

SHORT COMUNICATION

***COPROPHANAEUS MORENOI* ARNAUD, 1982 (COLEOPTERA: SCARABAEIDAE: SCARABAEINAE) IN THE GORGONA NATIONAL NATURAL PARK (COLOMBIAN PACIFIC OCEAN)**

Carlos A. Cultid Medina¹ and Alan Giraldo López²

Abstract

A new record of the dung beetle *Coprophanaeus morenoi* Arnaud, 1982 (Coleoptera: Scarabaeidae: Scarabaeinae), for the Gorgona Natural National Park (Gorgona NNP, Colombia) in the Colombian Pacific Ocean is presented.

Key words: Coleoptera, Gorgona Natural National Park, Pacific Ocean, Scarabaeinae.

***COPROPHANAEUS MORENOI* ARNAUD, 1982 (COLEOPTERA: SCARABAEIDAE: SCARABAEINAE) EN EL PARQUE NATURAL NACIONAL GORGONA (OCÉANO PACÍFICO COLOMBIANO)**

Resumen

Se presenta un nuevo registro del escarabajo estercolero *Coprophanaeus morenoi* Arnaud, 1982 (Coleoptera: Scarabaeidae: Scarabaeinae), para el Parque Natural Nacional Gorgona, en el océano Pacífico colombiano.

Palabras clave: Coleoptera, Parque Natural Nacional Gorgona, océano Pacífico, Scarabaeinae.

A new record of the subfamily Scarabaeinae is presented for the Gorgona National Natural Park (Gorgona NNP, Colombia), this record is represented by *Coprophanaeus morenoi* Arnaud, 1982 (Coleoptera: Scarabaeidae). The known records for this species are from the biogeographic Chocó and Central America (Figure 1) (EDMONDS & ZIDEK, 2010). In Colombia *C. morenoi* has been captured only in continental locations of the states of Antioquia, Chocó, Nariño and Valle del Cauca, at altitudes ranging from 35 to 2200 masl (tropical rainforest and montane forest) (PARDO-LOCARNO, 1997; PARDO & CASTILLO, 2002a, 2002b; NEITA *et al.*, 2003; VÍTOLO, 2004; PARDO-LOCARNO, 2007). This record is the first

* FR: 25-I-2012. FA: 25-V-2012.

¹ Research Group in Biology, Ecology and Ant Management. Department of Biology, School of Natural and Exact Sciences, Universidad del Valle, Cali, Colombia. Doctoral student in Sciences, Biology. Email: carlos.cultid@gmail.com.

² Research Group in Animal Ecology. Department of Biology, School of Natural and Exact Sciences, Universidad del Valle, Cali, Colombia. Email: ecologia@univalle.edu.co.

for this genus in a colombian island and the first insular report for this species (D. Edmonds com. pers.). To date, there are few insular records of Scarabaeinae for Colombia: the original description of *Uroxys gorgon* in the same island (ARROW, 1933), the record of the genus *Deltorhinum* in the island of Tierra Bomba-Bolívar (MEDINA & LOPERA-TORO, 2000) and the reports of *Digitonthophagus gazella*, (an exotic species) in San Andrés island (NORIEGA *et al.*, 2006).

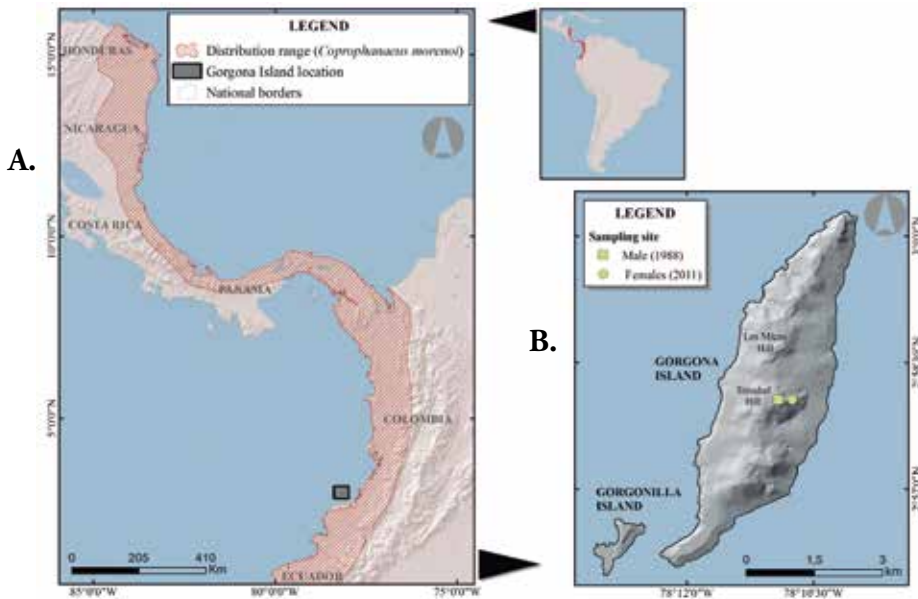


Figure 1. A) Distribution of *Coprophanaeus morenoi* (based on EDMONDS & ZIDEK, 2010); and B) location of specimens collected on Gorgona Island (right, mid-center), in parentheses specifies the year of collection.

The Gorgona NNP covers approximately 61,700 hectares, which includes Gorgona and Gorgonilla islands, and a protected marine area (UAESNNP, 1998). An exploratory sampling was carried out for 24-h on Trinidad Hill (Gorgona Island) from 1-2 July 2011. Six pitfall traps baited with carrion (decomposing fish; alcohol as a preservative) were installed every 30 m in an altitudinal range from 40 to 300 masl (2°58'3.4" N - 78°10'45.2" W and 2°58'3.4" N - 78°10'55.2" W) (Figure 1) in which only two females of *C. morenoi* were captured. During this sampling were not captured any other species of Scarabaeinae. The taxonomic determination of the collected females was performed at the Museum of Entomology, of the Universidad del Valle (MUSENUV) in Cali. A male specimen of *C. morenoi*, was found among the material deposited in the collection and it was collected at 300 m (2°57'10" N - 78°10'13.20" W) on Trinidad Hill on 15 May 1988, using a pitfall trap baited with carrion (Quesada B. L. leg.). All the specimens are currently housed at MUSENUV (Figure 2).

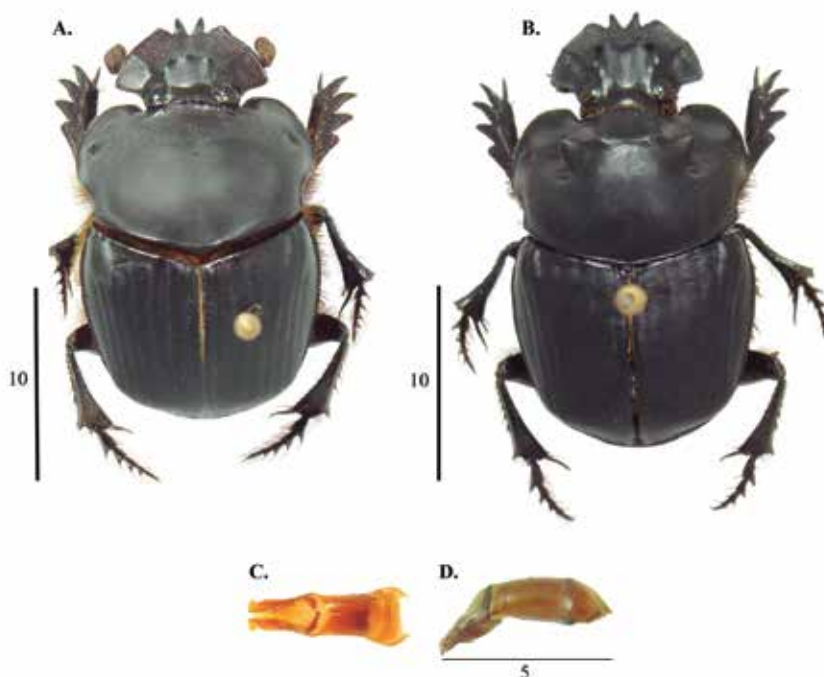


Figure 2. Specimens of *Coprophanaeus morenoi* collected on Gorgona Island. A) Female, collected in 2011 for authors; B) Male, collected in 1988; C) Male adeagus (dorsal view); and D) Male adeagus (lateral view). Photos: Cultid C. A. © (scale in mm).

The females of *C. morenoi* are similar to those of *Coprophanaeus corythus*, a common species in the biogeographic Chocó region. The *C. morenoi* females can be distinguished from those of *C. corythus* because its cephalic carina is positioned near middle distance of the head; thus the frontal region of head (frons) is longer than the clypeus (Figure 2a); in *C. corythus* the cephalic carina is located toward the posterior part of the head so the clypeus is longer than the frons. The *C. morenoi* male has a pronotal quadrilobate prominence with lobes linked by thick carinae; the prominence is flanked by broad concavities (In Panamá, there has been dimorphism between males with respect to prominence pronotal); the declivitous surface of the pronotum beneath the carina is smooth, without sculpturing (Figure 2b); and the parameres have a wide subapical tooth (EDMONDS & ZIDEK, 2010) (Fig. 2c y d).

Gorgona Island, which is located 30 linear km from the Colombian Pacific Coast, arose in the Upper Mesozoic Era or Lower Tertiary (Paleogene) period (ECHEVERRÍA, 1986; GÓMEZ, 1986), associated with a lava flow (LLINÁS *et al.*, 1990) that cooled rapidly upon entering in contact with the seawater (ARNDT *et al.*, 1997; KERR, 2005). According to AGUIRRE & RANGEL (1993), there was a land connection between Gorgona Island and the continent during the Pleistocene

epoch, which could explain the presence of *C. morenoi* on the island. It has been documented that *C. morenoi* is a copro-necrophagous species (PARDO-LOCARNO, 1997; PARDO & CASTILLO, 2002a, 2002b; PARDO-LOCARNO, 2007; VÍTOLO, 2004), an attribute that favors its permanence on the island because it does not depend exclusively on the excrement of vertebrates.

It is important to note that despite of the use of a standard method of sampling, it was only possible to catch two female individuals during the exploratory sampling conducted in 2011. According to preliminary lists, in continental localities of the biogeographical Chocó, the abundance of *C. morenoi* ranges between 1 and 19 individuals (MEDINA & KATTAN, 1996; PARDO - LOCARNO & CASTILLO, 2002a, 2002b; PARDO - LOCARNO, 2007). In addition, *C. corythus* has also been listed for the biogeographic Chocó region (e.g. as its synonym *C. telamon corythus*, see EDMONDS & ZIDEK, 2010). It is likely that some specimens of *C. morenoi* had been misidentified as *C. telamon* in the past. A careful review of this material would probably result in an increase of the number of specimens and records of *C. morenoi* reported in continental locations.

The authors are grateful to the MUSENUV for permitting us to study one of the specimens (male) and access the information from the collection. Thanks to María del Carmen Zúñiga and Ranulfo González, for their unconditional support in preparing this report and to Carlos Saavedra-Rodríguez, Diana Torres and Jennifer Girón for their comments on the text. We thank Dr. David Edmonds to confirm the taxonomic identification and thank to the evaluator for his comments to the document. This report forms part of the research project "Evaluation of the current state of the targets of faunistic conservation on Gorgona Island: A holistic approximation of the ecological assessment of Gorgona NNP - CI7820," co-financed by the Universidad del Valle, the Squalus Foundation, Conservation International-Colombia and the Fund for Environmental Action and Childhood. We are also grateful to the National Parks of Colombia. Carlos A. Cultid is a doctoral student in the Biological Sciences Graduate Program of the Universidad del Valle (Cali - Valle del Cauca), which is supported by COLCIENCIAS funds for doctoral-level education in Colombia.

BIBLIOGRAPHY

- AGUIRRE, J. & RANGEL, O., 1993.- La isla Gorgona y sus ecosistemas: 106-170 (in) LEYVA, P. (ed.) *Colombia Pacífico, Volumen I*. Fondo para la Protección del Medio Ambiente (FEN), Bogotá, Colombia.
- ARNDT, N. T., KERR, A. C. & TARNEY, J., 1997.- Dynamic melting in plume heads: The formation of Gorgona komatiites and basalts. *Earth Planet Science Letters*, 146: 289-301.
- ARROW, G. 1933.- The genus *Uroxys* (Coleoptera, Copridae), with descriptions of some new species. *Annals and Magazine of Natural History*, 10 (11): 385-399.
- ECHEVERRÍA, L. M., 1982.- Komatiites from Gorgona Island, Colombia: 199-209 (in) ARNDT, N. T. & NISBET, E. G. (eds.) *Komatiites*. Georfe Allen and Unwin, London, UK.
- EDMONDS, W. D. & ZIDEK, J., 2010.- A taxonomic review of the neotropical genus *Coprophanaeus* Olsoufieff, 1924 (Coleoptera: Scarabaeidae, Scarabaeinae). *Insecta Mundi*, 0129: 1-111.
- GÓMEZ, H., 1986.- Algunos aspectos neotectónicos hacia el suroeste del Litoral Pacífico colombiano. *Revista CIAF*, 11: 281-289.
- KERR, A. C., 2005.- La Isla de Gorgona, Colombia: A petrological enigma? *Lithos*, 84: 77-101.
- LLINÁS, R., PINTO, J., PEÑA, F. & CARO, F., 1990.- Geología: 65-72 (in) RANCEL, O. & AGUIRRE, J. (eds.) *Biota y ecosistemas de Gorgona*. Fondo para la Protección del Medio Ambiente (FEN), Bogotá, Colombia.
- MEDINA, C. & KATTAN, G., 1996.- Diversidad de coleópteros coprófagos (Scarabaeidae) de la reserva natural de Escalerete. *Cespedecia*, 21: 89-102.

- MEDINA, C. A. & LOPERA-TORO, A., 2000.- Clave ilustrada para la identificación de géneros de escarabajos coprófagos (Coleoptera: Scarabaeinae) de Colombia. *Caldasia*, 22 (2): 299-315.
- NEITA, J. C., PARDO - LOCARNO, L., QUINTO, D. & CUESTA, N. G., 2003. - Los Escarabajos copronecrófilos (Coleoptera: Scarabaeidae) en la parcela permanente de investigación en biodiversidad (PPIB) en Salero, Unión Panamericana, Chocó: 79-90 (in) GARCÍA, F., RAMOS, Y. A., PALACIOS, J. C., ARROYO, J. E., MENA, A. & GONZÁLEZ, M. (eds.) Salero: Diversidad Biológica de un Bosque Pluvial Tropical (bp-T). Universidad Tecnológica del Chocó, Instituto de Investigaciones Ambientales del Pacífico y Comunidad de Salero, Unión Panamericana, Chocó.
- NORIEGA, J., SOLIS, C., QUINTERO, I., PÉREZ, L. G., GARCÍA, H. G. & OSPINO, D. A., 2006.- Registro continental de *Digitonthophagus gazella* (Coleoptera: Scarabaeidae) en Colombia. *Caldasia*, 28 (2): 379-381.
- PARDO-LOCARNO, L., 1997.- Muestreo preliminar de los escarabajos copronecrófilos (Coleoptera-Scarabaeidae) de las selvas de la Fragua, cuenca baja río Cajambre (Valle). *Cespedecia*, 22 (69): 59-80.
- PARDO-LOCARNO, L. & CASTILLO, L. D., 2002a.- Muestreo preliminar de los escarabajos copronecrófilos (Coleoptera-Scarabaeidae) de las selvas de Chancos, Calima, Chocó biogeográfico (Valle). *Bol. Cien. Mus. Hist. Nat. U. de Caldas*, 6 (1): 11-27.
- PARDO-LOCARNO, L. & CASTILLO, L. D., 2002b.- Contribución al estudio de los escarabajos copronecrófilos (Col. Scarabaeidae) de la quebrada, río Azul, Calima, Chocó biogeográfico, Colombia. *Bol. Cien. Mus. Hist. Nat. U. de Caldas*, 6 (1): 161-176.
- PARDO-LOCARNO, L., 2007.- Escarabajos coprófagos (Coleoptera-Scarabaeidae) de Lloró, departamento del Chocó, Colombia. *Bol. Cien. Mus. Hist. Nat. U. de Caldas*, 11 (1): 377-388.
- UASPNN., 1998.- El sistema de Parques Nacionales Naturales de Colombia. Unidad Administrativa Especial del Sistema de Parques Nacionales Naturales (UASPNN), *Ministerio del Medio Ambiente*. Editorial Nomos, Bogotá, Colombia.
- VÍTOLO, A., 2004.- Escarabajos estercoleros de la tribu Phanaeini de Colombia (Coleoptera: Scarabaeoidea: Scarabaeidae): 277-318 (in) FERNÁNDEZ, F., ANDRADE, M. G. & AMAT, G. (eds.) *Insectos de Colombia, Volumen 3*. Facultad de Ciencia, Universidad Nacional de Colombia, Bogotá, Colombia.