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New species and records of *Copris* (Coleoptera: Scarabaeidae; Scarabaeinae) from Central America

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Abstract

Two new species of *Copris* Geoffroy from Guatemala and Honduras are described and illustrated: *Copris caliginosus* **sp. nov.** and *Copris nubilosus* **sp. nov.** Both species are related to *C. sallei* Harold, which is redescribed and illustrated for the first time. A key for the *remotus* complex is also included. New distributional records of *Copris* are provided for five species and subspecies from Guatemala and El Salvador.

Key words: Coleoptera, Scarabaeidae, *Copris*, new species, new records, Central America, El Salvador, Guatemala, Honduras, cloud forest

Introduction

At present the New World representatives of the genus *Copris* Geoffroy comprise 29 species. The US and Canada report nine species, twenty more are distributed in Mexico, whereas nine species are known from Central America and one in South America (Matthews, 1961; Matthews and Halffter, 1968; Warner, 1990; Ratcliffe, 1998; Delgado and Kohlmann, 2001; Solís and Kohlmann, 2003).

In this paper we describe two new species of *Copris* inhabiting the cloud forests of Guatemala and Honduras, between 1,300 and 1,800 m elevation; bringing the number of New World *Copris* to 31. In addition, we also redescribe and illustrate the male of *C. sallei* Harold to aid in its comparison to the new species. Drawings of the male dorsal and lateral habitus and a distribution map for the new species and other taxa are also provided. A key for the *remotus* complex is also included.

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Holotypes, allotypes and 8 paratypes of the new species are deposited at the Arthropod Collection, Universidad del Valle de Guatemala; one male paratype of both new species are deposited with B. Kohlmann, Las Mercedes de Guácimo; one male paratype of *C. nubilosus* is deposited in the collection of L. Delgado, Mexico-City.

***Copris caliginosus* Kohlmann, Cano and Delgado, sp. nov. (Figs. 1, 4, 5)**

Diagnosis. This species is distinguished by the following combination of characters: clypeal teeth acute and remote in males, small, the margin between them not appreciably excised, without median notch; hind angles of head acute; anterior angles of pronotum acute, although feebly developed; anterior pronotal margin behind gena forming a well-developed tooth; frontal pronotal declivity with a carina running through the middle in well-developed males; median dorsal sulcus of pronotum coarsely umbilico-punctate; incomplete 8th elytral stria; forespur slightly curved inward near apex and slightly dilated; median coxae with gross umbilical punctures on the outer face; pygidial margin complete. Additionally, well-developed males have the cephalic horn strongly curved backwards and the median pronotal prominences are massive, their outer edges slightly divergent (Fig. 1).

Description. Holotype. Male (Figs. 1, 4): Total length: 17.1 mm. Elytral width: 9.1 mm. Head armed. Clypeus with two remote, small teeth, the margin between them curved inward in a broad, shallow arc. Posterior angles of genae acute. Upper surface of head umbilico-punctate, with the exception of the base and along genal suture. Head horn is long and reflexed backwards. Demarcation between gula and submentum arcuate. Antennae dark brown.

Pronotum armed. Anterolateral angles acute and weakly developed. Lateral carina rounded, issuing from margin. Anterior margin behind gena forming a well-developed tooth; area behind teeth forming an excavation (Fig. 4). Frontal declivity with a carina running through its middle. Median longitudinal sulcus impressed, umbilico-punctate. Punctation of pronotum as follows: coarsely umbilico-punctate in all depressions and margins; raised areas of pronotal base, prominences and most of anterior declivities impunctate; no simple punctures. Lateral pronotal prominences small and pointing parallel to the body axis. Median pronotal prominences with a wide base and two diverging teeth pointing upwards. Anterior prosternal margin with a pointed tooth; sternellum umbilico-punctate. Median lobe of metasternum umbilico-punctate anteriorly and laterally; median longitudinal impressed line complete.

Elytra with 8th stria incomplete; 9th stria arising at anterior third of elytron; 10th complete. Striae very coarsely punctate, the punctures umbilicate, and separated by a distance approximately equal to their diameter. Interstriae slightly convex and microscopically punctate.

Pygidium with complete margin, irregularly umbilico-punctate, punctures bearing short, stiff golden setae.

Ventral surface of profemora with setigerous punctures umbilicate on posterior longitudinal half, microscopically punctate on anterior. Protibial apical spurs linear and curved downwards tapering to a blunt end. Coxa with some umbilicate punctures on outer surface. Mesofemora and metafemora with setigerous umbilicate punctures toward apex and rear margin, rest of the surface microscopically punctate.

Allotype. Female: Total length: 17.9 mm. Elytral width: 9.2 mm. Differs from the holotype by the following characters: Head with a short horn, wider than long, apex excavated postero-dorsally. Clypeal margin with teeth more extended and rounded, with a very open notch at their middle. Antennae dark brown. Pronotum armed with a central carina and two lateral tubercles behind declivity, carina wavelike, emarginated at middle. Pronotal disc and area near the base and posterior angles impunctate, the rest strongly umbilico-punctate. Median longitudinal sulcus impressed and umbilico-punctate. Anterior angles forming a small tooth. Anterolateral regions of metasternal lobe umbilico-punctate.

Variation. Total length: 14.5-17.9 mm. Elytral width: 7.6-9.2 mm. Females sometimes show a little tooth formed at the middle of the anterior pronotal margin**.**

Examined material (14 males, 9 females). **Holotype**, male: GUATEMALA. *Baja Verapaz*. Chilascó, 9-10.X.1999, bosque nuboso, 1800m, Col. M.I. Lambour y A.V. Cuéllar, trampa pitfall con heces de cerdo. **Allotype**, female: *ibidem*. **Paratypes.** *ibidem*, 8 males, 4 females; *ibidem*, heces humanas 2 males, 3 females; *ibidem*, pescado podrido 1 male, 1 female; Salamá, La Unión Barrios, Cerro Verde, 14.VI.2000, 1800m., Col. A. Higueros, 1 male; Purulhá, Biotopo del Quetzal, heces humanas, VIII.2000, Col. A. Higueros, 1 male.

Remarks. This species belongs to the *remotus* complex, as defined by Matthews (1961). This species will key to the *C. remotus remotus* and *C. mexicanus* couplet in Matthews' key based on males, but it will not fit either of the two descriptions. Since neither *remotus*, nor *mexicanus*, exist in Central America, and *sallei* (which is not included in Matthews' key) is much more closely related to *C. caliginosus* and *C. nubilosus*, comparisons will be made with *C. sallei*. A new key for the *remotus* complex based on males is proposed, including the recently described *C. tridentatus* Solís and Kohlmann. The key is presented after the species descriptions.

Copris caliginosus differs from *C. sallei* by having a much more strongly curved horn than *C. sallei*; the base of the mid-pronotal projections is evenly arched, whereas it forms a distinct gibbosity in *C. sallei*; lateral pronotal prominences are small, whereas they are developed in *C. sallei*; pronotal face smooth and slightly concave with a faint carina running through its middle, umbilico-punctate only at its flanks, whereas the pronotal face in *C. sallei* is level and completely umbilico-punctate, no evidence of a central carina running through its middle; lateral pronotal prominences smooth, whereas grossly punctate in *C. sallei*; it differs also from *C. sallei* in having a well-developed tooth on the anterior

pronotal margin behind the gena and in having a feebly developed acute anterolateral margin; whereas *C. sallei* has a very feeble tooth on the anterior pronotal margin behind the gena and a very acute and developed anterolateral margin.

Distribution. (Fig. 5). This species occurs in the mountainous areas of Baja Verapaz, associated with cloud forest between 1700-2000m, surrounded by forests formed by *Liquidambar*, *Pinus* and *Quercus* at lower altitude (1500m). In its distribution it closely resembles *C. matthewsi matthewsi* that is also only found in the Verapaces in Guatemala and in the Meseta Central of Chiapas. Consequently, one would also expect to find this species in Chiapas, Mexico.

Etymology. Latin adjective, *caliginosus*, meaning foggy or misty; alluding to the fact that this species is found in cloud forest habitat.

Copris nubilosus Kohlmann, Cano and Delgado, sp. nov. (Figs. 2, 4, 5)

Diagnosis. This species differs from the *C. caliginosus* in the structure of the male anterior pronotal angle. The anterior margin forms a small, downwardly directed median point and the anterolateral angles are separated from it by a more or less level area (Fig. 4); whereas in *caliginosus* the margin does not form this median point and the anterolateral angles occupying this space and an excavated area forms behind the angles (Fig. 4). Also, this species has reddish-brown antennal lamellae, whereas in C. *caliginosus* they are dark brown.

Description. Holotype. Male (Figs. 2, 4): Total length: 15.1 mm. Elytral width: 8.6 mm.

Head armed. Clypeus with two remote, small teeth, the margin between them curved inward in a broad, shallow arc. Posterior angles of genae acute. Upper surface of head umbilico-punctate, with the exception of the base and along genal suture. Head horn is long and strongly curved backwards. Demarcation between gula and submentum arcuate. Antennae reddish-brown.

Pronotum armed. Anterolateral angles acute, immediately followed by a sharply curved margin. Lateral carina rounded, issuing from margin. Anterior margin behind gena forming a small, downwardly directed median point and separated from the anterolateral acute angles by a more or less level area, not forming any excavation (Fig. 4). Frontal declivity with a carina running through its middle. Median longitudinal sulcus impressed, umbilico-punctate. Punctation of pronotum as follows: coarsely umbilico-punctate in all depressions and margins; raised areas of pronotal base, prominences and most of anterior declivities contrastingly impunctate; no simple punctures. Lateral pronotal prominences small and pointing parallel to the body axis. Median pronotal prominences with a wide base and two diverging teeth pointing upwards. Anterior prosternal margin with a pointed tooth; sternellum umbilico-punctate. Median lobe of metasternum umbilico-punctate anteriorly and laterally; median longitudinal impressed line complete.

Elytra with 8th stria incomplete; 9th stria arising at anterior third of elytron; 10th complete. Striae coarsely punctate, punctures circular, umbilical, and separated by a distance equal to about their diameter. Interstriae slightly convex and microscopically punctate.

Pygidium with complete margin, irregularly umbilico-punctate, punctation bearing short, stiff golden setae.

Ventral surface of profemur setigerous umbilico-punctate on posterior longitudinal half, microscopically punctate on anterior. Protibial apical spur linear and curved downwards tapering to a blunt end. Coxa with some umbilical punctures on outer surface. Mesofemora with umbilicate punctures setigerous toward apex and rear margin, rest of the surface microscopically punctate. Metafemur as mesofemur.

Allotype. Female: Total length: 13.8 mm. Elytral width: 7.1 mm. Differs from the holotype by the following characters: Head with a slightly raised horn, wider than long, apex excavated postero-dorsally. Clypeal margin with teeth more extended and rounded, with an open medial notch. Antennae reddish-brown. Pronotum armed with a faintly developed central carina and two lateral tubercles behind declivity, carina wavelike, emarginated at middle. Pronotal disc and area near the base and posterior angles impunctate, remaining punctures umbilicate. Median longitudinal sulcus impressed and umbilico-punctate. Anterior angles forming a small tooth. Anterolateral regions of metasternal lobe umbilico-punctate.

Variation. Total length: 13.8-16.9 mm. Elytral width: 7.1-8.7 mm. Less developed males have a small thin horn, that does not curve back; whereas in minor males the horn is reduced to a small pointed tubercle. Some male specimens present a faint frontal carina running through the middle of the pronotal declivity.

Examined material (9 males, 1 female)**. Holotype**, male: GUATEMALA. *Zacapa*. La Unión, 2 km Norte, 23-24.V.1993, 1400m, J. Monzón, **Allotype**, female: *ibidem*, 25.IX.94, C. Estrada. **Paratypes.** *Baja Verapaz.* Purulhá, 30.IV.1995, X. Leiva, 2 males; Purulhá, Biotopo del Quetzal, VIII.2000 heces humanas, A. Higueros, 1 male. *Huehuetenango.* Barillas, camino entre Nuevo San Mateo y San Juan de las Milpas, cerca de la Laguna Maxbal (*sic*, should be Muxbal), 28-30.V.1998, bosque nuboso, E. Cano. *Zacapa.* La Unión, 2 km Norte, 12-14.IV.1992, 1300m, J. Monzón, 1 male; 23-24.V.1993, 1400m, J. Monzón, 1male; La Unión, 25.IX.94, C. Estrada, 1 male. HONDURAS. *Copán.* Cerro Azul, 4300 pies, 5-6.IV.1993, W. González, 1 male.

Remarks. This species belongs to the *remotus* complex, as defined by Matthews (1961). This species will key to the *C. remotus remotus* and *C. mexicanus* dichotomy in Matthews' key based on males, although it will not fit either of the two descriptions.

The only consistently reliable character for separating this species with C. *caliginosus* is the antennal color. *Copris nubilosus* has reddish-brown antennae, while those of *C. caliginosus* are dark brown. This species is closely related to *C. sallei* and *C. caliginosus*.

Copris nubilosus differs from *C. sallei* by having a much more strongly curved horn than *C. sallei*, antennae reddish-brown, whereas they are dark brown in *C. sallei*; the base

of the mid-pronotal projections is evenly arched, whereas it forms a distinct gibbosity in *C. sallei*; lateral pronotal prominences are small, whereas they are developed in *C. sallei*; pronotal face smooth and slightly concave with a faint carina running through its middle, umbilico-punctate only at its flanks, whereas the pronotal face in *C. sallei* is level and completely umbilico-punctate, no evidence of a central carina running through its middle; lateral pronotal prominences smooth, whereas grossly punctate in *C. sallei*; it differs also from *C. sallei* in having a well developed tooth on the anterior pronotal margin behind the gena and in having a feebly developed acute anterolateral margin; whereas *C. sallei* has a very feeble tooth on the anterior pronotal margin behind the gena and a very acute and developed anterolateral margin.

Distribution. (Fig. 5). This species seems to be living in the mountainous areas of the Sierra de los Cuchumatanes, Sierra de las Minas and Sierra del Merendón in Guatemala and Honduras, associated with cloud forest between 1350-1800m, formed by species of *Quercus*, *Clusia*, *Nectandra*, *Inga*, and *Hedyosum*. One would expect to find this species in the northern range of the Sierra Madre de Chiapas too, since Huehuetenango is but a few km away from the border.

Etymology. Latin adjective, *nubilosus*, meaning cloudy; alluding to the fact that the species lives in cloud forests.

Copris sallei Harold (Figs. 3, 4)

Copris sallei Harold, 1869: 496-497, *Ann. Soc. Ent. France, sér. 4*, IX.
Copris sallei Harold: Bates, 1887; Matthews, 1959, 1961; Matthews and Halffter, 1968.

Redescription. Male (Figs. 3, 4): Total length: 17.4 mm. Width: 9.1 mm.

Head armed with heavy horn, regularly curved backwards. Clypeus bidentate, the teeth remote and evident, with shallow, median notch. Posterior angles of genae acute. Upper surface of head closely punctate except for base and area between the eyes, which are smooth. Antennae dark brown.

Pronotum armed. Anterolateral angles acute with point of angle made salient by an inward curve of lateral margin immediately behind it, the margin curving out again at origin of lateral carina. Lateral carina sharp. Anterior margin of pronotum not forming a median point or angle. Median longitudinal sulcus present only on disc proper, impressed, umbilico-punctate; the field of punctures broadening anteriorly. Punctation of pronotum as follows: base and disc shining, impunctate except for dorsal sulcus and submargin, which are umbilico-punctate; entire submargin, lateral fossae, depressions between prominences, and medium anterior face strongly umbilico-punctate; simple punctures on lateral prominences. Anterior prosternal margin with median tooth; sternellum sparsely and shallowly punctate. Lateral carina sharp. Lateral prominences laminate, their dorsal edges pointing upwards in lateral view, outward in dorsal view. Median prominences like two small diverging teeth pointing upward in lateral view, and with a broad and gibbous base.

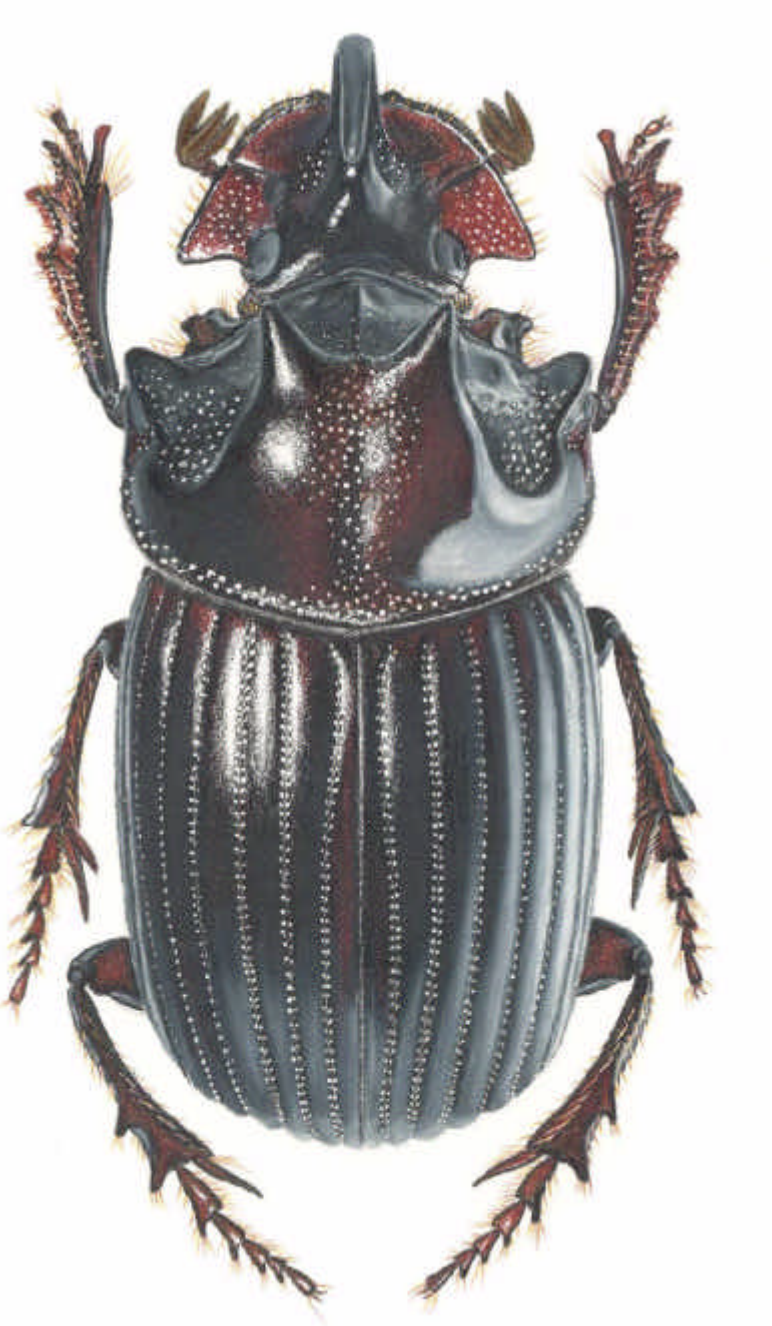

FIGURE. 1. Dorsal view of *Copris caliginosus* Kohlmann, Cano and Delgado, **sp. nov.** (holotype).

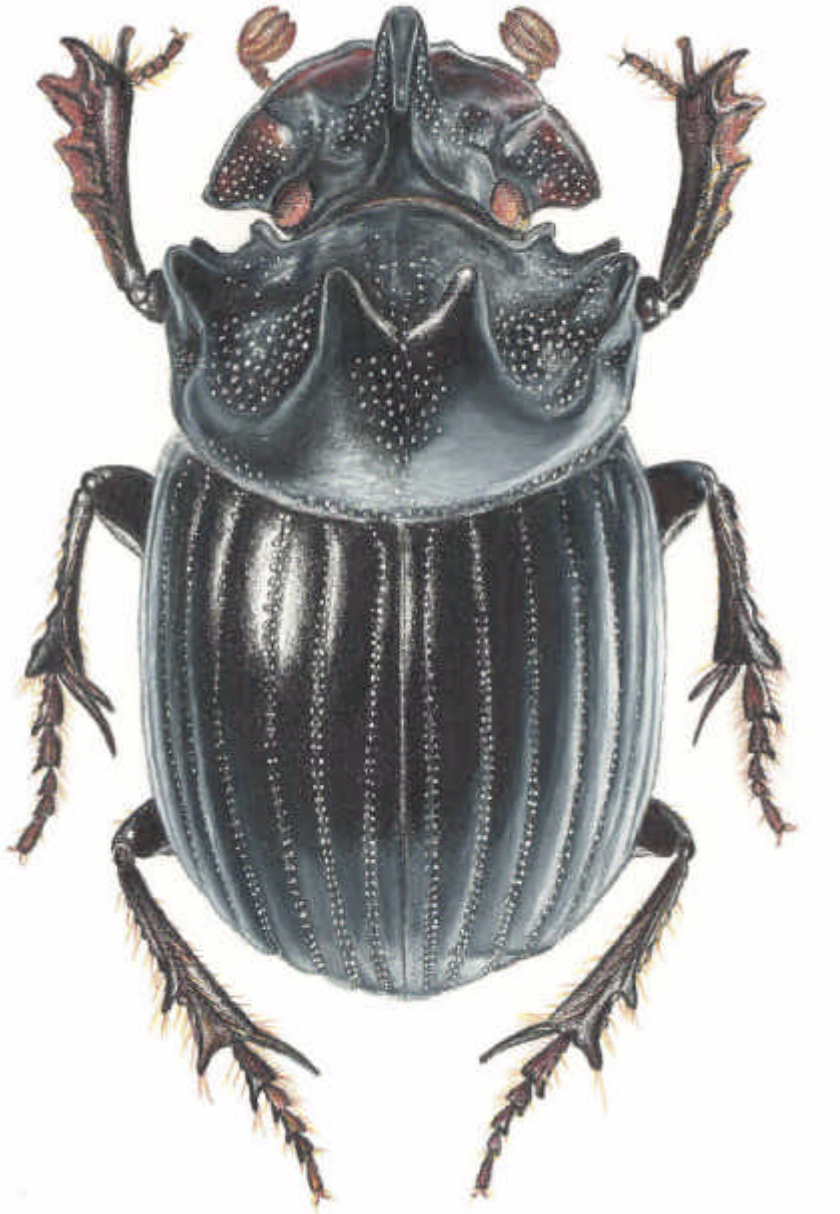

FIGURE. 2. Dorsal view of *Copris nubilosus* Kohlmann, Cano and Delgado, **sp. nov.** (holotype).

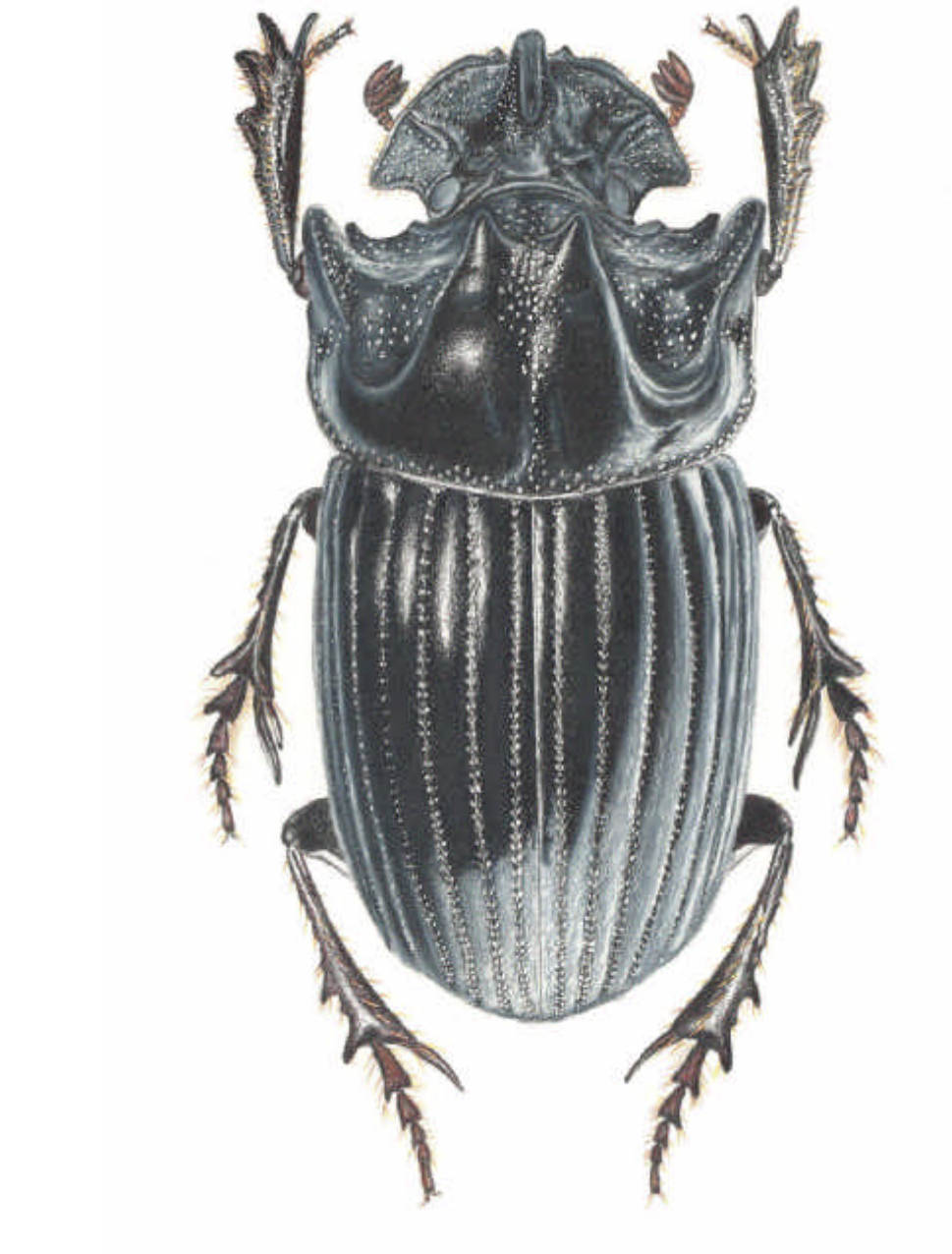

FIGURE. 3. Dorsal view of *C. sallei* Harold.

FIGURE. 4. Lateral views of head and pronotum of *Copris caliginosus* Kohlmann, Cano and Delgado, **sp. nov.** (holotype, top), *Copris nubilosus* Kohlmann, Cano and Delgado, **sp. nov.** (holotype, middle) and *Copris sallei* (bottom).

Elytra with 8th stria complete; 9th arising at about anterior third of elytral length; 10th complete. Striae closely and distinctly punctate, the punctures transverse, separated by a distance about equal their width. Interstriae slightly convex, impunctate.

Pygidium moderately umbilico-punctate, completely margined.

Anterior legs with ventral surface of femur with coarse setigerous punctures on posterior longitudinal two thirds, finely punctate over rest of surface. Protibial apical spur linear and only slightly curved inwards and downwards at apex, tapering to a blunt point. Middle legs with a coxa that has a few umbilical punctures on middle of outer face. Ventral surface of femur with many coarse setigerous punctures distally and along the posterior margin, fine punctures over the rest of the surface. Posterior legs with ventral surface of femur as described for middle legs.

Female. Total length: 15.8 mm. Width: 9.3 mm. Differs from the male by the following characters: Head with a slightly raised horn, wider than long, apex excavated posterodorsally. Clypeal margin with teeth more extended and rounded, with an open medial notch. Antennae dark-brown. Pronotum armed with a faintly developed central carina and two lateral tubercles behind declivity, carina wavelike, emarginated at middle. Pronotal disc and area near the base and posterior angles impunctate, remaining punctures umbilicate. Median longitudinal sulcus impressed and umbilico-punctate. Anterior angles forming a small tooth. Anterolateral regions of metasternal lobe umbilico-punctate.

Examined material (1 male, 1 female). MEXICO. *Veracruz.* Catemaco. Pipiapan. Parque de la flora y fauna silvestre tropical. 600m. 31-IV-1990. Selva alta perennifolia. F. Capistrán col., CTP-90 1 male, 1 female.

Remarks. For comparative purposes, we redescribe and illustrate a major male of *C. sallei*. Matthews and Halffter (1968) presented a short description of the male, but did not illustrate it.

Distribution. Matthews and Halffter (1968) recorded this species from Veracruz to Chiapas, Mexico. The species inhabits a broad range of habitats ranging from humid tropical forest to cloud and pine-oak forest between 600 to 2100m elevation.

Diagnosis of the *remotus* complex as modified by Matthews and Halffter (1968)

Posterior angles of head subquadrate or usually acute. Anterolateral angles of pronotum acute, the margin behind them sinuate. Median longitudinal sulcus of pronotum coarsely punctate. Median coxae with gross umbilical punctures on the outer face. Pygidial margin complete or not.

Seven species found at low to moderate altitudes in Central and Eastern Mexico (and bordering United States territory) and Central America: *remotus* LeConte, *mexicanus* Matthews and Halffter, *sallei* Harold, *caliginosus* Kohlmann, Cano and Delgado, *nubilosus* Kohlmann, Cano and Delgado, *tridentatus* Solís and Kohlmann and *costaricencis* Gahan.

Key to the species of the *remotus* complex based on the major males

1. Head unarmed having only a gibbosity, clypeus tridentate; thorax unarmed. Costa Rica ..... *tridentatus* Solís & Kohlmann
- Head armed with a horn, clypeus bidentate; thorax armed 2
2. Pygidial margin incomplete, its inner border completely effaced ventrally. Chiapas, Guatemala, Costa Rica and Panamá ..... *costaricencis* Gahan
- Pygidial margin complete, its inner border entirely engraved 3
3. Eighth elytral stria incomplete; frontal pronotal declivity with a carina running through its middle 4
- Eighth elytral stria complete; frontal pronotal declivity without a carina running through its middle 5
4. Antennae dark-brown; male anterolateral pronotal angles not forming median point, but presenting an excavation behind these angles (Fig. 4), median pronotal prominences diverging (Fig. 1). Guatemala . *caliginosus* Kohlmann, Cano & Delgado, n. sp.
- Antennae reddish-brown; male anterolateral pronotal angles forming a small downwardly directed median point and separated from the angles by a more or less level area (Fig. 4), median pronotal prominences strongly diverging (Fig. 2). Guatemala and Honduras ..... *nubilosus* Kohlmann, Cano and Delgado, n. sp.
5. Protibial apical spur abruptly bent inward very near apex. Oklahoma, Texas, Coahuila, Nuevo León and Tamaulipas ..... *remotus* LeConte
- Protibial apical spur curved or slightly curved inward (Fig. 3) 6
6. Anterior pronotal margin with a minute, acute median tooth (Fig. 3); elytral striae with large, less transverse punctures, distinctly crenating the margins of the strial channels; protibial apical spurs blunt (Fig. 3). Veracruz to Chiapas ..... *sallei* Harold
- Anterior pronotal margin not forming any median point or angle; elytral striae with fine, very transverse punctures which at most only slightly crenate the edges of the channel; protibial apical spurs pointed. Michoacán.. *mexicanus* Matthews and Halffter

New Distributional Records

***Copris aspericollis* Gillet (Fig. 5)**

This species was known only from Guatemala and is recorded here for the first time from El Salvador, where the vegetation type was a mix of pine and *Cupressus*. In Guatemala this species is distributed in the mountainous areas of the Sierra de los Cuchumatanes, and the Meseta Central between 1500 to 2800m, in association with pine-oak forests.

GUATEMALA. *Huehuetenango.* Huehuetango, Zaculeu, 31.V.1992, H. Castañeda (1). San Pedro Necta, above finca La Providencia, 30.V.1992, H. Castañeda (1). Huehuetenango, Chivacabé, 1900m, 31.X.1993, E. Cano, pine-oak forest (6); same data but 14-

16.IX.1995 (6). Chiantla, 15 km N. of Chiantla, 2200m, 16.IX.1990, M. Goyzueta (1). Chiantla, road to Aguacatán, 2135 msnm, pine-oak forest, 16-17.IX.1995, E. Cano (3). Chiantla, Turicentro del Valle, 15-16.IX.1995, E. Cano (2). Todos Santos Cuchumatán, road Max-Río Ocho, 2800m, 14.X.2001, J. Monzón. *Guatemala.* Santa Catarina Pinula, Puerta Parada, 24.IX.1983, B. Estrada (1); same data but 27.V.1977, J.C. Schuster (1). San José Pinula, 12.IV.1983, H. Ubieto (1); same data but 6.VII.1983 (1). Guatemala, ciudad, V.1986, L. Rodríguez (3). *Sacatepequez.* San Lucas Sacatepequez, Cerro Alux, 22.IX.1990, J. Monzón (1). Antigua Guatemala, finca Florencia, road to Antigua Guatemala, 15.IX.1990, L. Matheu (1).

EL SALVADOR. *Santa Ana.* Los Planes, P.N. Montecristo, 18.VI.2002, 13° 23' 56''N, 89°21'40''W, 1853 m, E. Echeverría (1).

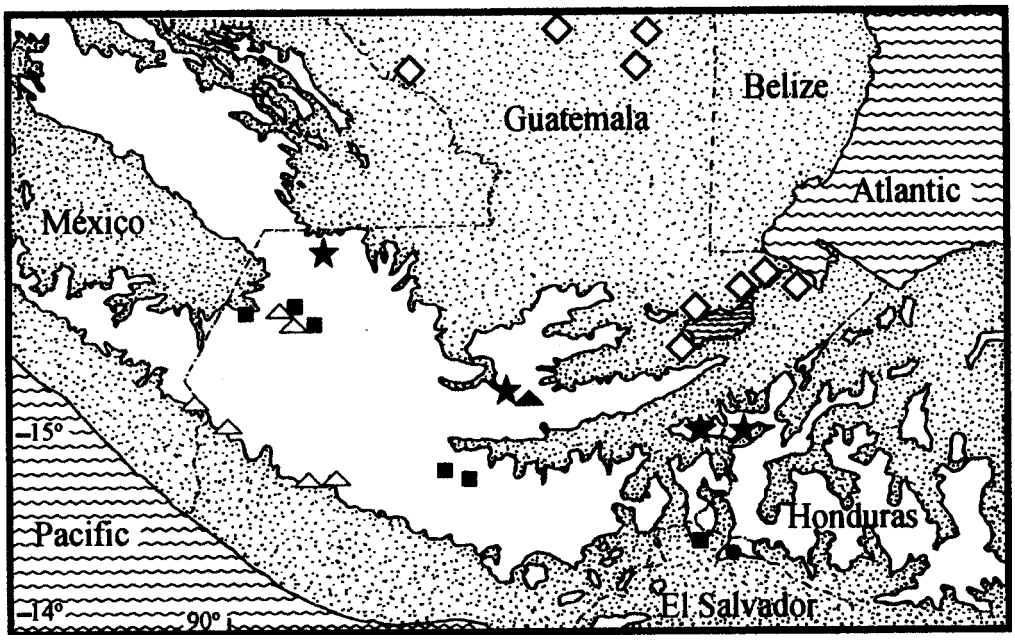

FIGURE 5. Distribution of *Copris* cited in the work (except the widely distributed *C. lugubris* and the Mexican *C. sallei*) in Central America. White area is above 800 m. Black stars = *C. nubilosus* Kohlmann, Cano and Delgado, **sp. nov.**; black triangle = *C. caliginosus* Kohlmann, Cano and Delgado, **sp. nov.**; black squares = *C. aspericollis*; black circle = *C. matthewsi pacificus*; white triangle = *C. costaricensis dolichocerus*; white rhombus = *C. laeviceps*.

Copris costaricensis dolichocerus Matthews (Fig. 5)

This subspecies is known from 1500 to 2000 m, in mountainous cloud forests and pine-oak forests in the Volcanic Chain between Chiapas and Guatemala. It is also known from the Sierra de los Cuchumatanes and perhaps Quiché (one female cited by Matthews (1961)) in

Guatemala. There are subtle differences between localities because the major males of Huehuetenango have the 8th elytral stria almost incomplete anteriorly.

GUATEMALA. *Suchitepequez.* Cuyotenango, Chacalté-Sis, V-VI.1993, E. Espina (5). Chicacao, fca. El Porvenir, 13.VII.1998, C. Méndez, cafetales, 1500m (4). *San Marcos.* La Fraternidad, VIII.1996, J. Monzón, Bosque nuboso y cafetales, 1900m (2). *Huehuetenango.* Road between Chiantla and Aguacatán, 2135m, pine-oak forest, 16-17.IX.1995, E. Cano (3). Chiantla, Turicentro del Valle, 1910m, 15-16.IX.1995, E. Cano (1). Chiantla, Buenos Aires, 2000m, 10.VII.2001, J. Monzón (3); same data but IX. 2001 (1); same data but X.2001 (1).

Copris laeviceps Harold (Fig. 5)

In Guatemala this species is only known from the tropical lowland rainforest of the Atlantic region.

GUATEMALA. *Petén.* La Libertad, Comunidad Bethel. 8-10.VI.1995. E. Cano (8). Flores, El Remate, Biotopo Cerro Cahuí, 28-29.VII.1995, E. Cano (8). San Andrés, aldea Carmelita, campamento Chuntuquí, 24-25.II.1996, 17°32'N, 90°07'W, E. Cano (1). Parque Nacional Tikal, 5.IX.1995, G. Orellana (3). San José, San Miguel La Palotada, 16.III.1999, M. Jolón (3). *Izabal.* Morales, Cerro San Gil, aldea Los Ángeles, 1200m, 5.X.1997, S. Barrios (4). Livingston, Biotopo Chocón Machacas, 17-23.VI.1997, bosque húmedo inundable, C. Avendaño (3). Río Dulce, fca. Talismán, 9.III.1997, G. Pereira (13). Río Dulce, aldea Sejá, 29.III.1992, C. Bravo (1). El Estor, 28.IV.2000, C. García (1). El Estor, Bocas de Polochic, Reserva Selempín, 100msnm, IX.2001 (2).

Copris lugubris Boheman

In Guatemala this species includes a wide range of distributions and habitats, from sea level to 2200m.

GUATEMALA. *Escuintla.* Escuintla, km. 94 a Santa Rosa, fca. Santa Cecilia, 17.II.1991, M.E. González (1). Masagua, finca el Capullo 12.II.1994, A. del Valle (1). Santa Lucía Cotzumalguapa, km 17, 23.III.1996, L. Estrada (1). *Suchitepequez.* Cuyotenango, Chacalté Sis, V-VI.1993, E. Espina (25). Chicacao, finca El Porvenir, 11.X.1980, C. Méndez (1). San Antonio, 29.IV.1994, H. Bauer (1). *Alta Verapaz.* Cobán, 6.III.1988 (1). San Cristóbal Verapaz, near Baleu, 15°21'52" N, 90°36'05"W, 3.II.1996, K. Villatoro (1). *Baja Verapaz.* Telemán, finca Pueblo Viejo, 24.VI.1989, E. Cano (1). Salamá, Salamá, 28.VII.1977, N. Rizzo (7). Salamá, finca Rancho Grande S.E. de Salamá, 9.VI.1998, pine-oak forest, J.C. Schuster (2). *Huehuetenango.* Nentón, San José Chaquial, 20.VI.1996, E. Cano (1). Nentón, finca Los Cimientos, 1km del río Lagartero, 3-

6.X.1996, M. Jolón (10). Nentón, fca. El Zapote, 560msnm, río Lagarteros, 1.VI.1997, J. Monzón y E. Giesbert (7). Barillas, Chiblac, 10.VII.1997, M. Jolón (1); same data but, 1200m, 26.V.1996, E. Cano, A.C. Bailey y J. Monzón. *Petén.* Flores, aldea El Remate, Biotopo Cerro Cahuí, 14.VI.1980, E. Cano (1); same data but 9.IV.1994, R. Puga (1). San Francisco, 20.V.1988, V. Barrios (1). La Libertad, comunidad Bethel, 14.VIII.1996, E. Cano (1). Flores, aldea El Porvenir, near Tikal, 8.VIII.1996, E. Cano (4). Flores, Laguna Yaxhá, 17º04'10"N, 89º24'00"W, 12.XI.1982 (1). Flores, aldea El Caoba, camino a Tikal, 1.X.1995, G. Orellana (4). *Quetzaltenango.* El Palmar (Viejo), finca El Faro, 23.V.1989, 875msnm, E. Cano (1). *Izabal.* Livingston, finca Toquelá, 15-20.XI.1989, E. Cano (1). Livinston, Livingston, 14.XI.1982, E. Bauer (1). Livingston, Livingston, finca San Gerónimo, 16.VII.1994, M. Rodríguez (1). Morales, Sierra de Caral, 450m, X.1992, J. Monzón (1). Mariscos, Cocales, Rancho Alegre, 23.VIII.1997, J. Monzón y A.C. Bailey (3). Santo Tomás de Castilla, Cerro San Gil, 900msnm, 1999 (4); same data except, 26.VI.1998, E. Cano y J. Monzón (1). Livingston, Carboneras, Cerro San Gil, 400m, 12.VII.1999, G. Goemans (4). El Estor, finca El Paraíso, 17.VII.1999 (1). *Guatemala.* Guatemala, ciudad, 16.IX.1989, E. Cano (1); same data but 27.VII.1993 (1); same data but 1.VII.1989 (1); same data but 20.VI.1992 (1). San José Pinula, 28.IV.1994, H. Bauer (1). Villa Nueva, 17.V.1994, A. Villatoro (1). Amatitlán, Tacatón, 25-29.V.1989, C. MacVean (2). Guatemala, Nimajuyú, 21.V.2000, A. Higueros (23). *Quiché.* Chicamán, Chixiquín, 15°22'00"N, 90°42'58" W, 1.II.1980, E. Cano (14). Chajul, aldea Santa Delfina, 24-29.IV.1995, E. Araujo (1). Sacapulas, bosque seco, 31.V.1998, E. Cano (3). *Santa Rosa.* Chiquimulilla, El Ahumado, 13°49'45"N, 90°18'35"W, IV.1992, M. Rámila (1). Cuilapa, Cuilapa, 4.II.1991, P. Fernández (1). Pueblo Nuevo Viñas, 3.V.1997, J. Monzón (1). Taxisco, Taxisco, 13-14.VI.1998, G. Chinchilla (17). Barberena, El Cerinal, 1000msnm, V.1998, A.C. Bailey y J. Monzón (2). Barberena, Laguna El Pino, VI.1998, J. Monzón (6). *Jalapa.* Mataquescuintla, 2200m, 1.IX.1990, A. Corral (1). *Chiquimula.* Esquipulas, aldea El Duraznal, 1750m, 20.VIII.1998, E. Cano (1). *San Marcos.* Tilapa, 20.X.1992, heces bovinas, H. Castañeda (4). Malacatán, 3.V.1997, P. Jiménez (1). Puerto de Ocós, 28.III.1997, P. Jiménez (1). La Fraternidad, VIII.1997, bosque nuboso, J. Monzón (1). *Retalhuleu.* Retalhuleu, finca San Judas Tadeo, 4.IV.1995, H. Villela (1). *El Progreso.* El Rancho, 15.V-15.VI.1998, bosque seco, O. Vargas.

Copris matthewsi pacificus Delgado and Kohlmann (Fig. 5)

We record here a new locality for this subspecies in El Salvador in cloud forest.

EL SALVADOR. *Chalatenango.* El Pital, 3.IX.2002, 2640 m, 14°39'45''N, 89°12'23''W, E. Echeverría (4).

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