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Authors: Delgado, Leonardo, Peraza, Lizandro N., and DeLoya, Cuauhtémoc

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ONTHOPHAGUS YUCATANUS, A NEW SPECIES OF THE *CLYPEATUS* GROUP FROM MEXICO AND GUATEMALA (COLEOPTERA: SCARABAEIDAE)

LEONARDO DELGADO, LIZANDRO N. PERAZA AND CUAUHTÉMOC DELOYA
Departamento de Entomología, Instituto de Ecología A. C.
Km 2.5 carretera Antigua a Coatepec 351 Congregación El Haya, 91070 Xalapa, Veracruz, México
E-mail: delgadol@ecologia.edu.mx

ABSTRACT

A new Mexican and Guatemalan species, *Onthophagus yucatanus*, belonging to the *Clypeatus* group is described and illustrated. The distinctive characters of this species, its geographical distribution, and habits are described.

Key Words: Scarabaeidae, *Onthophagus*, New species, Mexico, Guatemala

RESUMEN

Se describe e ilustra una nueva especie mexicana y guatemalteca, *Onthophagus yucatanus*, perteneciente al grupo *Clypeatus*. Se comentan sobre sus caracteres distintivos, así como su distribución geográfica y hábitos.

Translation provided by author.

The *Clypeatus* group of the worldwide genus *Onthophagus* Latreille, represents a heterogeneous and taxonomically difficult group of American species. According to Zunino & Halffter (1997) the *Clypeatus* group is formed by three species complexes, named *Clypeatus*, *Mirabilis*, and *Nasicornis*. However, delimitation of these complexes, and of all the groups of this genus, is vague and requires clarification based on phylogenetics approaches. At present we prefer, as did Howden & Gill (1993) and Kohlmann & Solís (2001), to exclude the species of the *Dicranius* and *Mirabilis* groups (*sensu* Howden & Gill 1993). In addition, we also exclude the species of the *Nasicornis* complex (*sensu* Zunino & Halffter 1997) from the *Clypeatus* group, primarily on the basis of the lack of tubercles and horns on the vertex, at least in the males.

Thus, the *Clypeatus* group would include only the following species: *O. clypeatus* Blanchard from Colombia, Ecuador, Peru, Bolivia, and French Guyana; *O. rhinophyllus* Harold from Venezuela and Colombia; *O. rhinolophus* Harold from Mexico and Guatemala; *O. belorhinus* Bates from Mexico and Guatemala; *O. xanthomerus* Bates from Colombia, Ecuador, and Peru; *O. praecellens* Bates from Costa Rica, Panama, and Colombia; *O. dicranoides* Balthasar from Ecuador; *O. lojanus* Balthasar from Ecuador; *O. maya* Zunino from Mexico and Belize; *O. propraecellens* Howden & Gill from Costa Rica and Panama; *O. andersoni* Howden & Gill from Costa Rica; *O. luismargaritorum* Delgado from Mexico; *O. veracruzensis* Delgado from Mexico; *O. coriaceoumbrosus* Kohlmann & Solís from Costa Rica; *O. graetaehelenae* Kohlmann & Solís from Costa Rica and Panama; *O. limonensis* Kohlmann & Solís from Costa Rica; *O. nemorivagus* Kohlmann & Solís from Costa Rica; *O. singulariformis* Kohlmann & Solís from Costa Rica; *O. viridivinosus* Kohlmann & Solís from Costa Rica and *O. notiodes* Solís & Kohlmann from Costa Rica (Zunino & Halffter 1997; Delgado & Pensado 1998; Kohlmann & Solís 2001; Solís & Kohlmann 2003). Distribution of these species is almost restricted to the tropical rain forests in areas generally below 1,000 m asl. In contrast to the extensive coprophagy of many species of *Onthophagus*, most species of this group show a strong tendency towards feeding on rotting fruit and carrion (Zunino & Halffter 1997).

In two recent studies on the fauna of coleopterous Scarabaeidae of the Península de Yucatán, Mexico (Peraza 2004, unpublished data), and of the region of Petén, Guatemala (Cano 1998, unpublished data), several specimens were obtained which represent an undescribed species of *Onthophagus*. We describe it here in the *Clypeatus* group.

Onthophagus yucatanus, **new species**
(Fig. 1, 4)

Type Material

Holotype: "MÉXICO: Yucatán, Tzucacab, Tigre Grande, 17-X-2001. 0900-1730 horas, coprotrampa (humano), L. N. Peraza-Flores col.". Allotype same data as holotype, except: 20-VIII-2001. Both deposited in the Entomological Collection (IEXA) of the

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Instituto de Ecología, A. C. (Veracruz, Mexico). Paratypes (116 ♂♂, 132 ♀♀) same data as holotype, except: 19-VIII-2001 (1 ♂, 6 ♀♀); 20-VIII-2001 (14 ♂♂, 6 ♀♀); 17-18-IX-2001, 18:00-09:00 hrs (1 ♀); 18-19-IX-2001, 18:00- 09:00 hrs (4 ♂♂, 10 ♀♀); 19-IX-2001, 09:00-18:00 hrs (14 ♂♂, 7 ♀♀); 19-20-IX-2001, 18:00-09:00 hrs (3 ♂♂, 7 ♀♀); 17-X-2001, 09:00-17:30 hrs (25 ♂♂, 28 ♀♀); 17-18-X-2001, 17:30-08:00 hrs (10 ♂♂, 9 ♀♀); 16-XI-2001, 08:30-17:30 hrs (6 ♂♂, 5 ♀♀); 16-17-XI-2001, 17:30-09:00 hrs (4 ♀♀); 17-XI-2001, 09:30-17:30 hrs (2 ♂♂, 6 ♀♀); 17-18-XI-2001, 17:30-07:00 hrs (2 ♂♂); 15-16-XII-2001, 17:00-08:30 hrs (1 ♂, 2 ♀♀); 16-XII-2001, 08:30-17:20 hrs (2 ♂♂, 5 ♀♀); 13-I-2002, 09.00-17:30 hrs (1 ♂, 3 ♀♀); 11-12-II-2002, 17:15- 08:30 hrs (1 ♂, 1 ♀); 12-II-2002, 08:30-17:30 hrs (3 ♂♂, 4 ♀♀); 12-II-2002, 17:30-09:00 hrs (2 ♂♂, 2 ♀♀); 13-II-2002, 09:00- 19:35 hrs (1 ♀); 13-14-II-2002, 17:35-08:00 hrs (1 ♂); 11-12-III-2002, 17:30- 09:30 hrs (1 ♀); 12-III-2002, 09:30-18.00 hrs (3 ♂♂, 2 ♀♀); 13-III-2002, 09:00-18:00 hrs (1 ♂, 1 ♀); 13-14-III-2002, 18:00-09:00 hrs, (3 ♂♂, 1 ♀); 19-IV-2002 (1 ♂); 14-V-2002, 10:00-18:30 hrs (3 ♂♂, 2 ♀♀); 14-15-V-2002, 18:30-10:00 hrs (1 ♂, 1 ♀); 10-12-VI-2002 (2 ♀♀); 10-12-VII-2002, 18:30-08:30 hrs (3 ♂♂, 5 ♀♀); 13-V-2002, excremento de perro (1 ♀); 20-VIII-2001-17-IX-2001 NTP80 (1 ♀); 17-IX-2001-17-X-2001, NTP80 (1 ♀); 17-X-2001-16-XI-2001, NTP80 (1 ♂); 16-XI-2001-16-XII-2001, NTP 80 (1 ♀); 13-II-2002-11-III-2002, NTP80 (1 ♀); 15-V-2002-12-VI-2002, NTP80 (4 ♂♂); 12-VI-2002-12-VII-2002, NTP80 (1 ♀); 12-VII-2002-17-VIII-2002, NTP80 (1 ♂). "GUATEMALA: Petén, Aldea Carmelita, Campamento Chuntuquí, 24-25-II-1996, bosque alto, 17°32'N 90°07'W, E. Cano col." (2 ♂♂, 1 ♀); same data as anterior, except: Campamento El Naranjo, 25-II-1996, heces de jaguar, E. Cano col. (1 ♀); San Miguel la Palotada, 16-III-1999, M. Jolón col. (1 ♂, 1 ♀); San Miguel la Palotada, 7-VIII-1999, M. Jolón col. (1 ♀). Twenty paratypes deposited in each one of the following collections: Florida State Collection of Arthropods (Gainesville, United States), Canadian Museum of Nature (Ottawa, Canada) and Instituto de Biología de la Universidad Nacional Autónoma de México (Mexico City); 151 paratypes deposited in the Instituto de Ecología, A. C. (Veracruz, Mexico); seven paratypes deposited in the Universidad del Valle de Guatemala (Guatemala City); and ten paratypes deposited in each one of the following collections: Cuauhtémoc Deloya Collection (Veracruz, Mexico), Lizandro N. Peraza Collection (Yucatán, Mexico) and Leonardo Delgado Collection (Mexico City).

Description

Holotype male (Fig. 1, 2). Length: 5.4 mm, maximum width (at basal third of elytra): 3.3 mm. Small, ovate, dorsally glabrous; dorsal color metallic dark green with very slight cupreous reflections on head, anterolateral regions of pronotum dull, venter with same color as dorsum but with cupreous reflections more pronounced, femora and tibiae completely reddish green, tarsi reddish. Clypeus triangular, with apical third obliquely reflexed, apex acuminated, sides slightly and evenly sinuated to the genae; clypeus moderately concave, fronto clypeal region feebly convex, frons flattened, genae slightly convergent forward; vertex with two slender, divergent horns, bases of horns well separated and arising at level of posterior portion of eyes, horns slightly below the top of pronotum. Head with punctures small, shallow and sparse, shallower and finer towards apex and vertex.

Pronotum with anterior right angles and somewhat projected, lateral borders strongly curved in front of middle, posterior angles almost evenly rounded to base. Disc and posterolateral portions of pronotum swollen; anterior third declivous with two longitudinal, obtuse tubercles in front of disc, tubercles slightly divergent and separated by a shallow concavity widened forward; tubercles and lateral portions of pronotum delimiting two very feeble concavities. Pronotum with moderately large, ringed punctures, denser and larger at anterior angles; lateral concavities and anterior angles with finely reticulate punctation; anterior concavity almost smooth; pronotal base finely margined with a row of small punctures. Elytra with evident humeral and apical calli; elytral striae marked by double line crenulated by medium-size punctures; intervals with fine, shallow punctures and rugosities, denser to lateral intervals.

Metasternum convex with dense, ringed punctures. Abdominal sternites shagreened, with a row of small punctures adjacent to anterior margin, each puncture bearing a yellowish seta; sixth abdominal sternite narrowed medially. Pygidium strongly convex to apical third, surface with large and deep punctures moderately dense, each puncture bearing a small, yellowish seta. Protibiae with inner border evenly curved, outer border quadridentate with teeth situated at distal middle, apex with inner projection bearing a brush of setae; apical spur elongate and curved outside. Apex of meso and metatibiae with a row of small spinules intermixed with long setae. Genitalia with parameres strongly projected ventrally, dorsally flattened and with apices parallel.

Allotype female (Fig. 1, 4). Length: 5.3 mm, maximum width (at basal third of elytra): 3.3 mm. Differs from holotype in the following respects: anterolateral regions of pronotum scarcely dull; clypeus semitrapezoidal, slightly emarginated at middle, anterior margin very scarcely reflexed and with sides almost straight to the genae; frontoclypeal region carinated from side to side; frons with two rounded, transversal tubercles situated slightly behind of anterior border of eyes; vertex without horns; clypeus with strongly

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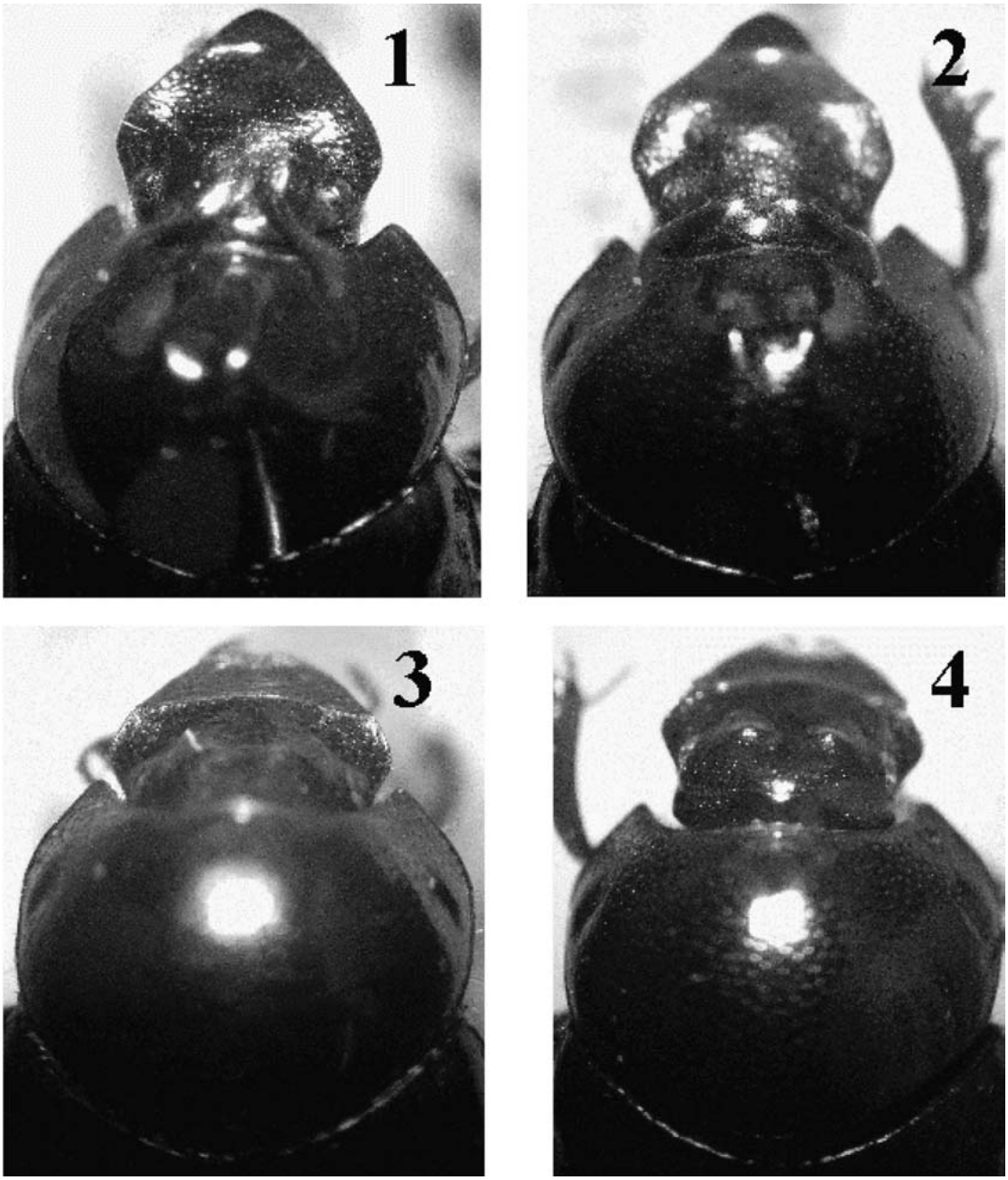


Fig. 1. Dorsal view of head and pronotum of *Onthophagus* spp. 1, male of *O. luismargaritorum* Delgado. 2, male of *O. yucatanus* **sp. nov.** 3, female of *O. luismargaritorum* Delgado. 4, female of *O. yucatanus* **sp. nov.**

rugose punctation, genae with coarse punctures; pronotum with anterior angles not projected, almost evenly convex, only with a small, central concavity adjacent to anterior margin; pronotum with finely reticulate punctation restricted to anterior angles; sixth abdominal sternite not narrowed medially; protibiae slightly broader and without inner projection and brush of setae; apical spur longer.

Variation in the series of paratypes (113 ♂♂, 128 ♀♀).—Length: 3.5-5.6 mm, maximum width (at basal third of elytra): 2.3-3.6 mm. The dorsal color varies from dark green to blue; size of punctures on elytra varies moderately in both sexes; in

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the smaller males the clypeus is scarcely reflexed and the cephalic horns are reduced to small, transverse tubercles, the pronotum is nearly evenly convex, with only a small concavitiy flanked by two small rounded tubercles; in the smaller females the pronotum is evenly convex, lacking anterior concavity.

Type Locality

Mexico, Yucatán, Tzucacab, Tigre Grande (19°42'36"N 89°02'28"W).

Etymology

The specific epithet derives from Yucatán, the name of the Mexican state where this species was collected.

Taxonomic Remarks

Onthophagus yucatanus shares several characters with *O. luismargaritorum*. Both species are distinguished from the remaining species in the *Clypeatus* group by the following combination of characters: major males with clypeus obliquely reflexed and acuminated (not rectangular, rounded or with a projection "T" shaped), the horns on the vertex arising between the eyes (not arising behind the eyes) and the protibiae short and wide (not elongate and slender), and the females with the tubercles on the vertex situated at level of the anterior border of eyes (not at level of the posterior border of eyes), and the pronotum without tubercles.

The two species are separated by the following characters: males and females of any size of *O. yucatanus* by the dorsal color metallic dark green or blue with very slight cupreous reflections on head and larger and denser ringed punctures of the pronotum, not with dorsal color strongly metallic cupreous green and small and sparse ringed punctures of pronotum as in *O. luismargaritorum*; major males of *O. yucatanus* with the central tubercles of pronotum obtuse and with the central concavity widened to anterior margin (Fig. 1, 2), not with tubercles rounded and the central concavity with same wide from tubercles to anterior margin as in *O. luismargaritorum* (Fig. 1, 1). Females of any size of *O. yucatanus* with the cephalic tubercles transverse (Fig. 1, 4), not with cephalic tubercles oblique as in females of *O. luismargaritorum* (Fig. 1, 3) and major females of *O. yucatanus* with a small concavity adjacent to anterior margin of pronotum, not with pronotum evenly convex as in females of *O. luismargaritorum*.

Distribution

Onthophagus yucatanus is known from the type locality, situated in the central region of the Península de Yucatán, Mexico, and from the region of Petén, Guatemala. Both areas present tropical moist subdeciduous forest with low altitude. Extensive sampling in other localities in the northern peninsula with dry deciduous forests produced no specimens of this species.

Habits

At the type locality, specimens of *O. yucatanus* were caught with traps baited with human excrement and with traps baited with rotting squid. Two hundred and thirty one specimens were obtained in the coprotraps and only 11 in the necrotraps. This feeding preference contrasts with that of most species of the *Clypeatus* group, which are captured primarily at rotting fruit and carrion. Only *O. luismargaritorum* shares the same preferences, with 83% of the specimens known of this species collected at human and cow dung, and only 17% with necrotraps (Delgado 1995).

Although many specimens were collected during the day (124) in comparison to those caught during the night (75), more data are needed to define the daily activity of this species.

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References Cited

Delgado, L. 1995. *Onthophagus luismargaritorum*, nueva especie mexicana del grupo *Clypeatus* (Coleoptera: Scarabaeidae). Folia Entomológica Mexicana 94: 57-61.

Delgado, L., and M. Pensado. 1998. Una nueva especie mexicana de *Onthophagus* del grupo *Clypeatus* (Coleoptera: Scarabaeidae). Folia Entomológica Mexicana 103: 75-80.

Howden, H. F., and B. D. Gill. 1993. Mesoamerican *Onthophagus* Latreille in the Dicranius and Mirabilis groups (Coleoptera: Scarabaeidae). The Canadian Entomol. 125: 1091-114.

Kohlmann, B., and A. Solís. 2001. El género *Onthophagus* (Coleoptera: Scarabaeidae) en Costa Rica. Giornale Italiano de Entomologia 9: 159-261.

Solís, A., and B. Kohlmann. 2003. New species of dung beetles (Coleoptera: Scarabaeidae: Scarabaeinae) from Costa Rica and Panama. Zootaxa 139: 1-14.

Zunino, M., and G. Halffter. 1997. Sobre *Onthophagus* Latreille, 1802 americanos (Coleoptera: Scarabaeidae: Scarabaeinae). Elytron 11: 157-178.

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