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New Species of *Philophylla* Rondani from Myanmar in Comparison with Closely Related Sympatric Species, *Philophylla nigroscutellata* (Hering) (Diptera: Tephritidae)

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***Philophylla heringi*, sp. nov., and *P. nigroscutellata* (Hering) are described, illustrated, and distinguished from related species. These two species, both of which were collected from Kambaiti, Myanmar, closely resemble each other in external appearance, but show many differences in the female postabdominal structures. In addition, previous identification of *P. nigroscutellata* and *P. bisecta* Hardy and Adachi are elucidated based on a comparison of the holotypes of both species.**

Hering (1938) described a number of new tephritid species based on data from the Swedish Expedition to Myanmar in 1934. Due to the generous help of Dr. Per Inge Persson (Swedish Museum of Natural History), many specimens studied by Hering (1938) were re-examined in this study, including the type series of *Philophylla nigroscutellata* (originally as *Neanomoea*). The original description provides only holotype information, but there are three additional specimens labelled as paratype by Hering.

It is not known whether these three specimens are labelled as such at the time of their original description, but two of these specimens appeared to belong to a new species closely resembling *P. nigroscutellata*. At first glance, these two species look identical, but there are many differences in the female postabdominal structures in addition to some subtle differences in body coloration, chaetotaxy, and wing pattern. Therefore, detailed descriptions and illustrations are given to elucidate the differences in these sympatrically occurring species.

The terminology and morphological interpretation used in this paper follow McAlpine (1981) and Han et al. (1993). Acronyms of depositories are as follows: NRS, Swedish Museum of Natural History, Section for Entomology, S-104 05, Stockholm, Sweden; BMNH, The Natural History Museum, Department of Entomology, Cromwell Road, London SW7 5BD, England, UK; USNM, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560, USA.

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Descriptions

Philophylla heringi, sp. nov.
(Fig. 1)

Description: Body coloration predominantly dark brown with some yellow brown areas; setae and setulae dark brown; wing length 6.49-6.80 mm. Head (Fig. 1A) entirely pale yellow with frontal-head ratio 0.34-0.35, eye ratio 0.67-0.72, genal-eye ratio 0.10-0.14; inner vertical seta about 0.8x as long as longest diameter of eye; outer vertical seta 0.6x as long as inner vertical seta; postocellar seta about 0.6-0.7x as long as inner vertical seta; paravertical seta slightly shorter than postocellar seta; ocellar triangle dark brown; ocellar seta 2.8x as long as ocellar triangle; frons yellow brown with sparse, fine, dark brown setulae; 2 orbital setae; 3 frontal setae; antennae yellow brown, closely situated with each other; scape and pedicel with dark brown setulae; flagellomere 1 and arista missing in both available specimens; face pale yellow; parafacial narrow; facial ridge densely with fine dark brown setulae; genal seta strong, dark brown; postgena strongly swollen with dark brown setulae; postgenal seta distinct; postocular setae extended 0.6x distance from upper eye margin to lower eye margin; occiput flat, yellow brown with yellow brown supracervical setae; mouthparts short; maxillary palp with dark brown setulae. Thorax almost entirely dark brown with dark brown setae and setulae; postpronotal lobe dark brown; scutum dark brown with moderate pruinosity; 2 pairs of distinct scapular setae; dorsocentral seta slightly lower than level of intra-alar seta; scutellum dorsally flat, dark brown except small yellow brown area on anterolateral corners; basal scutellar

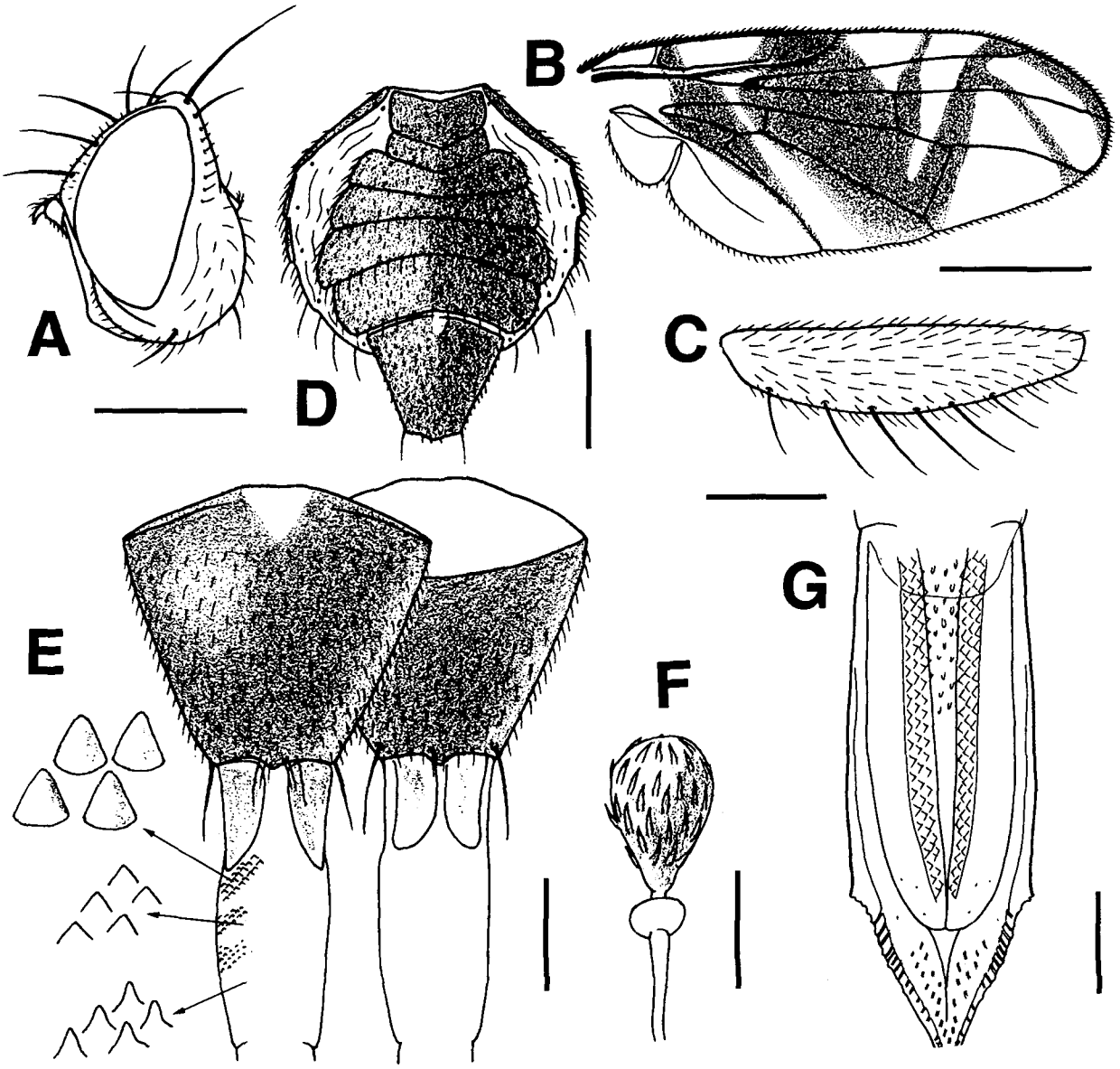

Fig. 1. *Philophylla heringi*, sp. nov., holotype female. A, Head, lateral view. B, Wing. C, Right front femur, posterior view. D, Abdomen, ventral view. E, Ventral and dorsal view of oviscape and eversible membrane (insets show detail, about 10x of original figure). F, Spermatheca. G, Aculeus, ventral view. Scale bars=0.1 mm (F), 0.2 mm (G), 0.5 mm (C, E), 1 mm (A, D), and 2 mm (B).

setae 2.5x as long as scutellum; apical setae 1.8x as long as scutellum, parallel each other; thoracic pleura dark brown; proepisternum with long, dark brown setulae; anepisternum with 2 strong setae in similar length; katatergite, anatergite, mediotergite dark brown. Legs with coxae, trochanters, midfemur, hind femur dark brown; fore femur anteriorly yellow brown and posteriorly dark brown; fore tibia and all tarsi yellow brown; midtibia yellow brown with basal 1/4 dark brown; hindtibia yellow brown with basal 1/3 dark brown; fore femur with 7 posteroventral setae; midtibial spur 0.3x as long as tibial width. Wing (Fig. 1B) hyaline with dark brown pattern; wing-thorax ratio 2.29-2.35, vein R4+5 ratio 1.38-1.43, vein M ratio 0.42-0.43, subcostal-costal ratio about 0.51-0.57; R4+5 with 9 tiny setulae between node and r-m, bare beyond r-m; halter dark brown. Female preabdomen (Fig. 1D) dark brown, as long as wide; oviscape (Fig. 1E) 0.4x as long as preabdomen, dark brown with dark brown setulae, dorsally with a pair of outstanding marginal setae, medially with 4 small dorsal marginal setae and 4 small ventral marginal setae; eversible membrane (Fig. 1E) with taeniae about 2/5 as long as total length of membrane, medially with strong triangular teeth, posteriorly with tiny triangular teeth; aculeus wide, parallel-sided with slight lateral notches at apical 1/3, tapered with slight

lateral serration subapically (Fig. 1G); 3 inverted pyriform spermathecae yellow brown with numerous upright spinules (Fig. 1F); apical portion of spermathecal duct abruptly swollen; eggs narrowly elliptic in outline, micropylar end with tiny knoblike structure bearing micropyle. Male unknown.

Type material: Holotype ♀, MYANMAR: Kachin, Kambaiti 2000 m, 9VI1934, Malaise (NRS). Paratype ♀, same locality as holotype, 29V1934, Malaise (NRS). Both specimens were labelled as paratypes of *P. nigroscutellata* (see 'Type material' of *P. nigroscutellata*).

Etymology: This species is named after Erich M. Hering, who contributed a great deal to tephritid taxonomy.

Remarks: This species closely resembles *P. nigroscutellata* (Hering), especially by sharing nearly identical wing patterns (Figs. 1B vs. 2B) and predominant dark thorax and abdomen, by which they are distinguished from their congeners. *P. heringi,* sp. nov. is easily distinguished from *P. nigroscutellata* in having a distinctly longer posteroventral setae on the fore femur (Figs. 1C vs. 2C) and almost completely dark brown (instead of yellow brown) postpronotal lobe. They can be further differentiated by their aculeus structures (Figs. 1G vs. 2G). There are also two similar species, *P. chuanensis* (Wang) and *P. incerta* (Chen), both of which are from Sichuan Province, China. They can be readily distinguished from *P. heringi* and *P. nigroscutellata* by having discal and subapical wing bands almost completely separated. Based on the original descriptions, significant differences between *P. chuanensis* and *P. incerta* were not noted. It is necessary to compare their type specimens to confirm their conspecifity.

Philophylla nigroscutellata (Hering)
(Fig. 2)

Neanomoea nigroscutellata Hering 1938: 18.
Myoleja nigroscutellata: Hardy 1977: 111; Hardy 1987: 329.
Philophylla nigroscutellata: Han 1992: 83; Hancock & Drew 1994: 27 ; Wang 1996: 193.
Hendelina bisecta: Hardy 1987: 329 (erroneous synonymization).

Description: Body coloration predominantly dark brown with some yellow brown areas; setae and setulae dark brown; wing length 7.94-8.06 mm. Head (Fig. 2A) entirely yellow brown with frontal-head ratio 0.33, eye ratio 0.67-0.68, genal-eye ratio 0.13; inner vertical seta about 0.8x as long as longest diameter of eye; outer vertical seta 0.6-0.7x as long as inner vertical seta; postocellar seta about 0.4x as long as inner vertical seta; paravertical seta slightly shorter than postocellar seta; ocellar triangle dark brown; ocellar seta 3x as long as ocellar triangle; frons yellow brown with sparse, fine, dark brown setulae; 2 orbital setae; 3 frontal setae; antennae yellow brown, closely situated each other; scape and pedicel with dark brown setulae; flagellomere 1 and arista missing in both available specimens; arista short pubescent; face yellow brown; parafacial 0.4x as wide as flagellomere 1; facial ridge densely with fine dark brown setulae; genal seta strong, dark brown; postgena strongly swollen with dark brown setulae; postgenal seta distinct; postocular setae extended 0.5x distance from upper eye margin to lower eye margin; occiput slightly concave, yellow brown with yellow brown supracervical setae; mouthparts short; maxillary palp with dark brown setulae. Thorax predominantly dark brown with dark brown setae and setulae; postpronotal lobe yellow brown; scutum dark brown except small yellow brown posterolateral corners, with morderate pruinosity; 2 pairs of distinct scapular setae; dorsocentral seta slightly lower than level of intra-alar seta; scutellum flat dorsally, dark brown except small yellow brown area on anterolateral corners; basal scutellar setae 2.x as long as scutellum; apical setae 1.5x as long as scutellum, parallel to each other; proepisternum yellow brown with long, dark brown setulae; anepisternum dark brown with 2 strong setae of similar length; katepisternum dark brown; Anepimeron dark brown except yellowish margin; katepimeron yellow brown; meron brown; katatergite, anatergite, mediotergite dark brown. Fore leg yellow brown except dark brown femur; fore femur with 10 short and stout posteroventral setae (Fig. 2C); midleg yellow brown except femur and basal 1/4 of tibia dark brown; midtibial spur 1.2x as long as tibial width; hindleg dark brown except apical 1/4 of tibia and entire tarsi yellow brown. Wing (Fig. 2B) hyaline with dark brown pattern; wing-thorax ratio 2.33-2.38, vein R4+5 ratio 1.40-1.47, vein M ratio 0.44-0.52, subcostal-costal ratio about 0.52; R4+5 with 9 tiny setulae between node and r-m, bare beyond r-m; halter dark brown. Female preabdomen (Fig. 2E) dark brown, slightly longer than wide; oviscape (Fig. 2D) 0.4x as long as preabdomen, dark brown with dark brown setulae, dorsally with a pair of outstanding marginal setae, medially with 4 small dorsal marginal setae and 4 small ventral marginal setae; eversible membrane (Fig. 2D) with taeniae about 2/5 as long as total length of membrane, medially with strong triangular teeth, posteriorly with tiny triangular teeth; aculeus wide, parallel-sided with strong lateral notch at apical 1/3, tapered without any serration (Fig. 2G); 3 inverted pyriform spermathecae yellow brown with lateral spinules (Fig. 2F); apical portion of spermathecal duct abruptly swollen; eggs narrowly elliptic in outline, micropylar end with tiny knoblike structure bearing micropyle. Male unknown.

Type material: Holotype ♀, MYANMAR: Kachin, Kambaiti 2000 m, 15V1934, Malaise (NRS). Paratype ♀, same data as the holotype (BMNH). There are also

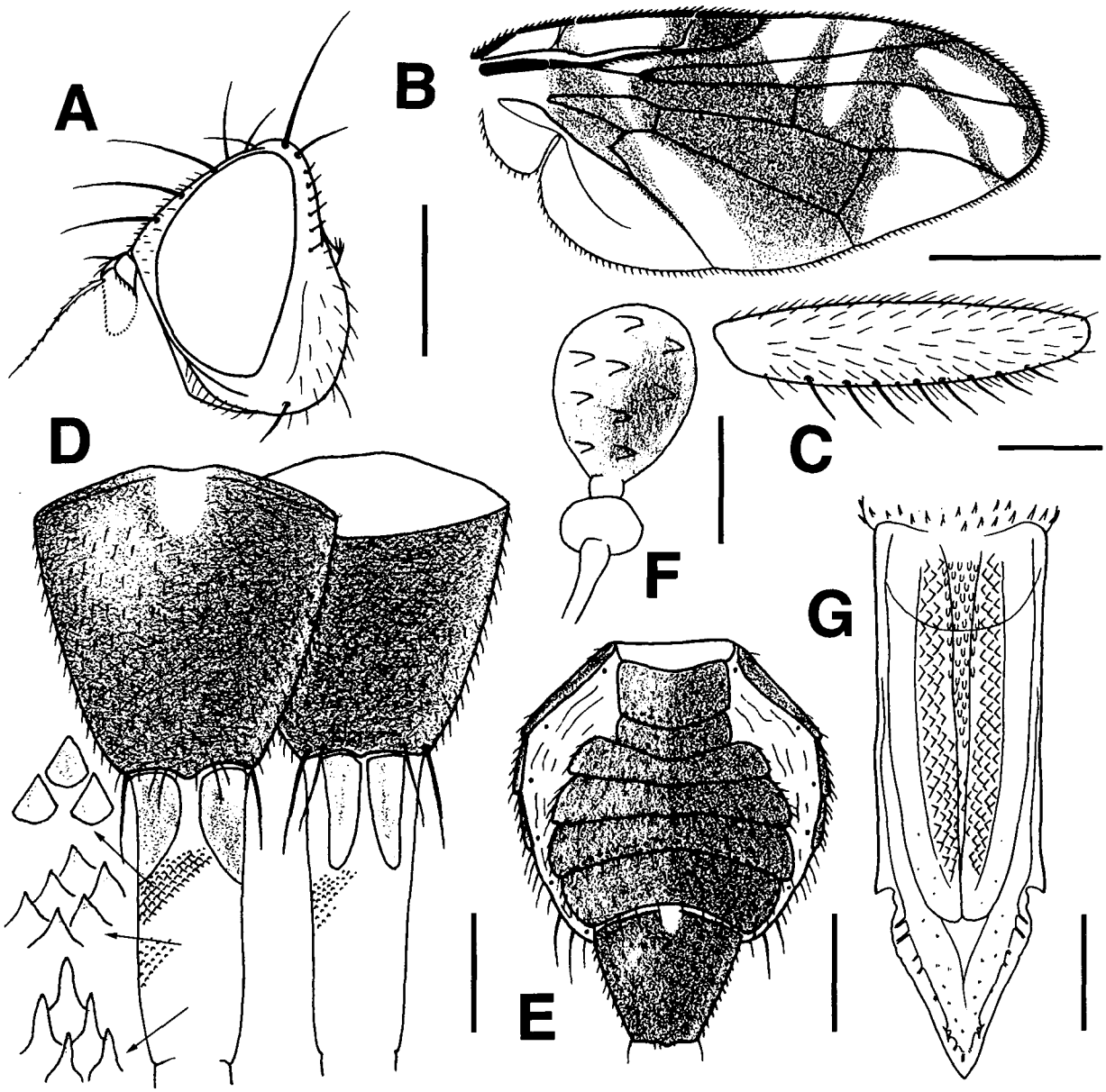

Fig. 2. *Philophylla nigroscutellata* (Hering), holotype female. A, Head, lateral view. B, Wing. C, Right front femur, posterior view. D, Ventral and dorsal view of oviscape and eversible membrane (insets show detail, about 10x the original figure). E, Abdomen, ventral view. F, Spermatheca. G. Aculeus, ventral view. Scale bars=0.1 mm (F), 0.2 mm (G), 0.5 mm (C, E), 1 mm (A, F), and 2 mm (B).

two additional specimens in NRS with paratype labels, but they are actually *P. heringi*, sp. nov. (see preceeding description).

Distribution: The type locality in Myanmar is the only reliable distribution range for this species. See the following remarks.

Remarks: This species can be readily distinguished from other *Philophylla* species by the short and strong postero-ventral setae on fore femur (Fig. 2C). See also "Remarks" of *P. heringi*, sp. nov.

In addition to the type locality, there are published records of this species from Indonesia and Malaysia (Hardy, 1987), and China (Wang, 1989). However, Hardy's records are based on the misidentification of *P. bisecta* Hardy & Adachi as evident from his erroneous synonymization of this species with *P. nigroscutellata*. *P. bisecta* have a numerous apical serrations on the aculeus (Fig. 8d of Hardy & Adachi, 1956; I also examined the holotype of *P. bisecta* in USNM) while *P. nigroscutellata* does not (Fig. 2G). Furthermore, the record of Wang (1989) in China needs to be confirmed in the future, because the original description alone does not provide adequate information for accurate identification and Wang apparently did not com-

pare the holotype of *P. nigroscutellata*.

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