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Revision of the cleptoparasitic bee genus *Cleptommation* (Hymenoptera: Halictidae)

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Abstract. The cleptoparasitic bee genus *Cleptommation* Engel, Brooks, & Yanega, **new status** (Halictinae: Augochlorini), is revised. In addition to the type species, *Cleptommation minutum* (Friese), **new combination**, the following new species are recognized: ***C. bulivyense*** Engel, new species, ***C. tupaqi*** Engel, new species, and ***C. chibchani*** Engel, new species. A lectotype is designated for *C. minutum* and a key to the species is provided.

INTRODUCTION

While cleptoparasitic species number into the many hundreds in the bee tribe Halictini (particularly in the widespread genus *Sphecodes* Latreille), they are relatively uncommon in the New World tribe Augochlorini. Only three lineages consist of cleptoparasitic species among the augochlorines, these being *Temnosoma* Smith (with about seven species: Engel, in prep.), *Noctoraptor* Engel *et al*. (with six species), and *Cleptommation* Engel *et al*. (hitherto monotypic) (Engel *et al*., 1997; Engel, 2000, 2011a; Hinojosa-Díaz & Engel, 2003; Santos & Silveira, 2009; Gonzalez *et al*., 2010). Presently, efforts are underway to complete revisions of the cleptoparasitic Augochlorini, of which this paper is the first contribution. Herein I focus on those species classified in *Cleptommation* (Figs. 1, 2) for which it is now recognized that there are at least four distinct taxa. The group was originally established as a subgenus of *Megommation* Moure, following the precedent of Eickwort (1969) of recognizing this genus in an expanded sense. However, the subgenera of *Megommation* are are significantly different from each other, and lumping these clades together serves little classificatory purpose. Accordingly, I follow Silveira *et al*. (2002) who split the constituent subgenera of *Megommation*, raising *Megaloptina* Eickwort and *Stilbochlora* Engel *et al*. to generic rank (these authors chose not to recognize *Cleptommation*). *Cleptommation* is retained as distinct from *Megalopti-*

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na, to whom it is closely related (Engel, 2000), until such time as a revision of the latter genus is completed. The classification of the *Megaloptidia*-group genera (as originally recognized by Engel, 2000) is summarized in Table 1.

What was previously considered to belong to a single species of *Cleptommation* is now recognized to be multiple taxa based on the study of more extensive material, albeit still uncommon. The type species, *Cleptommation minutum* (Friese), is more finely characterized and three new species are established. Unfortunately the hosts and biology of species of *Cleptommation* remain entirely unknown, although it has been suspected that they victimize species of *Megaloptina*. It is hoped that by drawing the diversity of this small genus to the attention of melittologists their biology may eventually be elucidated.

MATERIAL AND METHODS

This work is based on material in the Snow Entomological Collection, Division of Entomology, University of Kansas Natural History Museum, Lawrence, Kansas, USA (SEMC); USDA Bee Biology and Systematics Lab, Utah State University, Logan, Utah, USA (EMUS); University of Arkansas, Fayettville, Arkansas, USA (UADE); and the Museum für Naturkunde, Humboldt-Universität, Berlin, Germany (ZMHB). Specimens of *Cleptommation* are rare in collections. A total of 46 specimens were examined, with 24 males and 22 females, including the material studied previously by Engel *et al*. (1997). Morphological terminology follows that of Engel (2000, 2001, 2009) and Michener (2007). Format for the descriptions generally follows that used elsewhere for Augochlorini (Engel *et al*., 1997; Engel & Brooks, 1998; Engel, 2006, 2010, 2011a; Engel & Rasmussen, 2013). Measurements were taken using an ocular micrometer on an Olympus SZX-12 stereomicroscope. Measurements are of the type, with ranges provided for paratypes. Although there are differences in size between the taxa, these were not used in the diagnoses or key as the sample sizes are quite small, and size is likely associated with the size of the host on an individual-by-individual basis. Photomicrographs were prepared using a Nikon D1X digital camera attached to an Infinity K-2 long-distance microscope lens.

SYSTEMATICS

Genus *Cleptommation* Engel, Brooks, & Yanega, **new status**

Megommation (*Cleptommation*) Engel *et al*., 1997: 19. Type species: *Megalopta minuta* Friese, 1926, by original designation. Engel, 1998: 125; Engel, 2000: 43; Michener, 2000: 393; Michener, 2007: 409.

DIAGNOSIS (modified from Engel, 2000): ♀: Labral distal process broadly triangular; lateral teeth absent; labral basal elevation absent. Mandible simple, large, bladelike (Figs. 2, 12, 32, 35, 45). Prementum greatly elongate, narrowed; galeal apex acute; galeal comb absent; galeal base extending to stipital base. Hypostomal ridge carinate, becoming weakly lamellate posteriorly, particularly at posterior angle; anterior angle rounded. Length of malar space less than basal mandibular width. Clypeal apex relatively straight (in *Megaloptina* and *Megommation* the clypeal apex is deeply concave, a putative synapomorphy uniting these groups and tentatively suggesting that *Cleptom-*

Table 1. Summary of *Megaloptidia*-group genera (Engel, 2000), their presently recognized species (D = described, U = undescribed), and taxonomic references or revisions.

Genus	Species		References
	D	U	
Megaloptidia Cockerell	3	—	Cockerell, 1900; Engel & Brooks, 1998
Ariphanarthra Moure	1	—	Moure, 1951; Engel, unpubl. data
Megommation Moure	2	—	Moure, 1943; Gonçalves & Santos, 2010
Micrommation Moure	1	—	Moure, 1969; Smith-Pardo & Engel, 2004
Megaloptina Eickwort	2	3	Eickwort, 1969; Engel, unpubl. data
Cleptommation Engel *& al.*	4	1?	Engel *et al.*, 1997; herein
Stilbochlora Engel *& al.*	1	1	Engel *et al.*, 1997; Engel, unpubl. data

mation may not be derived from within the former taxa). Epistomal sulcus orthogonal. Ventral apex of facial medial line forming small tubercle in basal part of supraclypeal area. Ocelli not greatly enlarged; ocellar furrow absent. Vertex not expanded or ridged posterior to ocelli. Preoccipital ridge rounded. Pronotal dorsal ridge rounded; lateral angle not produced, obtuse; lateral ridge rounded. Mesoscutal anterior border rounded; mesoscutal lip rounded. Tegula oval (not notched). Probasitarsal brush absent; metatibial scopa absent (Figs. 2, 43); metabasitibial plate absent; inner metatibial spur serrate. Forewing marginal cell with acute apex; hind wing distal hamuli with irregular pattern of spacing.

♂: Labrum without distal process; basal area not notched. Mandible simple. Ventral apex of facial medial line forming small tubercle in basal part of supraclypeal area. Antenna extending back to mesoscutellum or metanotum; first flagellomere as long as second flagellomere. Inner metatibial spur serrate. Dense patch of plumose setae surrounding propodeal spiracle. Metasoma slightly elongate; apical margins of metasomal sterna II–III with slight median projection, that of sternum III more prominent than sternum II; apical margins sterna IV–V unmodified; apical margin of sternum VI emarginate; apical margins of sternum VII–VIII with median process; proctiger with anal filaments. Gonobasal bridge narrow; dorsal lobes strong; basal process of gonostylus absent; parapenial lobe present; dorsal process of gonostylus partially membranous; prong present on ventral surface of penis valve.

Included species: Aside from the type species, *C. minutum*, three additional species are recognized herein: *C. bulivyense* n. sp., *C. tupaqi* n. sp., and *C. chibchani* n. sp.

Distribution: Presently, individuals of the various species are recorded from Costa Rica and Panama in Central America, from Andean Ecuador and Bolivia, across Amazonian Peru and Brazil, and in French Guiana, Guyana, and Suriname along the Guiana Shield. With further collecting it is assured that specimens, and perhaps even further species, will be found in at least Colombia, Andean Peru, and Venezuela.

Biology: As alluded to above, no biological information exists for this small group of cleptoparasitic bees. Presumed hosts are among *Megaloptina*, which occur in the same areas as species of *Cleptommation*. It would be revealing to discover not only the hosts, but the mode of parasitism and immature stages. As nothing really is known about the biology of *Megaloptina*, such an investigation would be fruitful beyond that of the just the cleptoparasites.

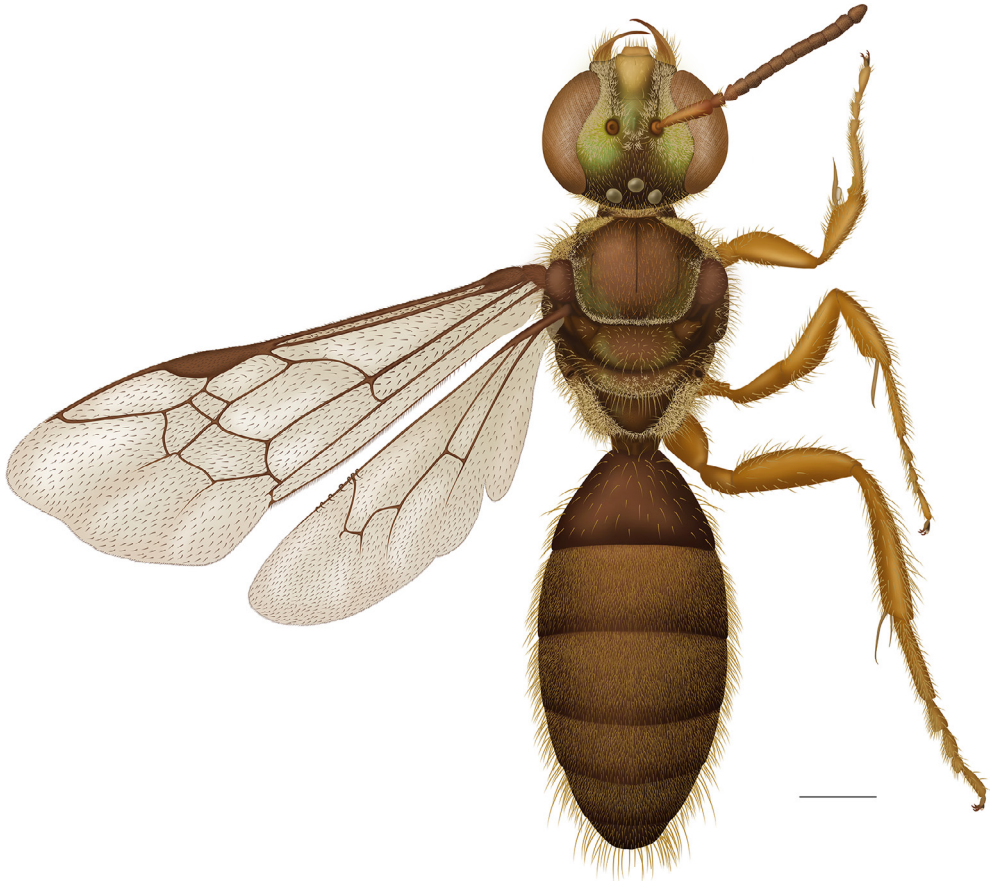


Figure 1. Habitus illustration of male of *Cleptommation bulivyense*, new species, from Bolivia (scale bar = 1 mm).

Cleptommation bulivyense Engel, new species
ZooBank: urn:lsid:zoobank.org:act:7FA7C8B3-41EF-4E8B-95AD-CA0EAA08A582
(Figs. 1–12)

DIAGNOSIS: *Cleptommation bulivyense* is most similar to *C. tupaqi*, particularly in the structure of the male terminalia and coloration of the mesosoma. The Bolivian species can be distinguished from *C. tupaqi* by the brown to dark brown metasoma (Figs. 1–4, 10, 11) and the male genitalia (Figs. 7–9), and from others in the genus by the form of the hidden sterna (Fig. 6) and the coloration of the mesosoma (Figs. 1–4, 10, 11).

DESCRIPTION: ♂: Total body length 8.44 mm (8.00–9.13 mm); forewing length 7.33 mm (6.13–7.33 mm). Head length 1.93 mm (1.80–2.00 mm), width 2.27 mm (2.23–2.33 mm; upper interorbital distance 1.17 mm (1.17–1.20 mm); lower interorbital distance 0.83 mm (0.80–0.93 mm). Intertegular distance 1.50 mm (1.47–1.50 mm). Forewing basal vein nearly confluent with cu-a, only slightly set distally; 1rs-m confluent with 1m-cu; 2rs-m distad 2m-cu by 10 times vein width, 2rs-m relatively straight; first submarginal cell longer than combined lengths of second and third submarginal cells; second submarginal narrow, anterior border of second submarginal cell along Rs less

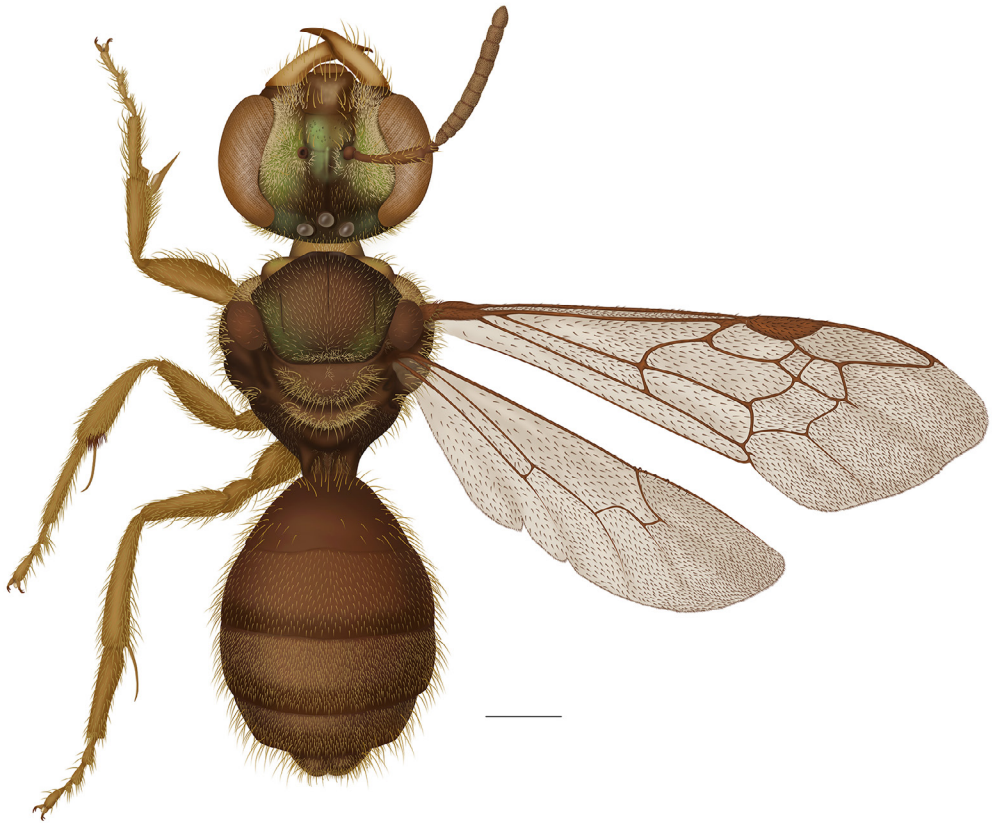


Figure 2. Habitus illustration of female of *Cleptommation bulivyense*, new species, from Bolivia (scale bar = 1 mm).

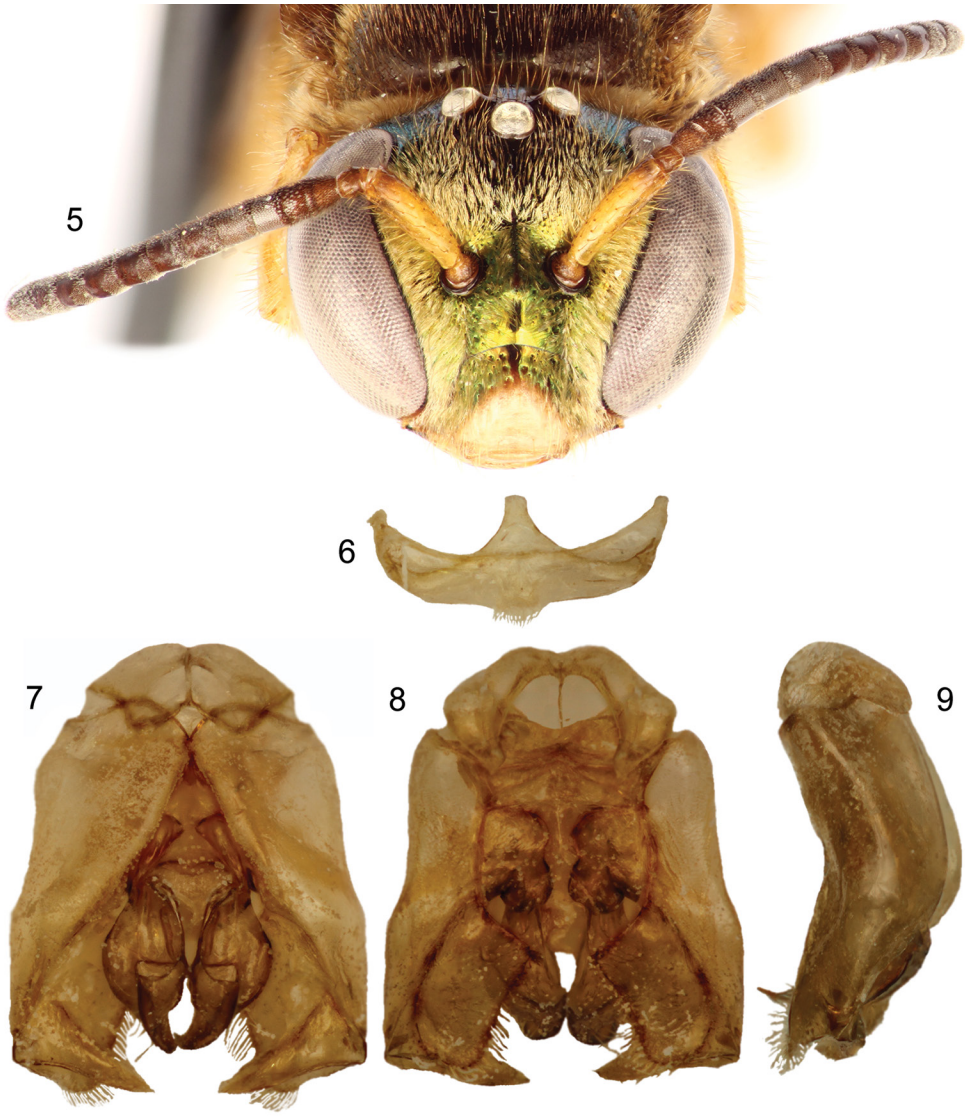
than length of third submarginal cell along same vein; anterior border of third submarginal cell about three-quarters length of posterior border; hind wing with distal hamuli arranged 3-1-1-3. Terminalia as in figures 6–9.

Labrum imbricate. Clypeus imbricate with faint, coarse punctures over yellow surface, otherwise smooth with smaller, faint punctures separated by a puncture width or less over basal brown integument; supraclypeal area smooth with small punctures separated by a puncture width or less laterally; remainder of face with small punctures separated by a puncture width or less, progressively becoming more dense on upper face with punctures separated by less than a puncture width; punctures become minute and more widely-spaced by ocellar area, separated by 1–2 times a puncture width in ocellocular area and 2–4 times medially on vertex; gena with punctures like those on vertex; postgena impunctate. Pronotum imbricate with scattered, minute punctures. Mesoscutum smooth with minute punctures separated by 1–2.5 times a puncture width, punctures fainter and sparser along anteromedial border around medial line and integument faintly imbricate; mesoscutellum as on disc of mesoscutum except punctures separated by 1–3 times a puncture width; metanotum smooth, weakly nodulose near setal bases and with punctures separated by 1.5–3 times a puncture width. Preëpisternal area imbricate; mesepisternum with small punctures separated by a puncture width or less, punctures becoming fainter and sparser ventrally and

Figures 3–4. Photomicrographs of male of *Cleptommation bulivyense*, new species, from Bolivia. **3.** Lateral habitus. **4.** Dorsal habitus.

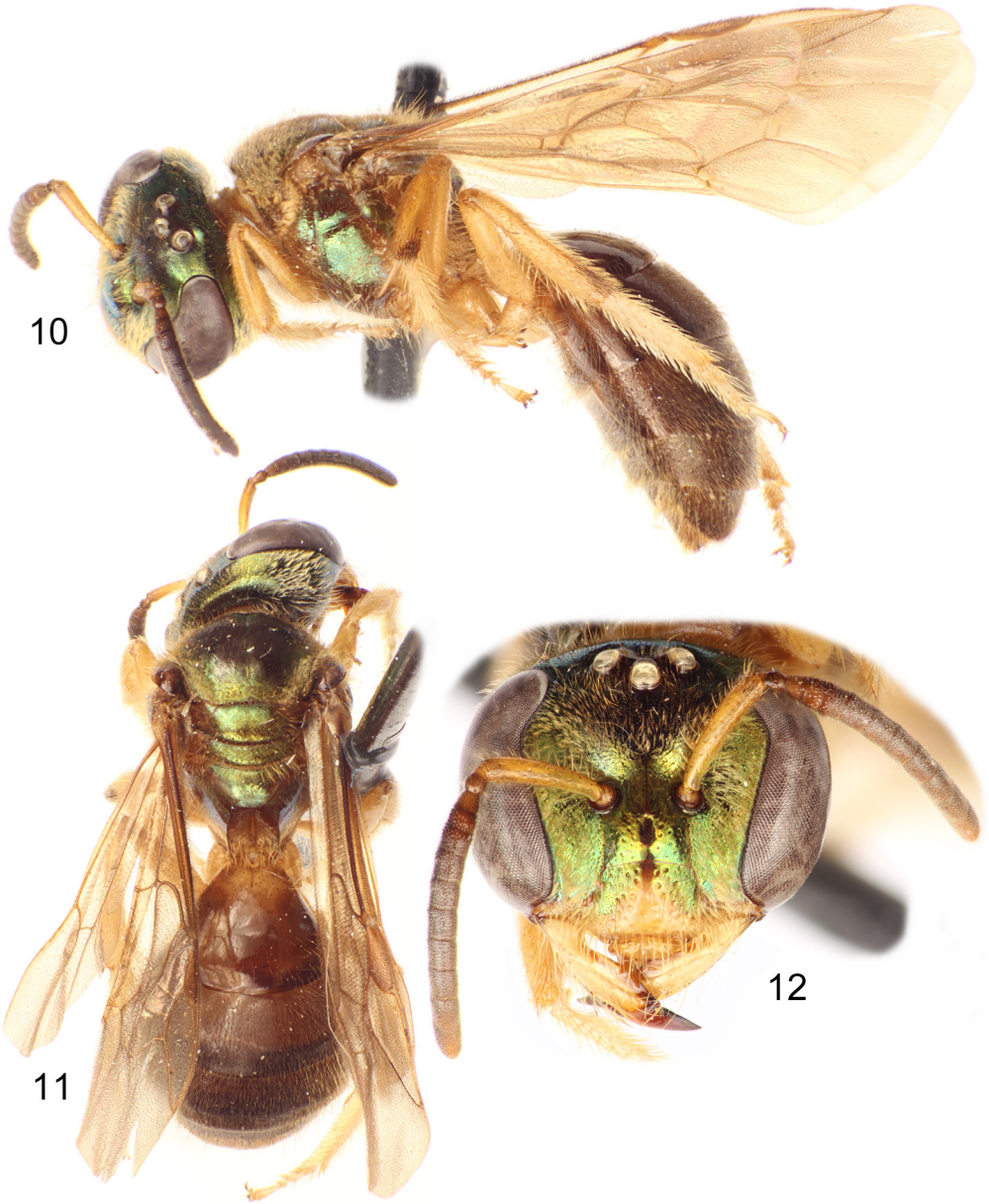
posteriorly; hypoepimeral area impunctate; metepisternum faintly imbricate and impunctate; lateral and posterior surfaces of propodeum weakly imbricate and impunctate; basal dorsal-facing area of propodeum finely imbricate and impunctate. First metasomal tergum smooth, shining, and impunctate; remaining terga finely imbricate; sterna finely imbricate.

Mandible yellow except reddish at apex; labrum yellow; clypeus yellow except basal margins brown with strong metallic brassy green highlights; supraclypeal area entirely brown with strong metallic brassy green highlights. Scape yellow but frequently with slightly brownish patch at upper apical margin; pedicel and flagellum brown. Face, vertex, and gena brown with strong metallic brassy green highlights; postgena brown with faint metallic highlights. Labiomaxillary complex yellow. Pronotum and propleura yellow, sometimes with brownish patches with metallic green



Figures 5–9. Photomicrographs of male of *Cleptommation bulivyense*, new species, from Bolivia. **5.** Facial view. **6.** Fused and hidden sterna VII+VIII. **7.** Genital capsule, dorsal view. **8.** Genital capsule, ventral view. **9.** Genital capsule, lateral view.

highlights on dorsal-facing part of pronotum bordering mesoscutum; remainder of mesosoma brown with strong metallic brassy green highlights, highlights sometimes weaker on disc of mesoscutum, mesoscutellum, metanotum, and dorsal-facing surface of propodeum to varying degrees; preëpisternal area frequently with yellowish area and lower posterior corner of mesepisternum often with patch of yellow; lateral surface of propodeum with large surface of yellow; tegula brown without metallic highlights. Wing membranes hyaline and slightly tinged like parchment; veins amber colored except Sc+R slightly darker. Legs entirely yellow. Metasoma entirely brown (Figs. 1, 3, 4), sometimes with patch of yellow in anterior portion of first tergum and corresponding sternum.



Figures 10–12. Photomicrographs of female of *Cleptommation bulivyense*, new species, from Bolivia. **10.** Lateral habitus. **11.** Dorsal habitus. **12.** Facial view.

Pubescence generally yellow; face with particularly prominent short, subappressed, plumose setae which become more sparse toward ocellar area (Fig. 5); vertex with scattered erect, long setae; gena with plumose setae as those on face although not as dense; postgena with sparse, simple, long, erect setae. Mesoscutum with scattered, fine, simple or little-branched, subappressed, yellow setae; with short plumose setae as those on face along lateral borders; mesoscutellum similar to mesoscutum, poste-

riorly with more elongate and more erect setae; metanotum similar to mesoscutellum although erect setae much more numerous and over entire surface; pleura with scattered yellow setae, becoming longer ventrally; propodeum with setae as on pleura except with dense patches of moderately long, plumose setae around propodeal spiracle. First metasomal tergum with sparse setae over much of surface except fine, suberect, yellow setae becoming more numerous, albeit still widely scattered, in posterior half; remainder of metasomal terga with fine, short, suberect to subappressed setae scattered over surface, becoming progressively more numerous and slightly longer on more apical terga; sterna with scattered, fine, suberect yellow setae, those of apicolateral corners of sterna II–IV typically longer and somewhat more sinuate.

♀: As described for the male except as follows: Total body length 8.53–9.13 mm; forewing length 7.27–7.53 mm. Head length 2.20 mm, width 2.67–2.80 mm; upper interorbital distance 1.37–1.53 mm; lower interorbital distance 1.30–1.43 mm. Intertegular distance 1.57–1.77 mm.

Punctation generally as described for male, although mesepisternal punctures smaller, fainter, and more sparse than those of male, thereby giving mesepisternum a more smooth and shining appearance.

Pedicel and first flagellomere yellowish brown; remainder of flagellum brown. Metasoma entirely brown (Figs. 10, 11) except basal area of first tergum lighter and areas of yellow basally on first and second sterna.

Protibia with minute patch of slightly fuscous setae on outer apex; mesotibia with patch of dark brown to black setae on outer apex (Fig. 10), most setae distinctly curved apically; metatibia with patch of dark brown to black setae on outer apex, patch extending proximally as a thin row of setae to cover about apical one-third of metatibia (Fig. 10), most setae distinctly curved or sinuate apically. Metasomal sterna with scattered, fine, short to long, largely-erect, yellow setae in apical half to third.

Holotype: ♂, BOLIVIA: Cochabamba: Cochabamba, 67.5 km NE, Est. Biol. Valle del Sajita, Univ. de San Simon, 300 m, 17º6′33′′S, 64º47′52′′W, 9–13 Feb 1999, F. Genier, ex: flight intercept trap (SEMC).

Paratypes: 2♂♂, 1♀, BOLIVIA: Cochabamba: Cochabamba, 67.5 km NE, Est. Biol. Valle del Sajita, Univ. de San Simon, 300 m, 17º6′33′′S, 64º47′52′′W, 9–13 Feb 1999, F. Genier, ex: flight intercept trap (SEMC); 1♂, Cochabamba: Cochabamba, 67.5 km NE, Est. Biol. Valle del Sajita, Univ. de San Simon, 300 m, 17º6′33′′S, 64º47′52′′W, 9–13 Feb 1999, R. Hanley, ex: flight intercept trap (SEMC); 1♀, Cochabamba, Villa Tunari, Hotel El Puenta, 357 m, 15–27-xii-2005 [15–27 December 2005], S. & J. Peck (SEMC).

Etymology: The specific epithet is based on the Quechua spelling of Bolivia (Bulivya Mamallaqta = Estado Plurinacional de Bolivia).

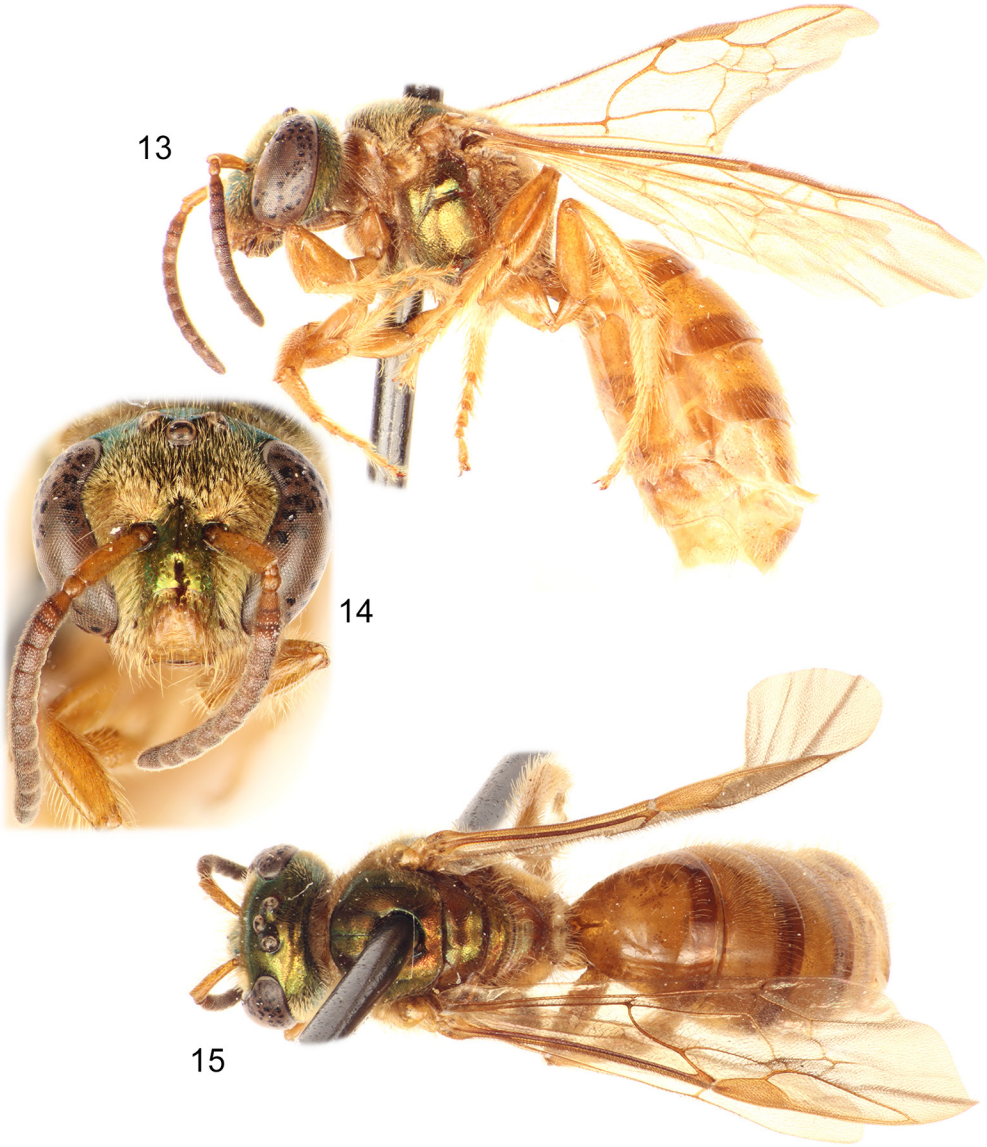
Cleptommation tupaqi Engel, new species

ZooBank: urn:lsid:zoobank.org:act:5A7ABF2F-5B5B-4F0B-9A89-D73B702ED0EC

(Figs. 13–19)

'*Cleptommation minutum* (Friese)'; Engel *et al*., 1997: 19 [*partim*].

Diagnosis: The new species is most similar to *C. bulivyense* in overall coloration of the head and mesosoma and form of the hidden sterna (*i.e*., the more broad and blunt apical process of sternum VII: *cf*. figures 6 and 16) (*vide supra*). It differs from that species in the metasomal terga largely yellowish with brown apical margins (Figs. 13, 15) and male genitalia (Figs. 17–19).



Figures 13–15. Photomicrographs of male of *Cleptommation tupaqi*, new species, from Ecuador. **13.** Lateral habitus. **14.** Facial view. **15.** Dorsal habitus.

DESCRIPTION: ♂: Total body length 8.67 mm; forewing length 6.40 mm. Head length 1.70 mm, width 2.07 mm; upper interorbital distance 1.10 mm; lower interorbital distance 0.83 mm. Intertegular distance 1.27 mm. Forewing basal vein distad cu-a by about one vein width; 1rs-m confluent with 1m-cu; 2rs-m distad 2m-cu by 6 times vein width, 2rs-m relatively straight; first submarginal cell longer than combined lengths of second and third submarginal cells; second submarginal narrow, anterior border of second submarginal cell along Rs much less than length of third submarginal cell along same vein; anterior border of third submarginal cell less than three-quarters

Figures 16–19. Photomicrographs of male terminalia of *Cleptommation tupaqi*, new species, from Ecuador. **16.** Fused and hidden sterna VII+VIII. **17.** Genital capsule, dorsal view. **18.** Genital capsule, ventral view. **19.** Genital capsule, lateral view.

length of posterior border; hind wing with distal hamuli arranged 4-1-2. Terminalia as in figures 16–19.

Labrum imbricate. Clypeus imbricate with faint, coarse punctures over yellow surface, otherwise smooth with smaller, faint punctures separated by a puncture width or less over basal brown integument; supraclypeal area smooth with small punctures separated by a puncture width or less laterally; remainder of face with small punctures separated by a puncture width or less, progressively becoming more dense on upper face with punctures separated by less than a puncture width; punctures then become minute and more widely-spaced by ocellar area, separated by 1–2.5 times a puncture width in ocellocular area and 2–5 times medially on vertex; gena with punctures like those on vertex; postgena impunctate. Pronotum imbricate with scattered, minute punctures. Mesoscutum smooth with minute punctures separated by 1–2.5 times a puncture width, punctures fainter and sparser along anteromedial border around medial line and integument in that area faintly imbricate; mesoscutellum as on disc of mesoscutum except punctures separated by 1–3 times a puncture width; metanotum smooth, weakly nodulose near setal bases and with punctures separated by 1–3 times a puncture width. Preëpisternal area imbricate; mesepisternum with small punctures separated by 0.5–2 times a puncture width, punctures becoming fainter and sparser ventrally and posteriorly; hypoepimeral area impunctate; metepisternum faintly imbricate and impunctate; lateral and posterior surfaces of propodeum weakly imbricate and impunctate; basal dorsal-facing area of propodeum finely imbricate and impunctate. First metasomal tergum smooth, shining, and impunctate; terga II and III finely and faintly imbricate, remaining terga finely imbricate but more noticeably so than on terga II and III; sterna finely imbricate.

Mandible yellow except reddish at apex; labrum yellow; clypeus yellow except basal margins brown with strong metallic brassy green highlights (Fig. 14); supraclypeal area entirely brown with strong metallic brassy green highlights. Scape entirely yellow (Figs. 13–15); pedicel and first flagellomere yellowish brown, remainder of flagellum brown. Face, vertex, and gena brown with strong metallic brassy green highlights; postgena brown with faint metallic highlights. Labiomaxillary complex yellow. Pronotum and propleura yellow; remainder of mesosoma brown with strong metallic brassy green highlights, highlights weaker on disc of mesoscutum and dorsal-facing surface of propodeum; lower posterior corner of mesepisternum with a patch of yellow; lowermost portion of metepisternum yellow; lateral surface of propodeum yellow; tegula translucent yellow without metallic highlights. Wing membranes hyaline and clear; veins yellowish brown except Sc+R slightly darker and pterostigma distinctly yellow. Legs entirely yellow. Metasoma light yellow brown, with apical margins of terga brown.

Pubescence generally yellow; face with particularly prominent short, subappressed, plumose setae which become more sparse toward ocellar area; vertex with scattered erect, long setae; gena with plumose setae as those on face although not as dense; postgena with sparse, simple, long, erect setae. Mesoscutum with scattered, fine, simple or little-branched, subappressed, yellow setae; with short plumose setae as those on face along lateral borders; mesoscutellum similar to mesoscutum, posteriorly with more elongate and more erect setae; metanotum similar to mesoscutellum although erect setae much more numerous and over entire surface; pleura with scattered yellow setae, becoming longer ventrally; propodeum with setae as on pleura except with dense patches of moderately long, plumose setae around propodeal spiracle. First metasomal tergum with sparse setae over much of surface except fine, suberect, yellow setae becoming more numerous, albeit still widely scattered, in posterior half; remainder of metasomal terga with fine, short, suberect to subappressed setae scattered over surface, becoming progressively more numerous and slightly longer on more apical terga; sterna with scattered, fine, suberect yellow setae, those of apicolateral corners of sterna II–V typically longer.

♀: Unknown.

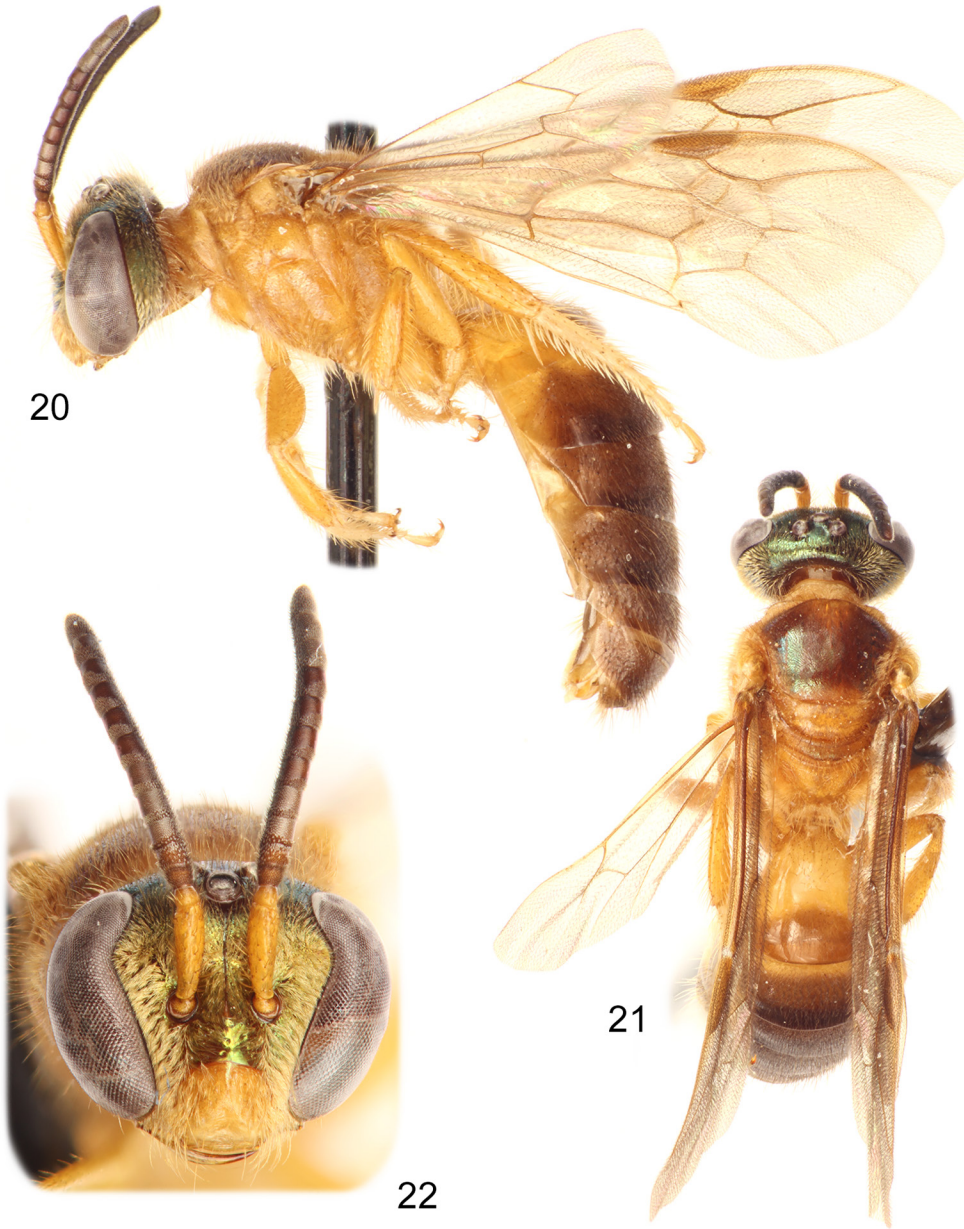
HOLOTYPE: ♂, ECUADOR: Pich. [Pichincha], Tinalandia, Santa Domingo, 14 June 1976, S. & J. Peck (SEMC).

ETYMOLOGY: The specific epithet recognizes Incan leader Túpac Inca Yupanqui (*ca*. 1453?–1493) (Quechua: Tupaq Inka Yupanki), tenth Sapa Inca, who expanded the empire to encompass regions as far North as much of modern Ecuador.

Cleptommation minutum (Friese), **new combination**
(Figs. 20–35)

Megalopta minuta Friese, 1926: 125. Moure, 1944: 68; Moure & Hurd, 1987: 238.
Megommation (*Cleptommation*) *minutum* (Friese); Engel *et al*., 1997: 19.
Megaloptina minuta (Friese); Moure in Moure *et al*., 2007: 805.

DIAGNOSIS: *Cleptommation minutum* is most similar to *C. chibchani*, described below (*vide infra*), both having a similar form of the hidden sterna (*cf*. figures 23 and 39) and both have similar head and mesosomal coloration [*e.g*., the scape and pedicel yellow (Figs. 22, 38, 45), rather than the pedicel much darker than the scape (Figs. 5, 12)]. The former species can be separated readily from the latter by the almost entirely brown



Figures 20–22. Photomicrographs of male of *Cleptommation minutum* (Friese), new combination, from French Guiana. **20.** Lateral habitus. **21.** Dorsal habitus. **22.** Facial view.

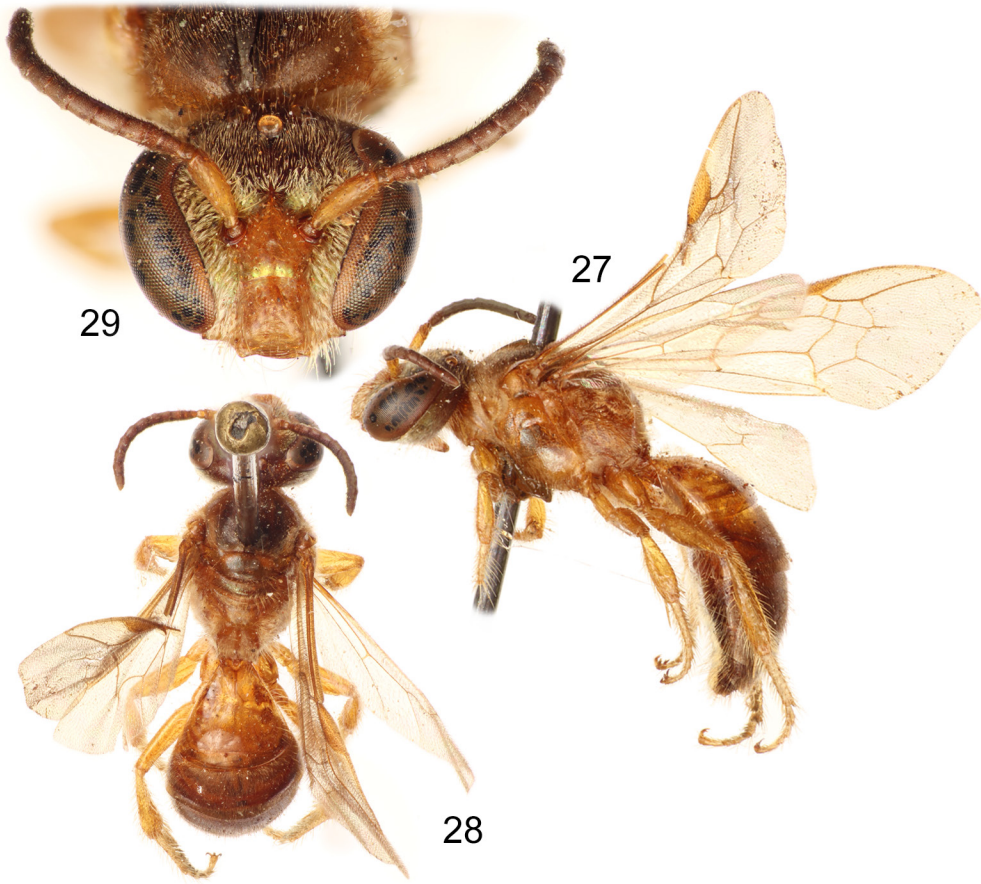
metasoma (*e.g.*, Figs. 20, 27, 30, 31, 33), the lack of a strong metallic green coloration to the mesepisternum (*e.g.*, Figs. 20, 27, 30, 33; although this sometimes occurs in females of *C. chibchani*), the more fuscous setae of the metasomal terga, and the male genitalia (Figs. 24–26).

Description: ♂: Total body length 8.47 mm (8.07–8.67 mm); forewing length 6.53 mm (6.20–6.53 mm). Head length 1.97 mm (1.83–1.97 mm), width 2.37 mm (2.27–2.37 mm); upper interorbital distance 1.33 mm (1.17–1.33 mm); lower interorbital distance

Figures 23–26. Photomicrographs of male terminalia of *Cleptommation minutum* (Friese), new combination (specimen from Guyana). **23.** Fused and hidden sterna VII+VIII. **24.** Genital capsule, dorsal view. **25.** Genital capsule, ventral view. **26.** Genital capsule, lateral view.

0.97 mm (0.83–0.97 mm). Intertegular distance 1.37 mm (1.37–1.43 mm). Forewing basal vein confluent with cu-a to distad cu-a by vein width; 1rs-m confluent with 1m-cu; 2rs-m distad 2m-cu by 6–8 times vein width, 2rs-m relatively straight; first submarginal cell longer than combined lengths of second and third submarginal cells; second submarginal narrow, anterior border of second submarginal cell along Rs less than length of third submarginal cell along same vein; anterior border of third submarginal cell less than three-quarters length of posterior border; hind wing with distal hamuli arranged 3-1-1-2 or 3-1-2. Terminalia as in figures 23–26.

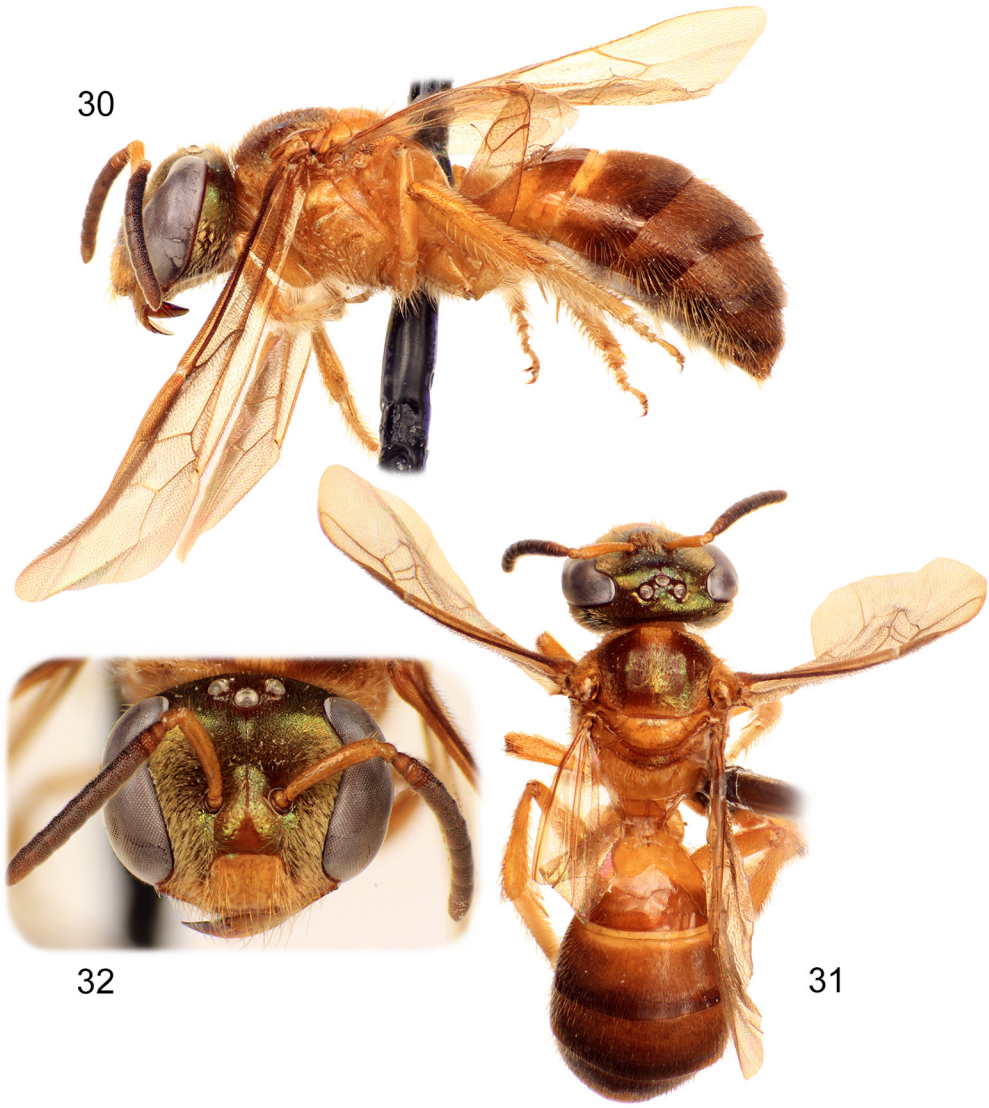
Labrum imbricate. Clypeus imbricate with faint, coarse punctures; supraclypeal area smooth with small punctures separated by a puncture width or less laterally; remainder of face with small punctures separated by a puncture width or less, progressively becoming more dense on upper face with punctures virtually contiguous; punctures become minute and more widely-spaced by ocellar area, separated by 1.5–2 times a puncture width in ocellocular area and 2–5 times medially on vertex; gena with punctures like those on vertex; postgena impunctate. Pronotum imbricate with scattered, minute punctures. Mesoscutum smooth with minute punctures separated by 1–2 times a puncture width, punctures fainter and sparser medially, particularly on anteromedial border around medial line and integument there faintly imbricate; mesoscutellum similar to disc of mesoscutum except punctures separated by 1–3 times a puncture width; metanotum smooth, weakly nodulose near setal bases and with punctures separated by 1–3 times a puncture width. Preëpisternal area imbricate with scattered punctures; mesepisternum with small punctures separated by 0.5–2 times a



Figures 27–29. Photomicrographs of lectotype male of *Cleptommation minutum* (Friese), new combination, from northern Brazil (Tefé). **27.** Lateral habitus. **28.** Dorsal habitus. **29.** Facial view.

puncture width, punctures becoming fainter and sparser ventrally and posteriorly; hypoepimeral area impunctate; metepisternum faintly imbricate and impunctate; lateral and posterior surfaces of propodeum weakly imbricate and impunctate; basal dorsal-facing area of propodeum finely imbricate and impunctate. First metasomal tergum smooth, shining, and impunctate; remaining terga finely imbricate; sterna finely imbricate.

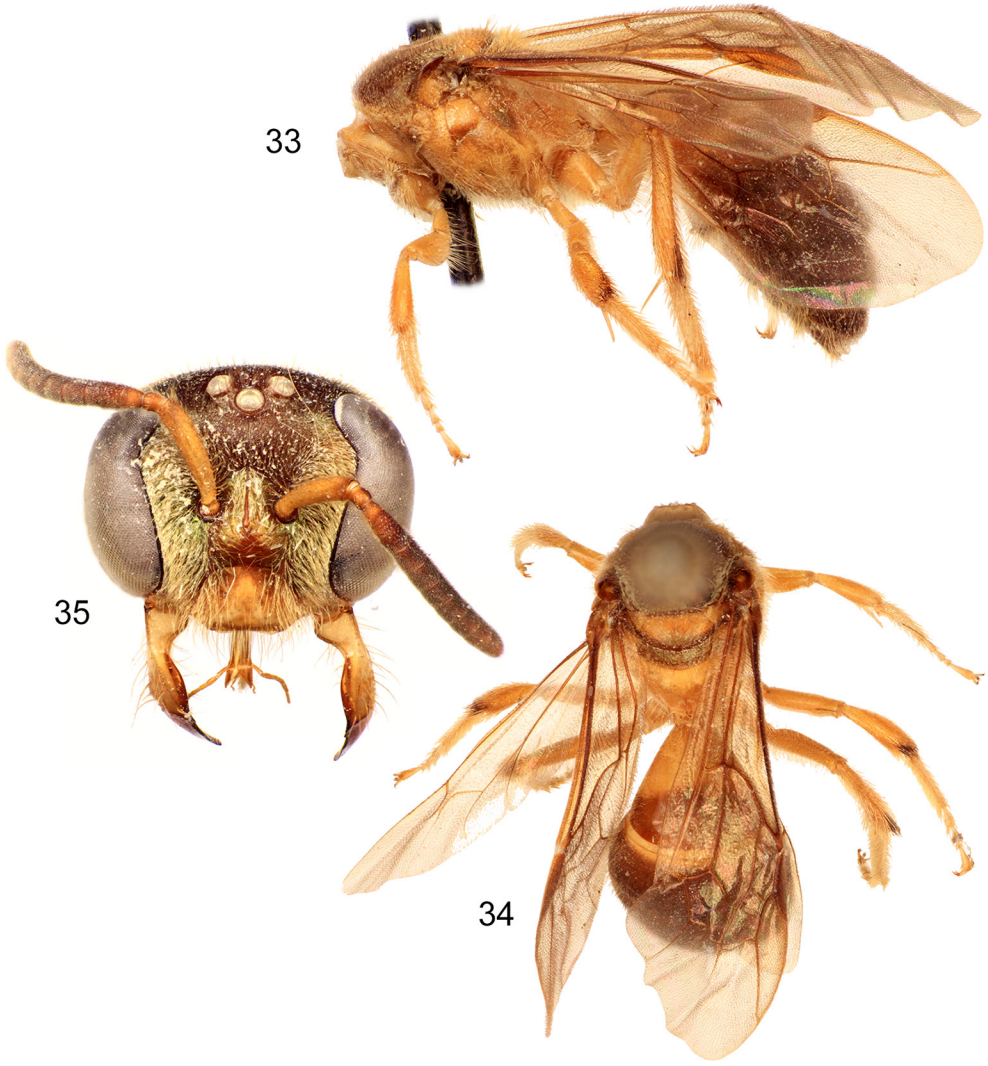
Mandible yellow except reddish at apex; labrum yellow; clypeus entirely yellow (Fig. 22); supraclypeal area entirely brown with strong metallic brassy green highlights. Scape and pedicel yellow; flagellum brown. Face, vertex, and gena brown with strong metallic brassy green highlights; postgena light brown to yellow, sometimes with faint metallic highlights. Labiomaxillary complex yellow. Pronotum and propleura yellow; mesoscutum brown with metallic brassy green highlights (sometimes highlights are quite weak); remainder of mesosoma yellow except sometimes metanotum as on mesoscutum; tegula translucent yellow without metallic highlights. Wing membranes hyaline and clear to slightly tinged; veins light brown to amber colored except Sc+R slightly darker. Legs entirely yellow. Metasoma entirely brown except first tergum basally yellow with brown apically (Fig. 21) to entirely yellow or yellow-



Figures 30–32. Photomicrographs of female of *Cleptommation minutum* (Friese), new combination, from Suriname. **30.** Lateral habitus. **31.** Dorsal habitus. **32.** Facial view.

ish brown (yellow areas more reddish brown in much older, faded specimens), basal quarter to third of second tergum yellow, and first and second sterna yellow to yellowish brown.

Pubescence generally yellow; face with particularly prominent short, subappressed, plumose setae and becoming more sparse toward ocellar area; vertex with scattered erect, long setae; gena with plumose setae as those on face although not as dense; postgena with sparse, simple, long, erect setae. Mesoscutum with scattered, fine, simple or little-branched, subappressed, yellow setae; with short plumose setae as those on face along lateral borders; mesoscutellum similar to mesoscutum, posteriorly with more elongate and more erect setae; metanotum similar to mesoscutellum



Figures 33–35. Photomicrographs of female of *Cleptommation minutum* (Friese), new combination, from Amazonian Basin of Peru. **33.** Lateral habitus. **34.** Dorsal habitus. **35.** Facial view.

although erect setae much more numerous and over entire surface; pleura with scattered yellow setae, becoming longer ventrally; propodeum with setae as on pleura except with dense patches of moderately long, plumose setae around propodeal spiracle. First metasomal tergum with sparse setae over much of surface except fine, suberect, yellow setae becoming more numerous, albeit still widely scattered, in posterior half; remainder of metasomal terga with fuscous (rather than yellow), fine, short, suberect to subappressed setae scattered over surface, becoming progressively more numerous and slightly longer on more apical terga; sterna with scattered, fine, suberect yellow setae, those of apicolateral corners of sterna II–IV typically longer and somewhat more sinuate.

♀: As described for the male except as follows: Total body length 8.40–9.67 mm; forewing length 6.67–7.27 mm. Head length 1.87–2.13 mm, width 2.43–2.67 mm; up-

per interorbital distance 1.27–1.37 mm; lower interorbital distance 1.20–1.30 mm. Intertegular distance 1.40–1.63 mm.

Punctation generally as described for male, although mesepisternal punctures fainter and more sparse.

Clypeus sometimes with small areas of brown near basal margin (e.g., Fig. 35), otherwise entirely yellow. Metasoma as in male but sternum II with apical third brown and apical margins of terga II–V sometimes more dark brown (Figs. 30, 31).

Protibia with minute patch of slightly fuscous setae on outer apex; mesotibia with patch of dark brown to black setae on outer apex, setae curved apically or sinuate; metatibia with patch of dark brown to black setae on outer apex, patch extending proximally as a thin row of setae over apical one-third of metatibia, most setae distinctly curved or sinuate apically.

LECTOTYPE (**here designated**): ♂, (Figs. 27–29), BRAZIL: Estado do Amazonas, Tefé, 25.9.1904 [25 September 1904], Ducke (ZMHB).

ADDITIONAL MATERIAL: **Amazonian Basin:** 1♂, PERU: Tambopata Prov., 15 km NE Pto. Maldonaldo, 200 m, 13 June 1989, R.A. Leschen, #34 ex: malaise trap (SEMC); 1♀, Tambopata Prov., 15 km NE Pto. Maldonaldo, 200 m, 28 June 1989, J. Ashe, R. Leschen, #308 ex: flight intercept trap (SEMC); 1♂, PERU: Tambopata Reserve, 270 m, 22–30 May 1995, S. Cameron and J. Whitfield (UADE). **Guiana Shield:** 1♀, SURINAME: Para: Carolina Creek, 11 km SE Zanderij Airport, 30 m, 5º23'36''N, 55º9'29''W, 19–20 Jun [June] 1999, Z.H. Falin, A. Gangadin, ex: flight intercept trap (SEMC); 1♂, FRENCH GUIANA: Wanaboo (near Nason), Marowijne River, 40 m, 4º43'35''N, 54º26'36''W, 31 May-5 Jun [June] 1999, Z.H. Falin, A. B. DeDijn, ex: flight intercept trap (SEMC); 1♂, Saül, 7 km N, Les Eaux Claires, 220 m, 3º39'46''N, 53º13'19''W, 31 May-3 Jun [June] 1997, J. Ashe, R. Brooks, ex: flight intercept trap (SEMC); 1♂, GUYANA: Region 8, Iwokrama Forest, 1 km W Kurupukari, Iwokrama Field Stn., 60 m, 4º40'19''N, 58º41'4''W, 20–25 May 2001, R. Brooks, Z. Falin, ex: flight intercept trap (SEMC).

COMMENTS: For now I have kept together those specimens coming from the Amazon Basin and Guiana Shield as they are remarkably similar, including the male genitalia. Nonetheless, there is noticeable color variation and it is possible that the individuals from the Amazon Basin (here represented by material from northern Brazil, including the holotype, and eastern Amazonian Peru) are specifically distinct and would constitute the 'true' *C. minutum*. Should the accumulation of larger series and data from other sources (*e.g.*, genetic data, hosts) suggest those in the Guiana Shield are truly different, then they would constitute a fifth and undescribed species for the genus. I have segregated the data from the small series of specimens into their respective geographic types (*vide supra*). I hope that the conservative position I've taken for the moment will be useful for future workers and stimulate some to more aggressively seeking these bees in the wild and to the discovery of their biology.

Previously I and colleagues considered the male we were sent from Berlin as the holotype (Engel *et al*., 1997). This was clearly an error as Friese (1926) mentions more than one specimen. Accordingly, I hereby designate a lectotype in order to stabilize the application of the name.

Cleptommation chibchani Engel, new species

ZooBank: urn:lsid:zoobank.org:act:E3833F8E-028C-4A3A-9B80-62FCE72BAE7B

(Figs. 36–45)

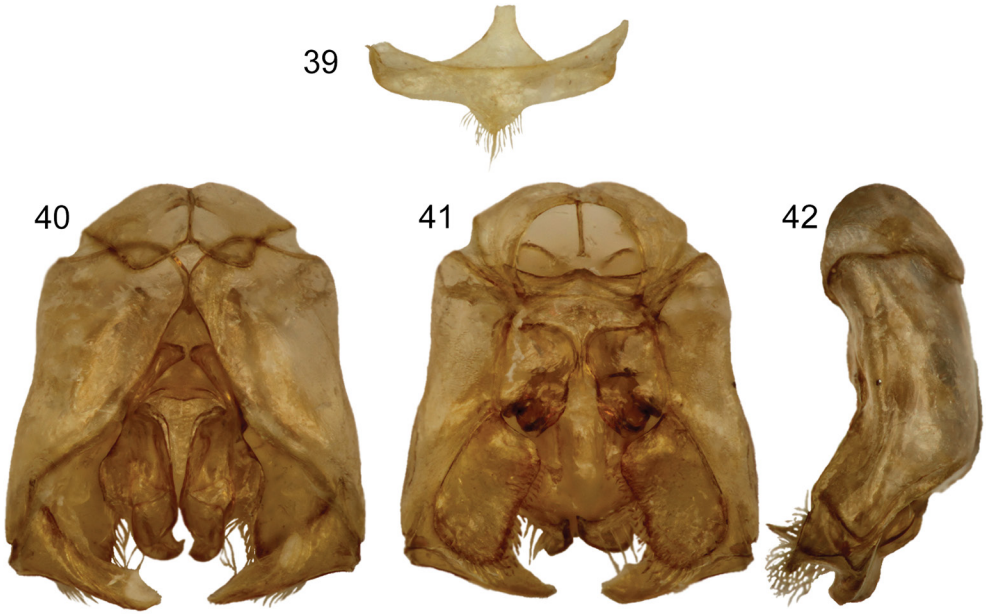
'*Cleptommation minutum* (Friese)'; Engel *et al*., 1997: 19 [*partim*].

Figures 36–38. Photomicrographs of male of *Cleptommation chibchani*, new species, from Panama. **36.** Lateral habitus. **37.** Dorsal habitus. **38.** Facial view.

Diagnosis: Refer to diagnosis for *C. minutum* (*vide supra*).

Description: ♂: Total body length 8.13 mm (8.00–10.00 mm); forewing length 6.33 mm (5.73–7.00 mm). Head length 1.93 mm (1.67–2.03 mm), width 2.07 mm (2.00–2.43 mm); upper interorbital distance 1.03 mm (1.00–1.07 mm); lower interorbital distance 0.97 mm (0.83–1.00 mm). Intertegular distance 1.47 mm (1.40–1.70 mm). Forewing basal vein distad cu-a by vein width; 1rs-m confluent with 1m-cu; 2rs-m distad 2m-cu by 10 times vein width, 2rs-m relatively straight; first submarginal cell longer than combined lengths of second and third submarginal cells; second submarginal narrow, anterior border of second submarginal cell along Rs less than length of third submarginal cell along same vein; anterior border of third submarginal cell about one-half to three-quarters length of posterior border; hind wing with distal hamuli arranged 3-1-3. Terminalia as in figures 39–42.

Labrum imbricate. Clypeus imbricate with faint, coarse punctures; supraclypeal area smooth with small punctures separated by a puncture width or less laterally; remainder of face with small punctures separated by a puncture width or less, progressively becoming more dense on upper face; punctures minute and more widely-spaced by ocellar area, separated by 1–2 times a puncture width in ocellocular area and 2–4



Figures 39–42. Photomicrographs of male terminalia of *Cleptommation chibchani*, new species, from Panama. **39.** Fused and hidden sterna VII+VIII. **40.** Genital capsule, dorsal view. **41.** Genital capsule, ventral view. **42.** Genital capsule, lateral view.

times medially on vertex; gena with punctures like those on vertex; postgena impunctate. Pronotum imbricate with scattered, minute punctures. Mesoscutum smooth with minute punctures separated by 1–2 times a puncture width, punctures fainter and sparser on anteromedial border around medial line and integument there faintly imbricate; mesoscutellum as on disc of mesoscutum except punctures separated by 1–3 times a puncture width; metanotum smooth, weakly nodulose near setal bases and with punctures separated by 1–2.5 times a puncture width. Preëpisternal area imbricate with scattered punctures; mesepisternum with small punctures separated by 0.5–2 times a puncture width, punctures becoming fainter and sparser ventrally and posteriorly; hypoepimeral area impunctate; metepisternum faintly imbricate and impunctate; lateral and posterior surfaces of propodeum weakly imbricate and impunctate; basal dorsal-facing area of propodeum finely imbricate and impunctate. First metasomal tergum smooth, shining, and impunctate; remaining terga finely imbricate; sterna finely imbricate.

Mandible yellow except reddish at apex; labrum yellow; clypeus entirely yellow, sometimes with basal margins brown with metallic green highlights; supraclypeal area entirely brown with strong metallic brassy green highlights. Scape and pedicel yellow (Fig. 38); flagellum brown. Face, vertex, and gena brown with strong metallic brassy green highlights; postgena light brown to yellow, sometimes with faint metallic highlights. Labiomaxillary complex yellow. Pronotum and propleura yellow; mesoscutum brown with strong metallic brassy green highlights, sometimes with highlights weaker on disc; mesoscutellum yellow, sometimes with weak metallic green highlights; metanotum often similar to mesoscutellum, sometimes slightly darker; propodeum yellow, basal area often with weak metallic green highlights; preëpisternum light brown with metallic green highlights above, yellow below; mesepisternum

Figures 43–45. Photomicrographs of female of *Cleptommation chibchani*, new species, from Panama. **43.** Lateral habitus. **44.** Dorsal habitus. **45.** Facial view.

brown with strong metallic brassy green highlights except yellow in lower posterior section; upper part of metepisternum often brown with metallic green highlights, remainder yellow; tegula translucent yellow without metallic highlights. Wing membranes hyaline and clear to slightly tinged as parchment; veins amber colored except Sc+R slightly darker. Legs entirely yellow. Metasoma entirely yellow except apical margins of terga brown (Figs. 36, 37).

Pubescence generally yellow; face with particularly prominent short, subappressed, plumose setae and becoming more sparse toward ocellar area; vertex with

scattered erect, long setae; gena with plumose setae as those on face although not as dense; postgena with sparse, simple, long, erect setae. Mesoscutum with scattered, fine, simple or little-branched, subappressed, yellow setae; with short plumose setae as those on face along lateral borders; mesoscutellum as on mesoscutum, posteriorly with more elongate and more erect setae; metanotum as on mesoscutellum although erect setae much more numerous and over entire surface; pleura with scattered yellow setae, becoming longer ventrally; propodeum with setae as on pleura except with dense patches of moderately long, plumose setae around propodeal spiracle. First metasomal tergum with sparse setae over much of surface except fine, suberect, yellow setae becoming more numerous, albeit still widely scattered, in posterior half; remainder of metasomal terga with fine, short, suberect to subappressed setae scattered over surface, becoming progressively more numerous and slightly longer on more apical terga; sterna with scattered, fine, suberect yellow setae, those of apicolateral corners of sterna II–IV typically longer and somewhat more sinuate.

♀: As described for the male except as follows: Total body length 8.20–10.13 mm; forewing length 6.67–7.33 mm. Head length 2.07–2.27 mm, width 2.50–2.77 mm; upper interorbital distance 1.40–1.50 mm; lower interorbital distance 1.37–1.50 mm. Intertegular distance 1.50–1.77 mm.

Punctation generally as described for male, although mesepisternal punctures distinctly fainter and more sparse.

Mespisternum sometimes entirely yellow with metallic green highlights.

Mesotibia with patch of dark brown to black setae on outer apex, most setae distinctly curved apically; metatibia with patch of dark brown to black setae on outer apex (Fig. 43), patch extending proximally as a thin row of setae to cover about apical one-quarter of metatibia, most setae distinctly curved or sinuate apically. Metasomal sterna with scattered, fine, short to long, largely-erect, yellow setae in apical half to third.

HOLOTYPE: ♂, PANAMA: Colón, 6.1 km on Pipeline Rd., nr. Gamboa, 40 m, 9º6'N, 79º45'W, 27–29.V.1995 [27–29 May 1995], J. Ashe, ex: flight intercept trap (SEMC).

PARATYPES: 1♀, PANAMA: Canal Zone, Barro Colorado Is., 27.iv.63 [27 April 1963], C.W. & M.E. Rettenmeyer / taken in Malaise trap (SEMC); 2♀♀, PANAMA: Panamá, Barro Colorado Island, 9º11'N, 79º51'W, 3 July 1994, D. Banks, ex: flight intercept trap (SEMC); 1♀, PANAMA: Panamá, Barro Colorado Island, 9º11'N, 79º51'W, 8 July 1994, D. Banks, ex: flight intercept trap (SEMC); 2♀♀, PANAMA: Panamá, Barro Colorado Island, 9º11'N, 79º51'W, 22 July 1994, D. Banks, ex: flight intercept trap (SEMC); 1♂, PANAMA: Panamá, Barro Colorado Island, 9º11'N, 79º51'W, 1 Aug 1994, D. Banks, ex: flight intercept trap (SEMC); 1♂, 1♀, PANAMA: Panamá, Barro Colorado Island, 9º11'N, 79º51'W, 6 Aug 1994, D. Banks, ex: flight intercept trap (SEMC); 1♂, PANAMA: Coclé, 7.2 km NE El Copé, 730 m, 8º37'N, 80º35'W, 20.v–7.vi.1995, J. Ashe, R. Brooks, flt. intercept trap (SEMC); 1♂, PANAMA: Darién: Cana Biological Station, Serrania de Pirre, 1450 m, 7º45'18''N, 77º41'6''W, 7–9 Jun 1996, J. Ashe, R. Brooks, ex: flight intercept trap (SEMC); 1♂, PANAMA: Darién: Cana Biological Station, 550 m, 7º45'18''N, 77º41'6''W, 7–9 Jun 1996, J. Ashe, R. Brooks, ex: flight intercept trap (SEMC); 1♂, PANAMA: Darién: Cana Biological Station, 530 m, 7º45'18''N, 77º41'6''W, 3–7 Jun 1996, J. Ashe, R. Brooks, ex: flight intercept trap (SEMC); 2♂♂, PANAMA: Colon: 15 km N. jct. Escobal & Pina Rds., ca. 30 m, 2 Jun 1996, J. Ashe, R. Brooks, ex: flight intercept trap (SEMC); 1♀, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11'0''N, 79º51'0''W, 17–23 Jun 2000, S. Chatzimanolis, ex: flight intercept trap (SEMC); 1♀, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11'0''N, 79º51'0''W, 18–22 Jun 2000, S. Chatzimano-

lis, ex: flight intercept trap (SEMC); 2♀♀, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11′0′′N, 79º51′0′′W, 22–25 Jun 2000, S. Chatzimanolis, ex: flight intercept trap (SEMC); 1♂, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11′0′′N, 79º51′0′′W, 23–27 Jun 2000, S. Chatzimanolis, ex: flight intercept trap (SEMC); 1♂, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11′0′′N, 79º51′0′′W, 25–30 Jun 2000, S. Chatzimanolis, ex: flight intercept trap (SEMC); 1♀, PANAMA: Panama: Barro Colorado Island, 40 m, 9º11′0′′N, 79º51′0′′W, 31 Jul–4 Aug 2000, S. Chatzimanolis, ex: flight intercept trap (SEMC); 1♂, COSTA RICA: Alajuela: Bijagua, 20 km S. Upala, 18–26 March 1991, F.D. Parker (EMUS); 1♀, COSTA RICA: Alajuela: Bijagua, 20 km S. Upala, 16 February 1991, F.D. Parker (EMUS); 1♀, COSTA RICA: Heredia: Chilamate, 75 m, December 1989–March 1990, Hanson and Godoy (EMUS); 1♂, COSTA RICA: Limón: 16 km W. Guápiles, 400 m, April 1989, P. Hanson (EMUS); 1♀, COSTA RICA: Puntarenas: Golfo Dulce, 24 km W. Piedras Blancas, 200 m, January 1992, Hanson (EMUS); 1♀, COSTA RICA: Puntarenas: Golfo Dulce, 24 km W. Piedras Blancas, 200 m, March 1992, Hanson (EMUS); 1♀, COSTA RICA: Puntarenas: Golfo Dulce, 24 km W. Piedras Blancas, 200 m, April-May 1992, Hanson (EMUS); 1♀, COSTA RICA: Puntarenas: Golfo Dulce, 24 km W. Piedras Blancas, 200 m, February-March 1993, Hanson (EMUS).

Etymology: The specific epithet honors the Chibchan-speaking peoples (the Chibchan language family, including Waimí, Borũca, Talamanca, Pech, Kuna, Chibcha, Arwako, and many others) who inhabited much of pre-Columbian Panama and Costa Rica (as well as southern Nicaragua and portions of Honduras and Colombia).

Key to species of *Cleptommation*

Known distributions are summarized in the couplets but are not meant as diagnostic for identification. Females are unknown for *C. tupaqi*.

1. Males 2
—. Females 5
2(1). Metasoma almost entirely yellow, frequently with brownish apical margins to segments, and propodeum entirely yellow (Figs. 36, 37) (Panama, Costa Rica) ..... *C. chibchani* Engel, n. sp.
—. Metasoma largely dark brown to light brown (Figs. 3, 4, 20, 27, 28), or, if as above, then propodeum brown with metallic green highlights (Figs. 13, 15) 3
3(2). Mesepisternum largely or entirely dark brown with strong metallic green highlights (Fig. 3, 13); apical process of sternum VII more broad and blunt along apex (Figs. 6, 16) 4
—. Mesepisternum entirely yellow to amber colored (Fig. 20) [sometimes yellowish or reddish brown in older, faded specimens (Fig. 27)]; apical process of sternum VII more acute, triangular (Fig. 23) (Amazon Basin, Guiana Shield) .... *C. minutum* (Friese)
4(3). Metasomal terga largely yellow with brownish apical margins (Figs. 13, 15); terminalia as in figures 16–19 [note the broader and more pronounced process of the sterna; more rounded cephalad-inner angle of the ventral gonostylar process, straighter inner margin of the volsella, *&c*.] (Ecuador) .... *C. tupaqi* Engel, n. sp.
—. Metasomal terga entirely brown to dark brown (Figs. 1, 3, 4), sometimes with yellow anteriorly on first metasomal tergum; terminalia as in figures 6–9 [note the less pronounced process of the sterna; more acutely angled cephalad-inner angle of the ventral gonostylar process, deeply concave inner margin of the volsella, *&c*.] (Bolivia) ..... *C. bulivyense* Engel, n. sp.

5(1). Mesoscutellum, metanotum, and propodeum not entirely metallic green in color, entirely or mostly amber to yellow in color, sometimes with medial areas of metallic green on mesoscutellum and metanotum (Figs. 31, 34, 44) 6
—. Mesoscutellum, metanotum, and propodeum entirely metallic green in color, concolorous with mesoscutum (Figs. 2, 11) (Bolivia) .... *C. bulivyense* Engel, n. sp.
6(5). Metasomal terga largely brown to dark brown (Figs. 30, 31, 33, 34) (Amazon Basin, Guiana Shield) ..... *C. minutum* (Friese)
—. Metasomal terga largely amber to yellow (Figs. 43, 44) (Panama, Costa Rica) .... *C. chibchani* Engel, n. sp.

DISCUSSION

As is true for most groups of bees, there remains much to discover about *Cleptommation* and this summary may hope at best to stimulate collecting and future research. Very little material is available for study and yet it is clear that the distributions of the genus and apparently some of the individual species are rather large, encompassing vast expanses of tropical America. It would therefore not be surprising if material was eventually discovered from Venezuela and Colombia, as well as elsewhere in those countries where records are already available. Putative hosts among *Megaloptina* have a similarly broad distribution from Costa Rica southward to Bolivia, Paraguay, and southern Brazil and there is no reason at present to expect *Cleptommation* to be restricted to a subset of that range (unless, of course, the supposition regarding their hosts is erroneous). Flight intercept traps appear to be good at capturing individuals and such methods should be more extensively employed during surveys, as these otherwise rare bees are not likely to be easily taken by a hand net.

The classification of species in *Cleptommation*, *Megaloptina*, *Stilbochlora*, and *Megommation s.str*. within a single genus is a historical artifact. Those augochlorines with a greatly narrowed labiomaxillary complex were all treated as *Megommation* except for *Megaloptidia* Cockerell, *Ariphanarthra* Moure, and *Micrommation* Moure, which each had peculiar autapomorphies of their own. Thus, as new species and groups with narrowed mouthparts were discovered they were systematically included in a gradually expanding *Megommation* (Eickwort, 1969; Engel *et al*., 1997; Engel, 2000). Indeed, Eickwort (1969: p. 440) suggested uniting *Megommation* and *Megaloptidia*, for which the latter would become the name for the more inclusive genus. The peculiarly elongate palpi of *Ariphanarthra* were sufficiently divergent in Eickwort's (1969) phenetic analysis that he retained this group at generic rank. While the species of the *Megaloptidia* group do form a clade (Engel, 2000), they are as different from one another as are any other genera of bees, and perhaps even more so. As additional species have continued to accumulate (Table 1), particularly from what was available at the time of Eickwort's seminal monograph on the Augochlorini, it is more practical to consider each at generic rank. Indeed, Silveira *et al*. (2002) made this very valuable step when they elevated *Megommation s.str*., *Megaloptina*, and *Stilbochlora* as individual genera. While it is tempting to consider *Cleptommation* as a subset of *Megaloptina* owing to the shared presence of dense patches of plumose pubescence around the propodeal spiracles in males, there are other features suggesting *Cleptommation* might not render *Megaloptina* paraphyletic. For example, in *Megaloptina* and *Megommation* the clypeal apex is deeply concave, a putative synapomorphy uniting these genera. If this is the case, then *Cleptommation* might fall outside of the clade, assuming the absence of this feature is plesiomorphic. In the absence of a cladogram including all of the known species of the

broader *Megaloptidia*-group genera, it is more conservative to treat *Cleptommation* as a separate genus.

The taxonomic choices made herein are certainly tentative and will require future revision as samples continue to grow and new tools can be applied to the group (*e.g.*, Engel, 2011b; Gonzalez *et al*., 2013). Certainly, our understanding of *C. minutum* has changed significantly in the last 16 years (Engel *et al*., 1997) and, as noted in the consideration of the species herein (*vide supra*), it may still be a complex of more than one taxon. Unfortunately, specimens of all genera in the *Megaloptidia* group are uncommon at best, or more often, downright rare: this reality hampers our understanding of their diversity, biology, and relationships. It is to be hoped that more will join the hunt for these elusive bees.

ACKNOWLEDGEMENTS

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