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The bee genus *Ischnomelissa* in Peru, with a key to the species (Hymenoptera: Halictidae)

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Abstract. A new species of the rare augochlorine bee genus *Ischnomelissa* Engel (Augochlorini: Augochlorina) is described and figured from cloud forests of the Abra Patricia Reserve, Amazonas, Peru. ***Ischnomelissa lignopteryx*** Engel, new species, is distinguished from its congeners by the darkly infumate wing membranes, dark green and non-shining integument of the head and mesosoma, dark brown legs and metasoma (except basal patch of amber on the first metasomal tergum), and integumental sculpturing. A revised key to the species of the genus is provided.

INTRODUCTION

The bee genus *Ischnomelissa* Engel is a rarely encountered group of Andean augochlorine bees (Engel, 1997, 2000; Brooks & Engel, 1998; Engel & Brooks, 2002). Presently six species are included in *Ischnomelissa* (Engel, 1997, 2002, 2010; Engel & Brooks, 1998) – *Ischnomelissa zonata* Engel (type species), *I. rasmusseni* Engel & Brooks, *I. cyanea* Brooks & Engel, *I. rhina* Brooks & Engel, *I. lescheni* Brooks & Engel, *I. ecuadoriana* Brooks & Engel – all from Ecuador and Colombia. Distinguishing features of the genus have been elaborated by Engel (1997, 2000) and Brooks & Engel (1998). Nothing is known of the biology of species in the genus and most individuals have been recovered from flight intercept or malaise traps at elevations above 1000 m, and frequently above 2100 m (*vide* table in Engel, 2010).

Herein the genus is recorded from northern Peru for the first time and based on a distinctive new species. The discovery of a new species affords the opportunity to compose a revised key to the species in the genus, supplanting the one provided by Engel & Brooks (2002).

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MATERIAL AND METHODS

Morphological terminology used herein follows that of Engel (2000, 2001, 2009) and Michener (2007), with the format for the description generally adapted from Engel & Brooks (2002), Engel (2010), and Engel & Rasmussen (2013). Photomicrographs were taken using a Canon 7D digital camera attached to an Infinity K-2 long-distance microscopic lens, and measurements were done with an ocular micrometer and Olympus SZX-12 stereomicroscope. The holotype is deposited in the Museo de Historia Natural, Universidad Nacional Mayor de San Marcos, Lima, Peru (MUSM).

SYSTEMATICS

Genus *Ischnomelissa* Engel

Ischnomelissa lignopteryx Engel, new species

ZooBank: urn:lsid:zoobank.org:act:269083A3-1A3A-48DD-8664-0689446437B7

(Figs. 1–4)

DIAGNOSIS: The new species can be quickly recognized by the combination of a dark green head and mesosoma which have scattered coppery highlights, strongly infumate wing membranes, and an almost entirely dark brown metasoma (only amber colored at base and laterally on the first metasomal tergum) lacking tomentose bands of any kind.

DESCRIPTION: ♀: Total body length 9.0 mm; forewing length 8.0 mm. Head length 2.59 mm, width 1.81 mm. Clypeus beginning slightly above lower tangent of compound eyes (Fig. 2). Malar space slightly longer than basal mandibular width (malar length 0.31 mm; basal mandibular width 0.28 mm) (Figs. 2, 3). Upper interorbital distance 0.91 mm; lower interorbital distance 0.75 mm. Intertegular distance 1.56 mm; mesoscutum with medial line deeply impressed. Basal vein distad cu-a by two times vein width; 1rs-m distad 1m-cu by two times vein width; 2rs-m distad 2m-cu by six times vein width, 2rs-m relatively straight; first submarginal cell longer than combined lengths of second and third submarginal cells; second submarginal cell weakly narrowed anteriorly, anterior border of second submarginal cell along Rs only slightly shorter than that of third submarginal cell along same vein; posterior border of third submarginal cell about two times longer than anterior border. Hind wing with distal hamuli arranged 2-1-2. Inner metatibial spur with 12 branches, not including apical portion of rachis (Fig. 4).

Clypeus and supraclypeal area imbricate with weak, coarse punctures separated by 1–2 times a puncture width; face with small, contiguous or nearly contiguous punctures; punctures of face blending to imbricate integument in ocellocular area and with punctures more separated, punctures separated by 0.5–1 times a puncture width; vertex imbricate with punctures faint and separated by 1–2 times a puncture width; gena strongly imbricate with faint punctures separated by 2–3.5 times a puncture width; postgena strongly imbricate and impunctate. Pronotum imbricate with minute, scattered punctures; mesoscutum strongly imbricate with weak punctures separated by 1–3 times a puncture width, punctures smaller, more well defined, and denser laterally and posteriorly; mesoscutellum imbricate with small punctures separated by less than a puncture width; metanotum imbricate with faint, coarse punctures separated by a puncture width or less. Preëpisternum and mesepisternum strongly imbricate

Figures 1–4. Photomicrographs of holotype female of *Ischnomelissa lignopteryx*, new species, from Abra Patricia Reserve, Peru. **1.** Lateral habitus. **2.** Facial view. **3.** Lateral view of head. **4.** Detail of inner metatibial spur.

with faint, coarse punctures separated by 0.5–1 times a puncture width; metepisternum strongly imbricate. Propodeum strongly imbricate. Metasoma finely imbricate.

Mandible dark brown, nearly black, except reddish at apex; labrum dark brown; clypeal apex dark brown, remainder of clypeus and head dark green, not shining, with scattered metallic coppery highlights, such highlights most noticeable on supraclypeal area and face. Antenna dark brown except scape amber over most surface, dark brown on upper apical half and somewhat infuscated on adjoining ventral apical half. Mesosoma dark green, not shining, with scattered coppery highlights; tegula dark brown.

Wing membranes strongly infumate; veins dark brown. Legs dark brown to black. Metasoma dark brown throughout except basally and laterally amber on first tergum.

Pubescence generally yellowish except intermingled with dark fuscous setae on vertex, mesoscutum, mesoscutellum, metanotum, and lower portions of pleura. Dark fuscous setae predominant on tarsi, tibiae, and apicalmost metasomal segments.

♂: Unknown.

HOLOTYPE: ♀, Peru, AM [Amazonas], Abra Patricia [Reserve], Trocha Grallaria [Grallaria Trail], 25.ix.2012 [25 September 2012], 05°41′36′′S/77°48′41.9′′W, 2362 m, malaise trap, J. Suárez & P. Sánchez (MUSM).

ETYMOLOGY: The specific epithet is a combination of the Greek terms *lignys*, meaning "thick smoke", and *pteryx*, meaning "wing", and is a reference to the infumate wings of the species.

Key to the Species of *Ischnomelissa*

Females remain unknown for *I. ecuadoriana*, while males are unknown for *I. rhina*, *I. cyanea*, *I. rasmusseni*, and *I. lignopteryx*.

1. Females 2
—. Males 7
2(1). Malar space as long as or longer than basal width of mandible 3
—. Malar space shorter than basal width of mandible 6
3(2). Head and mesosoma dark to metallic green with copper highlights 4
—. Head and mesosoma dark metallic blue (Ecuador: Pichincha Province) .... *I. lescheni* Brooks & Engel
4(3). Metasoma and legs dark brown except sometimes with some amber coloration basally on first metasomal tergum 5
—. Metasoma with first tergum and most of second tergum amber, remainder of metasoma brown, legs with tarsi, tibiae, and femoral apices amber, remainder of legs brown (Ecuador: Napo and Sucumbios Provinces) ... *I. rhina* Brooks & Engel
5(4). Metasomal terga entirely dark brown, with well-developed and distinct basal bands of yellow tomentum; wing membrane hyaline and clear; head and mesosoma distinctly dark metallic green and shining; inner metatibial spur with 17 branches, not including apical portion of rachis (Ecuador: Loja Province) ..... *I. rasmusseni* Engel & Brooks
—. Metasomal terga dark brown except basally amber on first tergum (Fig. 1), tergal graduli without bands of tomentum; wing membrane strongly infumate (Fig. 1); head and mesosoma dark green, not shining (Figs. 1–3); inner metatibial spur with 12 branches, not including apical portion of rachis (Peru: Amazonas Department) ..... *I. lignopteryx* Engel, n. sp.
6(2). Integument of head and mesosoma dark metallic blue; T1–2 dark brown; inner metatibial spur with 12 branches, not including apical portion of rachis (Colombia: Nariño Department) ..... *I. cyanea* Brooks & Engel
—. Integument of head and mesosoma non-metallic, dark brown; T1 and most of T2 amber; inner metatibial spur with 15–20 branches, not including apical portion of rachis (Colombia: Huila and Valle del Cauca Departments) ... *I. zonata* Engel
7(1). Malar space almost as long as wide to slightly longer than wide 8
—. Malar space linear, much shorter than wide (Colombia: Huila and Valle del Cauca Departments) ..... *I. zonata* Engel

8(7). First flagellomere one-half length of second flagellomere; mandible, malar space, and scape at least anteriorly pale; malar space slightly shorter than wide (Ecuador: Pichincha Province) ..... *I. lescheni* Brooks & Engel

—. First flagellomere one-fourth length of second flagellomere; mandible, malar space, and scape dark brown to black; malar space slightly longer than wide (Ecuador: Imbabura Province) ..... *I. ecuadoriana* Brooks & Engel

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REFERENCES

Brooks, R.W., & M.S. Engel. 1998. New bees of the genus *Ischnomelissa* Engel, with a key to the species (Hymenoptera, Halictidae, Augochlorini). *Deutsche Entomologische Zeitschrift* 45(2): 181–189.

Engel, M.S. 1997. *Ischnomelissa*, a new genus of augochlorine bees (Halictidae) from Colombia. *Studies on Neotropical Fauna and Environment* 32(1): 41–46.

Engel, M.S. 2000. Classification of the bee tribe Augochlorini (Hymenoptera: Halictidae). *Bulletin of the American Museum of Natural History* 250: 1–9.

Engel, M.S. 2001. A monograph of the Baltic amber bees and evolution of the Apoidea (Hymenoptera). *Bulletin of the American Museum of Natural History* 259: 1–192.

Engel, M.S. 2009. Revision of the bee genus *Chlerogella* (Hymenoptera, Halictidae), Part I: Central American species. *ZooKeys* 23: 47–75.

Engel, M.S. 2010. Revision of the bee genus *Chlerogella* (Hymenoptera, Halictidae), Part II: South American species and generic diagnosis. *ZooKeys* 47: 1–100.

Engel, M.S., & R.W. Brooks. 2002. A new bee of the genus *Ischnomelissa*, with a key to the known species (Hymenoptera: Halictidae). *Entomological News* 113(1): 1–5.

Engel, M.S., & C. Rasmussen. 2013. Revision of the bee genus *Chlerogella* (Hymenoptera: Halictidae), Part III: New records and a new species from Peru. *Journal of Melittology* 9: 1–8.

Michener, C.D. 2007. *The Bees of the World* [2nd Edition]. Johns Hopkins University Press; Baltimore, MD; xvi+[i]+953 pp., +20 pls.

ZooBank: urn:lsid:zoobank.org:pub:EC6FFCA8-9441-4AC9-9F01-F483C87E4A66

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