preapical tooth, metafe-mur not swollen, metabasitibial plate present, metabasitarsus compressed) (Figs 4A; 5B).

**Sculpturing.** As described for male (*vide supra*) except punctures of clypeus and mesoscutellum denser (Fig. 5A, B).

**Color.** As described for male (*vide supra*) except pale yellowish-green bands on metasomal T2-T4 thinner and metasomal T5 black (Fig. 5D).

**Pubescence.** As described for male (*vide supra*) except outer surface of metatibia with yellowish scopa (Fig. 4A), metasomal S2-S5 with yellowish setae apically.

#### *Maculonomia (Maculonomia) rufocaudata*

(Wu, 1988)

(Figs 6; 7)

*Nomia (Maculonomia) rufocaudata* Wu, 1988: 546.

*Maculonomia rufocaudata* – Pauly 2009: 163.

**MATERIAL EXAMINED.** — Vietnam • 1 ♀; Lao Cai, Bat Xat, Y Ty, way to the red waterfall; 21°23'03.4"N, 105°42'42.6"E; alt. 1586 m; 9.V.2019; Nguyen L.T.P., Nguyen C.Q. leg.; IEBR • 1 ♀; same data; AMNH • 1 ♀; Son La, Bac Yen, Hang Dong, Hang Dong C village, Ta Xua special-use forest; 21°19'48"N, 104°32'21"E; alt. 1256 m; 24.VIII.2023; Tran D.D. leg.; IEBR.



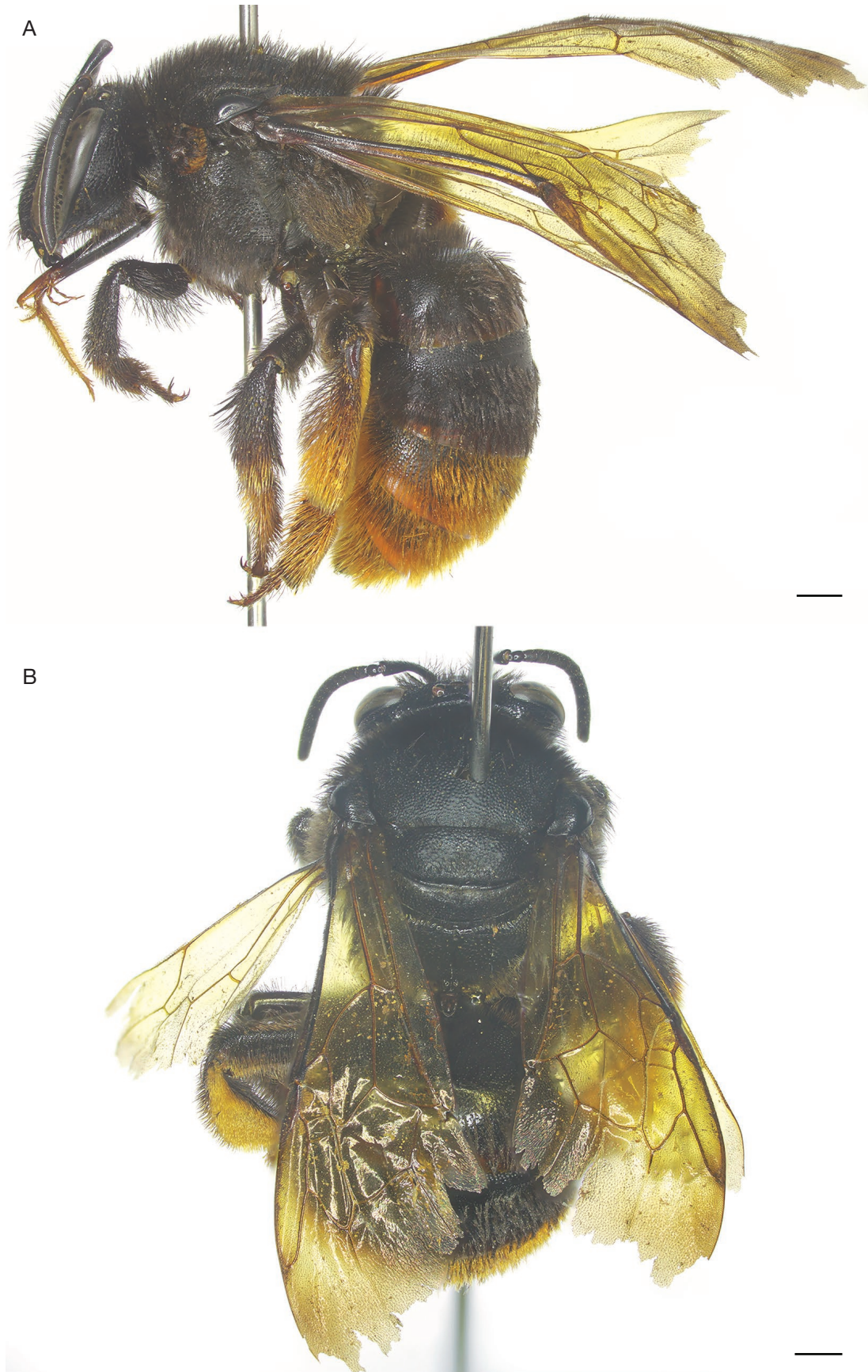


FIG. 6. — *Maculonomia (Maculonomia) rufocaudata* (Wu, 1988), female from Lao Cai province: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.





FIG. 7. — *Maculonomia (Maculonomia) rufocaudata* (Wu, 1988), female from Lao Cai province: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metatibia showing the basal plate; **D**, metasoma in dorsal view. Scale bars: 1 mm.

#### REMARKS

Note that the apical enamel bands of the Vietnamese specimens are distinctly orange rather than the yellow of the Tibetan population. Despite this color variation, the specimens agree in all other respects with the species as characterized from Tibet.

*Maculonomia (Maculonomia) rufomysteria*  
Engel, Tran & A.D. Nguyen, n. sp.  
(Figs 8-10)

[urn:lsid:zoobank.org:act:5782C286-D12A-4C72-969B-430DCF01B896](https://zoobank.org/act:5782C286-D12A-4C72-969B-430DCF01B896)

TYPE MATERIAL. — **Holotype**. Vietnam • ♂; Lam Dong, Bidoup Nui Ba; 24.IX.2019; Pham N.T. leg.; IEBR.

ETYMOLOGY. — The specific epithet is a combination of the Latin adjectives *rufus*, meaning, a “reddish”, and *mysterius*, meaning, “mysterious”.

DIAGNOSIS. — This species superficially resembles *M. rufocaudata* owing to the overall black coloration combined with abundant reddish orange setae on the apical metasomal terga, as well as the presence of enamel apical bands. Unlike *M. rufocaudata*, however, the reddish orange setae are restricted to terga V and VI, while in *M. rufocaudata* the color is extensive across terga III-V. Additionally, in the new species the orange, apical, enamel bands are complete on terga V and VI, and only present as small spots at the extreme lateral portions of tergum IV, rather than the complete bands found in *M. rufocaudata* on terga III-V. In *M. rufocaudata* the wing is uniformly yellowed to yellowish brown, often a bit lighter apically beyond the veins. In the new species the forewing is yellow, then paler just beyond the veins before forming a large, apical, infumate spot, resembling somewhat the apical spot of *M. terminata*. In *M. rufocaudata* the mesoscutellum is unmodified or with weak paramedial callosities, while in the new species there are prominent elevated tubercles on either side of the midline. Naturally, given that the male of *M. rufocaudata* is currently unknown it was tempting to consider this male as conspecific with the aforementioned females attributed to *M. rufocaudata*. We have erred on the side of splitting, however,



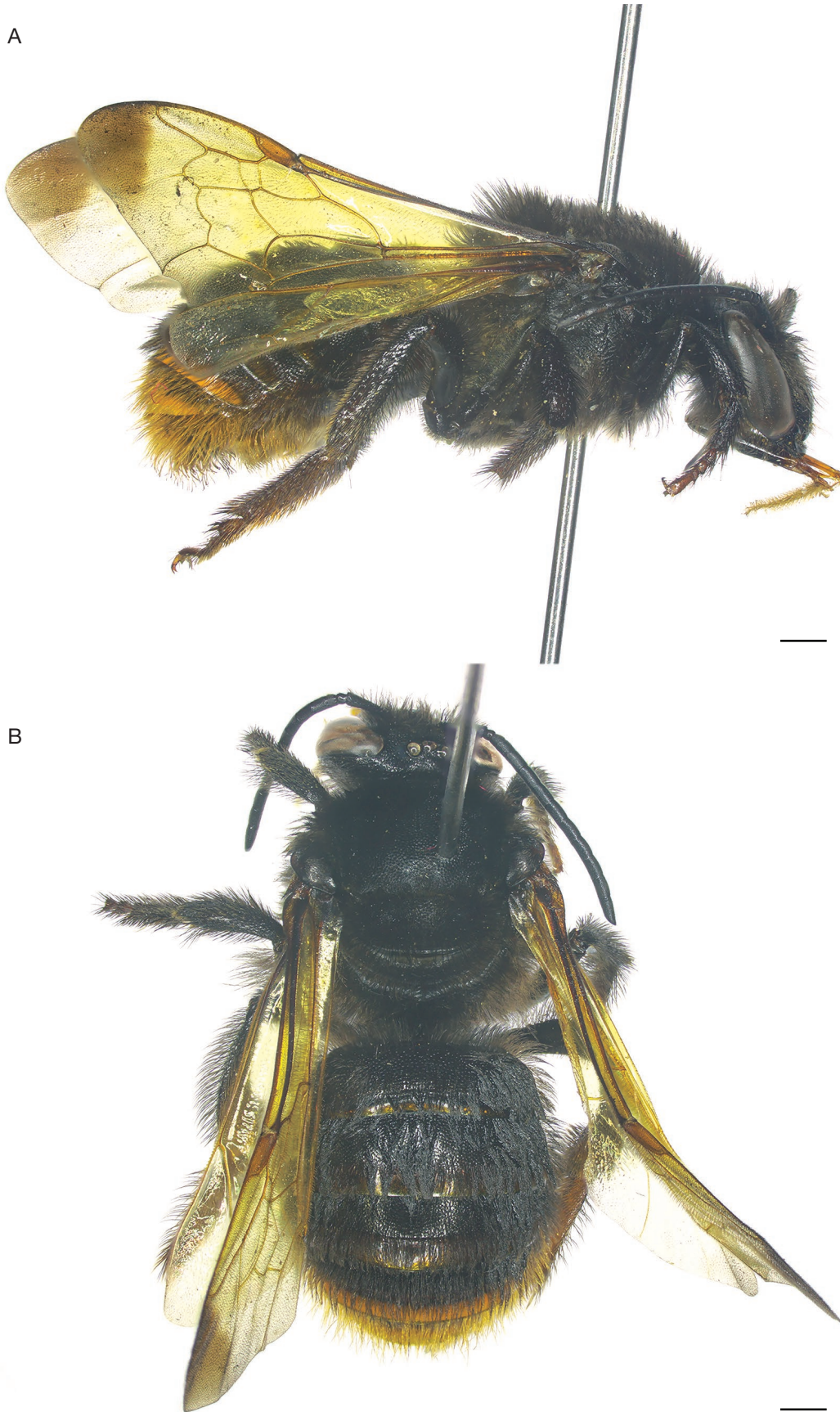


FIG. 8. — *Maculonomia (Maculonomia) rufomyteria* Engel, Tran, & A.D. Nguyen, n. sp., holotype male: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.





FIG. 9. — *Maculonomia (Maculonomia) rufomysteria* Engel, Tran, & AD Nguyen, n. sp., holotype male: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metatibia showing the basal plate; **D**, metasoma in dorsal view; **E**, metasomal T5-T7 in dorsal view. Scale bars: 1 mm.

given the rather prominent habitat differences: *M. rufocaudata* from mountains in the North of Vietnam and Tibet, versus the more isolated mountain of Bidoup National Park in Central Highlands Vietnam. Moreover, the pattern of wing coloration is quite divergent between the two. Additionally, the punctures of tergum II are smaller and separated by about a puncture width in *M. rufocaudata* versus the slightly larger punctures distinctly separated by much less than a puncture width in the male described here. Thus, pending the discovery of a male from Tibet or the mountainous populations of northern Vietnam that might indicate otherwise, we consider this Central Highlands male as distinct but obviously closely allied.

#### DESCRIPTION

##### Male

**Measurements.** Total body length 13.5 mm, forewing length 11.5 mm.

**Structure.** Head broader than long, approximately 1.2× as broad as long (Fig. 10A); compound eyes approximately 1.4× genal width; mandible simple; clypeus slightly convex laterally, approximately 1.3× as broad as long; supraclypeal area slightly convex (Fig. 9A). Mesosoma approximately 1.2×



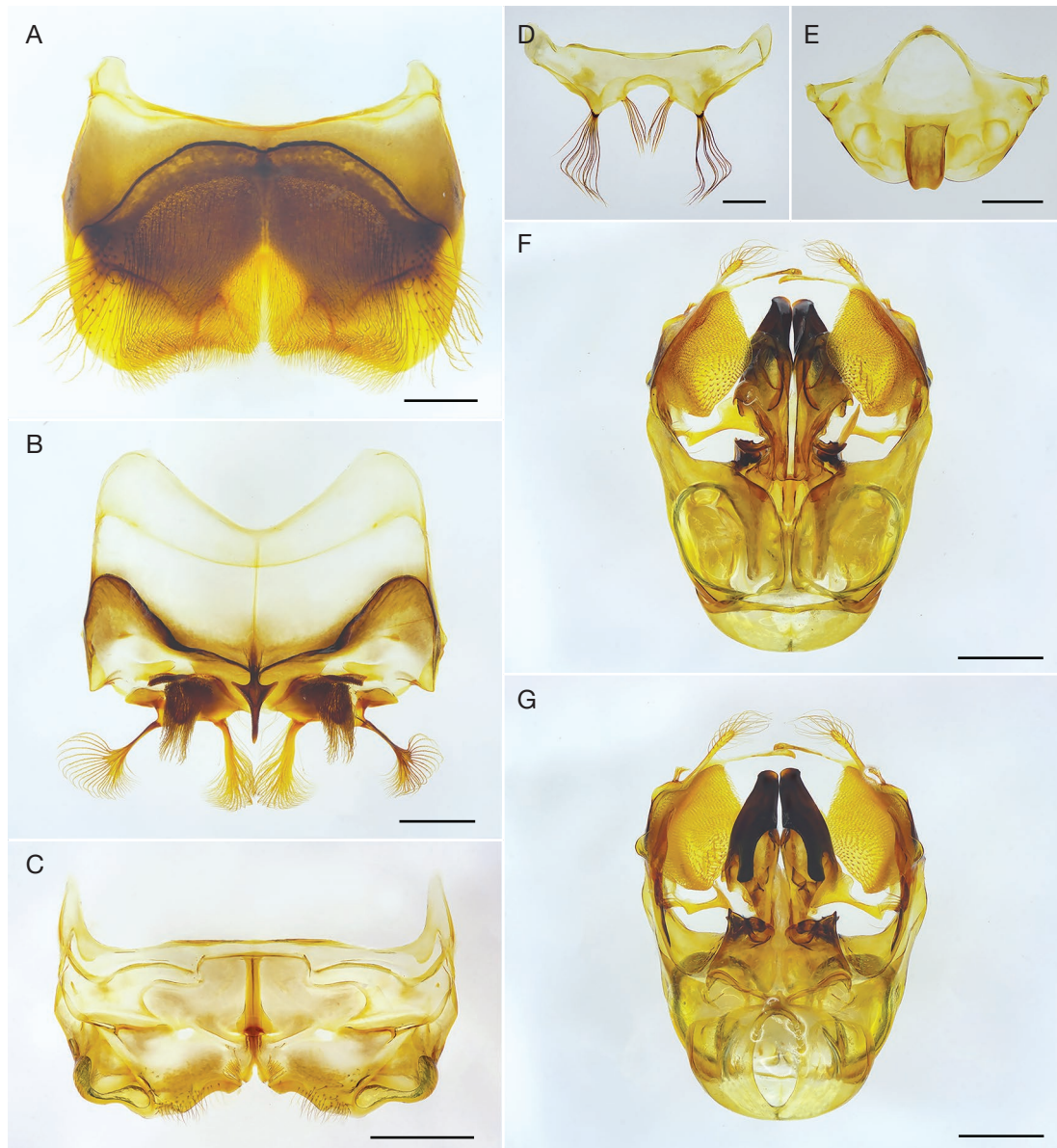


FIG. 10. — *Maculonomia (Maculonomia) rufomysteria* Engel, Tran, & AD Nguyen, n. sp., holotype male: **A**, S4 in frontal view; **B**, S5 in frontal view; **C**, S6 in frontal view; **D**, S7 in frontal view; **E**, S8 in frontal view; **F**, male genitalia in dorsal view; **G**, male genitalia in ventral view. Scale bars: A-C, F, G, 1 mm; D, E, 0.5 mm.

as long as broad; mesoscutellum with mediolongitudinal depression apically and strongly bigibbous (Fig. 9B). Forewing with three submarginal cells, first and third submarginal cells broader than second submarginal cell, 1m-cu entering near apex of second marginal cell (Fig. 8A). Metafemur slightly swollen (Fig. 9C); metatibia gradually expanding toward apex and inner surface with slightly raised knob at one-third length from base. Metasomal S4 with deeply, narrowly emarginate medioapically, margin relatively straight and sloping to middle on either side of emargination (Fig. 10A). S5 with an isosceles-triangle-shaped process medio-apically, and long thin processes on either side of midline bearing abundant setae (Fig. 10B). S6 apical margin emarginate medially, emargination shallow and comparatively narrow,

apical margin as in Figure 10C. S7 apical margin broadly concave with apicolateral lobes on either side of concavity bearing elongate setae, smaller lobe mesad apicolateral lobes and also with many long setae (Fig. 10D). S8 with broad spiculum, apical margin slightly concave with broad medial plate (Fig. 10E). Dorsal gonostylar lobe expanded, flattened, and lamelliform mesally, apex bifid, with ventral portion long, thin and mesally directed, ventral apical margin with smaller lamella, then narrowed toward apex and round apically with many long setae (Fig. 10F), with elbowed mesal process proximally with thin, flattened plate apically (Fig. 10F, G). Ventral gonostylar process narrow with rounded apex, inner margin curved, outer margin strongly wavy (Fig. 10G).



**Sculpturing.** Clypeus with dense punctures on basal half, sparser, and somewhat wrinkled punctures on remainder; punctures on supraclypeal area denser than those on clypeus; paraocular area with dense punctures on basal half and sparser punctures on remainder; scape with small, sparse punctures (Fig. 9A); frons with dense, nearly contiguous punctures; vertex with shiny, shallow punctures, punctures sparser than those on frons, except outer margin of median ocellus with shiny, smooth, impunctate area. Mesoscutum and mesoscutellum with dense (not contiguous) round punctures (Fig. 9B). Disc of metasomal T1 with round punctures separated by about a puncture width, apical marginal zone broad, with small, dense punctures basally but otherwise impunctate; punctures on discs of T2-T6 smaller and denser than those of T1, with apical margin zones impunctate except small, dense punctures in basal quarters to thirds (Fig. 9D).

**Color.** Body black except forewing yellow, then paler just beyond veins before forming a large, apical, darkly infumate spot (Fig. 8A). Metasomal T5-T6 with shiny, orange bands apically (Figs 8; 9D, E).

**Pubescence.** Clypeus and supraclypeal area with some blackish, plumose setae; paraocular area from base to lower torular tangent with long, dense, blackish, plumose setae; scape with some blackish setae; face above antennal torulus with tufts of long, yellowish-black to blackish, plumose setae (Fig. 9A). Mesoscutum covered with dense, soft, blackish, plumose setae; setae of mesoscutellum longer than those on mesoscutum (Fig. 9B). Propodeum with tuft of blackish, plumose setae laterally. Ventral surfaces of coxae, trochanters, pro- and mesofemora with tufts of soft, blackish, plumose setae. Outer surfaces of tibiae and basitarsi with bristle-like and blackish setae, inner surfaces of metatibia and metabasitarsus with bristle-like and ferruginous setae. Metasomal T1-T4 covered with dense, soft, blackish setae; T5-T6 with reddish-orange setae.

#### *Female*

Unknown.

#### NON-COLORED-BANDS GROUP (*APICALIS* GROUP)

##### *Maculonomia (Maculonomia) ferruginea*

Engel, Tran, & Nguyen, n. sp.

(Figs 11; 12)

[urn:lsid:zoobank.org:act:AF92DFD2-A54B-4005-9048-9D295E31DD10](https://doi.org/10.21203/rs.3.rs-10000000/v1)

**TYPE MATERIAL.** — **Holotype.** Vietnam • ♀; Lao Cai, Bat Xat, YTy, way to the red waterfall; 21°23'03.4"N, 105°42'42.6"E; alt. 1586 m; 9.V.2019; Nguyen L.T.P., Nguyen C.Q. leg.; IEBR.

**Paratypes.** Vietnam • 1 ♀; same data as holotype; AMNH • 1 ♀; Lao Cai, Sa Pa, Sa Pa town, Cat Cat village; 22°19'41"N, 103°49'54"E; alt. 1264 m; 27.X.2020; Tran N.T. leg. • 1 ♀; Lao Cai, Sa Pa, Sa Pa town, Cat Cat village; 12.IX.2023; Mai T.V. leg.; IEBR.

**ETYMOLOGY.** — The specific epithet is the Latin adjective *ferruginea*, which refers to the metasomal terga with conspicuously ferruginous setae.

**DIAGNOSIS.** — The female of this new species is similar to the female of *M. xiongjiuensis* Niu & Zhu, 2017 as they have a similar body form, with black integument and lacking enameled bands on the metasomal terga apically, the mesoscutum and mesoscutellum with black setae, and the forewing with an obvious dark infumation at the apical corner. Unlike *M. xiongjiuensis*, metasomal T1 has faint, sparse punctures (metasomal T1 with relatively coarser, denser punctures in *M. xiongjiuensis*); antennal F4-F12 reddish brown (antennal F4-F12 black in *M. xiongjiuensis*); discs of metasomal T1-T5 in lateral view with obvious ferruginous setae (discs of metasomal T1-T2 disc with yellowish-brown setae, T3-T5 with black setae in *M. xiongjiuensis*).

#### DESCRIPTION

##### *Female*

**Measurements.** Total body length 12-12.5 mm (n=4; holotype = 12.5 mm), forewing length 11- 11.5 mm (n=4; holotype = 11.5 mm).

**Structure.** Head broader than long, about 1.3× as broad as long (Fig. 12A); compound eyes about 1.4× genal width; mandible with short preapical tooth; supraclypeal area medially convex; clypeus convex laterally, approximately 1.5× as broad as long and apical margin straight (Fig. 12A). Mesosoma about 1.2× as long as broad; mesoscutellum round apically (Fig. 12B). Forewing with first and third submarginal cells broader than second submarginal cell, 1m-cu entering anterior apex of second marginal cell. Metabasitibial plate triangular, glabrous (Fig. 11A).

**Sculpturing.** Clypeus with shiny, coarse, wrinkled, dense (not contiguous) punctures; supraclypeal area with dense, contiguous punctures except punctures sparser medio-apically; scape with small, sparse punctures; paraocular area with dense, coarse, wrinkled punctures of unequal sizes (Fig. 12A); frons with dense (not contiguous), round punctures; vertex with dense, wrinkled punctures except outer margin of median ocellus with shiny, impunctate, smooth area. Mesoscutum with dense, small, round punctures of unequal sizes; mesoscutellum as on mesoscutum except punctures laterally and slightly so paramedially (Fig. 12B). Anterior-facing surface of metasomal T1 with small, faint, relatively dense punctures except sparser medio-apically; disc of T1 with small, faint, sparse punctures; apical marginal zone impunctate, faintly imbricate to smooth, with a few sparse punctures scattered at base a slightly more in horizontal rows laterally (Fig. 12D). Metasomal T2-T4 with faint, relatively sparse punctures except basally with small, round, denser punctures; marginal zones of metasomal T2-T4 with small, round punctures on basal two-thirds, remainder smooth and impunctate (Fig. 12D).

**Color.** Body black except mandible ferruginous medially (Fig. 12A). F4-F12 reddish brown ventrally (Fig. 12A). Forewing yellow to yellowish brown, often a bit lighter apically beyond the veins, obviously dark infumate at apical corner (Fig. 11). Metasomal S2-S5 ferruginous apically.

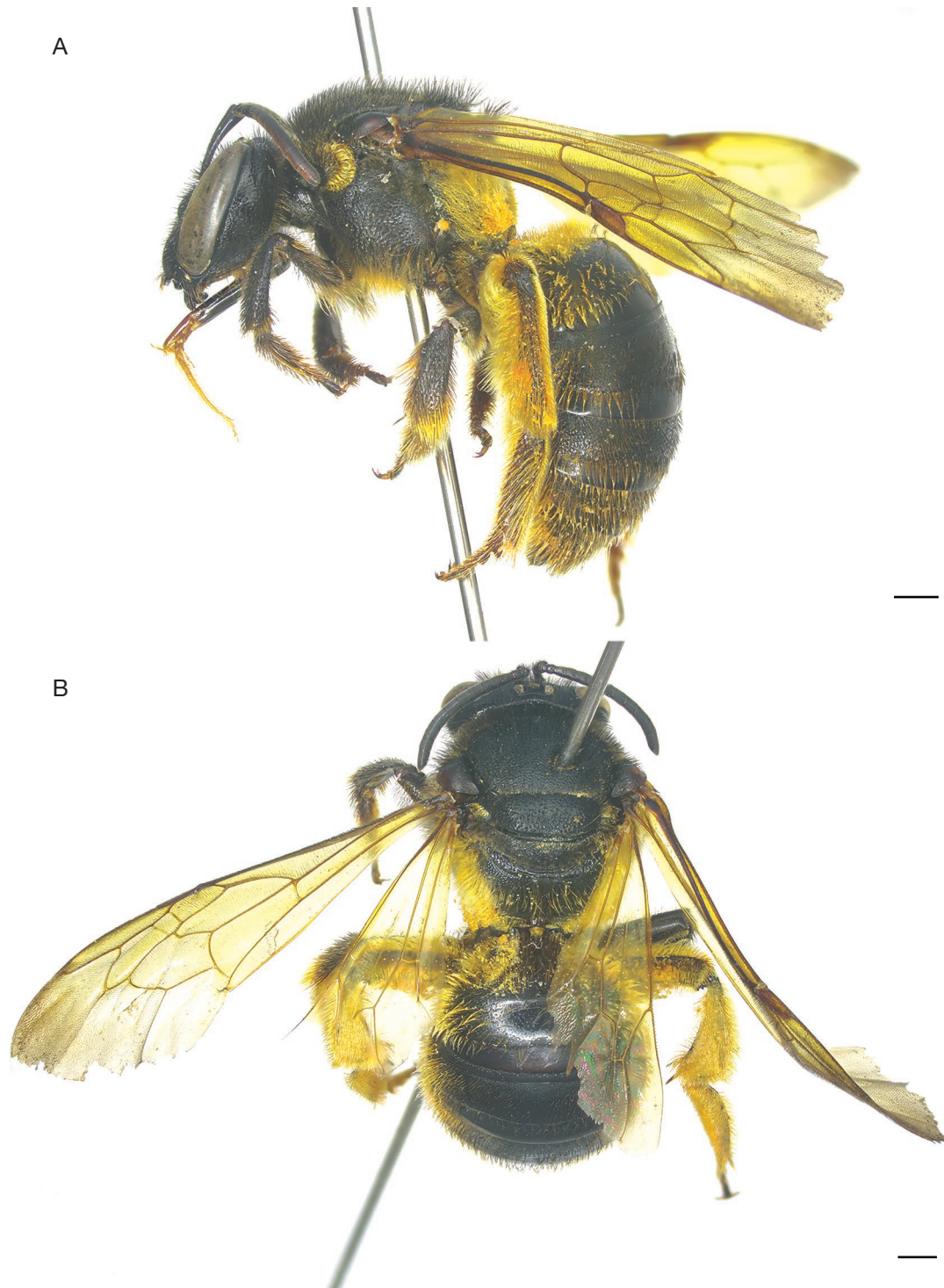


FIG. 11. — *Maculonomia (Maculonomia) ferruginea* Engel, Tran, & Nguyen, n. sp., holotype, female: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.

**Pubescence.** Face with short, sparse, blackish setae. Setae of gena softer and denser than those on face. Pronotum basally and outer margin of pronotal lobe with dense, yellowish setae. Mesosoma dorsally and laterally with dense, blackish setae, mesoscutellum covered with dense, blackish setae; mesosoma ventrally with ferruginous setae. Propodeum laterally with tuft of long, ferruginous setae. Metafemur with ferruginous

scopa. Outer surface of metatibia with dense, ferruginous, plumose setae. Outer surface of metabasitarsus with bristle-like, ferruginous setae. Inner surfaces of metatibia and metabasitarsus with short, bristle-like, bright-ferruginous setae. Anterior-facing surface of metasomal T1 and discs of T1-T5 in lateral view with obvious ferruginous setae. Metasomal S2-S5 with bright ferruginous setae apically.





FIG. 12. — *Maculonomia (Maculonomia) ferruginea* Engel, Tran, & Nguyen, n. sp., holotype, female: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metatibia showing the basal plate; **D**, metasoma in dorsal view. Scale bars: A, B, D, 1 mm; C, 0.5 mm.

### Male

Unknown.

### REMARKS

At first glance the new species can easily be confused if placed among specimens of *M. terminata* and indeed we encountered them while entering data for *M. terminata*. However, the species, although seemingly cryptic, has sufficient differentiating factors to validate it as a new species.

*Maculonomia (Maculonomia) terminata*  
(Smith, 1875)  
(Figs 13-17)

*Nomia terminata* Smith, 1875: 56.

*Maculonomia terminata* – Pauly 2009: 163.

MATERIAL EXAMINED. — Vietnam • 1 ♀, 1 ♂; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°16'65"N, 105°11'08"E; alt. 780 m; 12.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR • 1 ♀, 1 ♂; same data; AMNH • 1 ♀, 4 ♂; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°16'10"N, 105°31'09"E; alt. 827 m; 13.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR • 3 ♀; Bac Kan, Cho Don, Binh Trai, Nam Xuan Lac NR; 22°15'19.4"N, 105°30'43.7"E; alt. 650 m; 15.VIII.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR • 1 ♀; Vinh Phuc, Phuc Yen, Ngoc Thanh, Me Linh Biodiversity Station; 12.VI.2018; Pham P.H. leg.; IEBR • 1 ♀; Vinh Phuc, Phuc Yen, Ngoc Thanh, Me Linh Biodiversity Station; 22°47'36"N, 104°36'44"E; alt. 63 m; 1, 2.VII.2020; Tran N.T., Mai T.V. leg.; IEBR • 1 ♀; Vinh Phuc, Tam Dao, Tam Dao town; 26.V.2013; Dang H.T. • 2 ♂; Vinh Phuc, Tam Dao, Tam Dao town; 23°02'49.0"N, 104°59'35.6"E; alt. 882 m; 28.X.2016; Tran N.T., Nguyen M.P., Luong T.V. leg.; IEBR • 8 ♀; Lang Son, Huu Lung, Huu Lien, Lan Nghe, Huu Lien NR; 21°33'48.6"N, 106°24'36.4"E; alt. 289 m; 11.VI.2018; Nguyen L.T.P., Truong L.X., Tran N.T., Luong T.V., Nguyen H.T.T. leg.; IEBR • 4 ♀,





Fig. 13. — *Maculonomia (Maculonomia) terminata* (Smith, 1875), female: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.

1 ♂; Lang Son, Huu Lung, Huu Lien, Lan Chau, Huu Lien NR; [21°43'22.9"N, 106°22'40.2"E](#); alt. 370 m; 12.VI.2018; Nguyen L.T.P., Truong L.X., Tran N.T., Luong T.V., Nguyen H.T.T. leg.; IEBR • 3 ♀; Lang Son, Huu Lung, Huu Lien, Huu Lien NR; [21°43'29.1"N, 106°22'31.1"E](#); alt. 257 m; 13.VI.2018; Nguyen L.T.P., Truong L.X., Tran N.T., Luong T.V., Nguyen H.T.T. leg.; IEBR • 3 ♀; Lang Son, Huu Lung, Huu Lien NR; 12.VI.2019; Nguyen L.T.P., Dang H.T., Tran N.T., Bogdan leg.; IEBR • 1 ♀; Lang Son, Huu Lung, Huu Lien, La Ba; 13.VI.2019; Nguyen

L.T.P., Dang H.T., Tran N.T., Bogdan leg.; IEBR • 3 ♀; Lang Son, Huu Lung, Cai Kinh; [20°31'37.6"N, 105°00'24.2"E](#); alt. 86 m; 16.VII.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 1 ♂; Lang Son, Loc Binh, Mau Son; 1.XI.2014; Nguyen D.D., Nguyen L.T.P., Nguyen M.P. leg.; 1 ♀; Tuyen Quang; [21°46'50.8"N, 105°28'50.6"E](#); alt. 107 m; 2.IV.2018; Nguyen L.T.P. leg.; IEBR • 2 ♀; Tuyen Quang, Ham Yen, Phu Luu, Nam Nuong, Cham Chu NR; [22°12'39"N, 105°03'06"E](#); alt. 74 m; 29.X.2018; Nguyen L.T.P., Nguyen C.Q., Luong T.V.





FIG. 14. — *Maculonomia (Maculonomia) terminata* (Smith, 1875), female: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metatibia showing the basal plate; **D**, metasoma in dorsal view. Scale bars: 1 mm.

leg.; IEBR • 2 ♀, 1 ♂; Tuyen Quang, Ham Yen, Cao Duong, Yen Thuan; [22°17'41.9"N, 104°59'18.4"E](#); alt. 523 m; 15.V.2019; Nguyen L.T.P., Tran N.T. leg.; IEBR • 1 ♀; Cao Bang, Nguyen Binh, Phia Oac-Phia Den NP; [23°02'49"N, 104°59'35.6"E](#); alt. 1592 m; 5.XI.2016; Tran N.T., Nguyen M.P., Luong T.V. leg.; IEBR • 1 ♀; Cao Bang, Nguyen Binh, Phia Oac-Phia Den NP; [22°35'03"N, 105°51'40"E](#); alt. 944 m; 9.VI.2020; Truong L.X., Nguyen L.T.P., Nguyen C.Q., HD Nguyen, Tran N.T., Mai T.V., Tran U.T.P. leg.; IEBR • 5 ♀; Cao Bang, Nguyen Binh, Phia Oac-Phia Den NP; [22°35'28"N, 105°51'21"E](#); alt. 997 m; 2.VII.2022; Tran N.T. leg.; IEBR • 2 ♀; Cao Bang, Tra Linh, Thang Hen lake; [22°45'47.5"N, 106°17'35.7"E](#); alt. 619 m; 20.V.2023; Nguyen L.T.P., Tran N.T., Nguyen C.Q. leg.; IEBR • 3 ♂; Cao Bang, Tra Linh, Thang Hen lake; [22°45'46.7"N, 106°17'36.3"E](#); alt. 593 m; 18.IX.2023; Nguyen L.T.P., Nguyen A.D., Tran N.T. leg.; IEBR • 6 ♂; Cao Bang, Ha Lang, Dong Loan, near bat cave; [22°44'50.0"N, 106°44'44.4"E](#); alt. 405 m; 20.IX.2023; Nguyen L.T.P., Tran N.T. leg.; IEBR • 2 ♀, 2 ♂; Cao Bang, Ha Lang, Duc Quang; [22°43'11.8"N, 106°39'21.0"E](#); alt. 454 m; 21.IX.2023; Nguyen L.T.P., Nguyen A.D., Tran N.T. leg.; IEBR • 1 ♀; Yen Bai, Tan Phuong, Khe Bin; [22°15'51.3"N, 104°38'07"E](#); alt. 500 m; 7.IX.2017; Nguyen L.T.P., Nguyen C.Q., Vu T.T.T. leg.; IEBR • 1 ♀; Yen Bai, Van Yen, Na Hau; [21°47'1"N, 104°47'48.1"E](#); alt. 500 m; 9.IX.2017; Nguyen L.T.P., Truong L.X., Vu T.T.T.

leg.; IEBR • 1 ♂; Ha Giang, Bac Me, Lung Cang; [22°43'17.1"N, 105°11'43.8"E](#); alt. 219 m; 20.VII.2019; Nguyen C.Q., Dang HT, Mai T.V. leg.; IEBR • 1 ♀; Phu Tho, Yen Lap, Dong Thinh; [12°19'27"N, 105°03'35"E](#); 1.XII.2015; Nguyen L.T.P., Truong L.X., Nguyen D.D., Tran N.T. leg.; IEBR • 3 ♂; Ninh Binh, Nho Quan, Cuc Phuong NP, Botanical gardens; 8.VIII.2019; Nguyen L.T.P., Nguyen C.Q. leg.; IEBR • 4 ♂; Ninh Binh, Nho Quan, Cuc Phuong NP; 21.VIII.2023; Nguyen L.T.P., Nguyen A.D., Tran N.T., Engel M.S. leg.; IEBR • 4 ♂; Ninh Binh, Nho Quan, Cuc Phuong NP, way to Cho Chi; 22.VIII.2023; Nguyen L.T.P., Nguyen A.D., Tran N.T., Engel M.S. leg.; IEBR • 1 ♀; Hanoi, Ba Vi, Ba Trai; 9.VII.2017; Nguyen L.T.P., Luong T.V. leg.; IEBR • 1 ♂; Thanh Hoa, Thuong Xuan, Van Xuan, Hon Cao, Xuan Lien NR; [19°51'41.2"N, 105°14'06.6"E](#); alt. 175 m; 27.VIII.2012; Nguyen L.T.P. leg.; IEBR • 1 ♀; Nghe An, Que Phong, Thong Thu; [19°47'24.6"N, 104°59'45.6"E](#); alt. 300 m; 21.IV.2016; Nguyen L.T.P., Truong L.X., Nguyen D.D. leg.; IEBR • 4 ♀; Nghe An, Con Cuong, Thac Kem, Pu Mat NP; [22°47'36"N, 104°36'44"E](#); alt. 280 m; 30.VIII.2020; Tran N.T. leg.; IEBR • 1 ♂; Thua Thien Hue, A Luoi, A Roang; alt. >700 m; 21.VII.2004; ISD leg.; IEBR • 1 ♀; Quang Nam, Phuoc Son, Phuoc Xuan; alt. 300 m; 31.VII.2004; ISD leg.; IEBR • 5 ♀; Kon Tum, Kon Plong, Dak Long, Pa Sy waterfall; [14°36'02.6"N, 108°15'24.2"E](#); alt. 1104 m; 30.IV.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 4 ♀; Gia Lai,





FIG. 15. — *Maculonomia (Maculonomia) terminata* (Smith, 1875), male: **A**, lateral habitus; **B**, dorsal habitus. Scale bars: 1 mm.



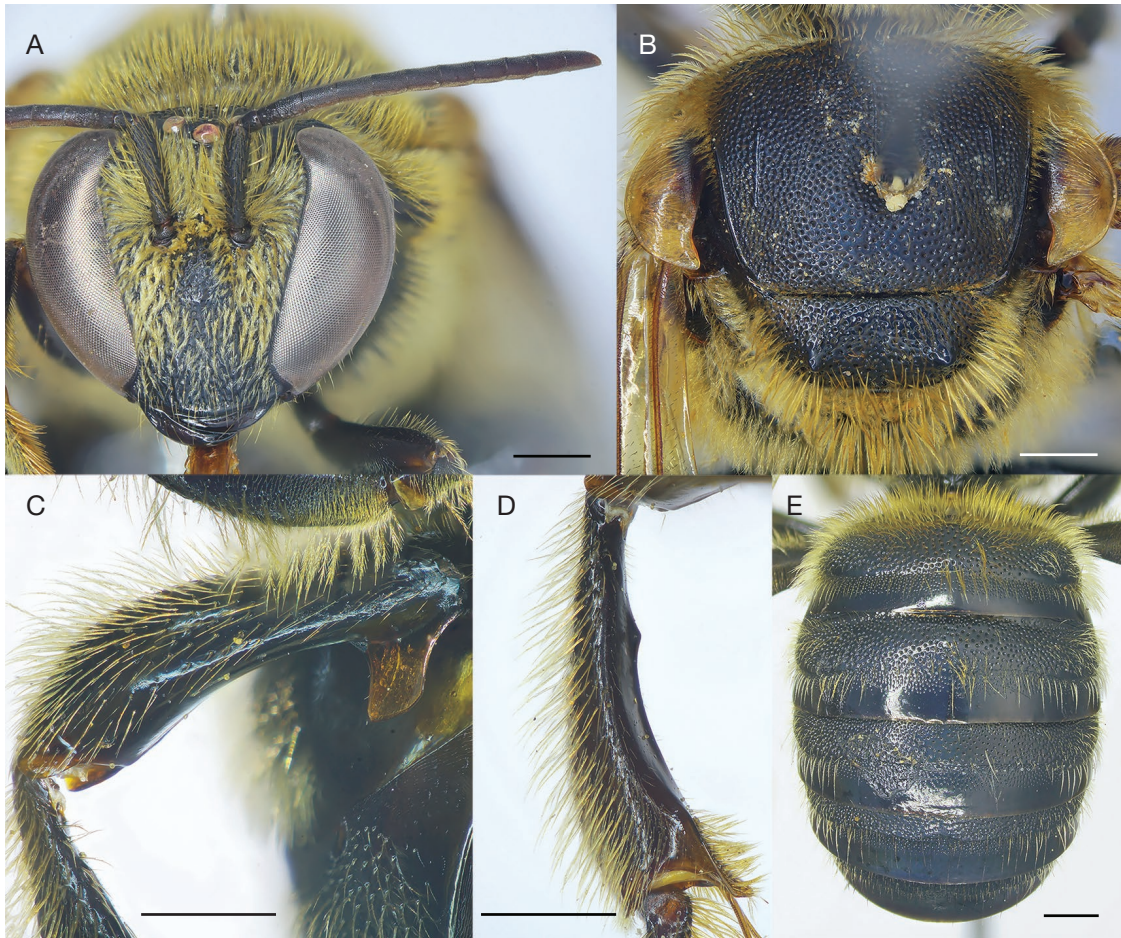


FIG. 16. — *Maculonomia (Maculonomia) terminata* (Smith, 1875), male: **A**, facial view; **B**, mesosoma in dorsal view; **C**, metafemur in lateral view showing square lamella ventro-basally; **D**, metatibia in profile view showing spines one-third basally; **E**, metasoma in dorsal view. Scale bars: 1 mm.

KBang, Son Lang, Kon Chu Rang NR, near Dam Ranger Station;  $14^{\circ}28'57.9''\text{N}$ ,  $108^{\circ}30'59.8''\text{E}$ ; alt. 860 m; 27.IV.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 1 ♂; Gia Lai, KBang, Son Lang, Kon Chu Rang NR; 19.IX.2017; Nguyen L.T.P. *et al.* leg.; IEBR • 2 ♀; Gia Lai, KBang, Son Lang, Kon Chu Rang NR;  $14^{\circ}31'12.7''\text{N}$ ,  $108^{\circ}28'11.3''\text{E}$ ; alt. 896 m; 4.V.2018; Nguyen L.T.P., Truong L.X., Luong T.V. leg.; IEBR • 5 ♀; Gia Lai, KBang, Son Lang, Kon Chu Rang NR;  $14^{\circ}43'48.9''\text{N}$ ,  $108^{\circ}29'22.2''\text{E}$ ; alt. 866 m; 5.V.2018; Nguyen L.T.P., Truong L.X., Luong T.V. leg.; IEBR • 1 ♀; Gia Lai, KBang, Son Lang, Kon Chu Rang NR;  $14^{\circ}31'10.4''\text{N}$ ,  $108^{\circ}36'24.9''\text{E}$ ; 6.IX.2018; Luong T.V., Truong L.X. leg.; IEBR • 5 ♀; Gia Lai, KBang, Kon Chu Rang NR; 10.IX.2018; Luong T.V. leg.; IEBR • 2 ♂; Gia Lai, KBang, Son Lang, Kon Chu Rang NR, way to Koncle; 23.IX.2018; Nguyen L.T.P., Nguyen C.Q., Vu T.T.T., Luong T.V. leg.; IEBR • 1 ♀; Gia Lai, KBang, Dak Rong;  $14^{\circ}28'55.7''\text{N}$ ,  $108^{\circ}29'57.6''\text{E}$ ; alt. 1140 m; 28.IV.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 1 ♀; Gia Lai, KBang, Son Lang, Ha Lam; 29.IV.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 1 ♀; Dak Lak, Krong Bong, Krong Kmar, Chu Yang Sin NP;  $12^{\circ}26'0.07''\text{N}$ ,  $108^{\circ}22'22.9''\text{E}$ ; alt. 822 m; 3.V.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 6 ♀; Dak Lak, Krong Bong, Krong Kmar, Chu Yang Sin NP;  $12^{\circ}25'02.8''\text{N}$ ,  $108^{\circ}22'30.8''\text{E}$ ; alt. 1081 m; 4.V.2016; Nguyen L.T.P., Nguyen D.D., Tran N.T. leg.; IEBR • 3 ♀; Dak Lak, Krong Bong, Krong Kmar, Chu Yang Sin NP;  $12^{\circ}24'33.8''\text{N}$ ,  $108^{\circ}21'08.8''\text{E}$ ; alt. 819 m; 8.V.2018; Nguyen L.T.P., Truong L.X., Luong T.V. leg.; IEBR.

**DIAGNOSIS.** — This species is most distinctive for its characteristic squarish lamella projecting from the ventral base of the male metafemur. In addition, the body is largely covered with fulvous setae; the head and mesosoma are densely punctured; the flagellum is fulvous ventrally except the basal three flagellomeres; the tegula is largely rufo-testaceous; the forewing membrane has a dark-infusate mark extending from the marginal cell apex; the metasoma is black, the terga lack enameled bands, and the terga are largely smooth and shining amid coarse discal punctures and small, fine punctures on basal halves of broad marginal zones (apical halves impunctate) except T1 of female with punctures noticeably weaker and sparser. The Vietnamese populations all belong to the subspecies *M. terminata terminata* [*M. terminata megaera* (Gribodo, 1894) is found in Singapore and Indonesia].

#### REMARKS

*Maculonomia terminata* is exceptionally common in the northern and central highlands of Vietnam. This species is found across a broad elevational zone, ranging from a few dozen meters to 1600 meters.

*Spanionomia* Engel & Tran, n. subgen.

**TYPE SPECIES.** — *Nomia elegans* Smith, 1857.



FIG. 17. — *Maculonomia (Maculonomia) terminata* (Smith, 1875), male: **A**, S4 in frontal view; **B**, S5 in frontal view; **C**, S6 in frontal view; **D**, S7 in frontal view; **E**, S8 in frontal view; **F**, male genitalia in dorsal view; **G**, male genitalia in ventral view. Scale bars: A-C, F, G, 1 mm; D, E, 0.5 mm.

**ETYMOLOGY.** — The new subgeneric name is a combination of the Ancient Greek adjective *σπάνιος* (*spánios*), meaning, “sparse” or “rare”, and the generic name *Nomia* Latreille. The gender of the name is feminine.

**DIAGNOSIS.** — This subgenus is quite distinctive from all other *Maculonomia* for the comparatively sparse setation of the metatibial scopa and the light coloration of the legs, which are also rather thin in the male, and with scarcely any apical lobe present on the metatibia (versus the well-developed lobes of *Maculonomia* s.str.). Aside from the type species the subgenus also includes *Maculonomia concinna* Smith, 1860.

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