

REDESCRIPTION OF *BELONUCHUS GODMANI* (SHARP, 1885) (COLEOPTERA: STAPHYLINIDAE: STAPHYLININAE), WITH FIRST NATIONAL AND STATE RECORDS¹

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ABSTRACT: *Belonuchus godmani* is redescribed based on the revision of 87 specimens, including the type specimens, from México, Guatemala, Costa Rica and Panamá. It is recorded for the first time from Costa Rica, as well as from Department of San Marcos, Guatemala, and the state of Querétaro, Mexico. Lectotype and paralectotypes are designated for this species. Distributional patterns and biology are reported.

KEY WORDS: Staphylinidae, taxonomy, Neotropics, Philonthina

Belonuchus, with more than 190 species, has a worldwide distribution with the highest diversity in the tropics (Herman 2001, Navarrete-Heredia et al., 2002). The species level identification in this genus has been difficult due to the similarity of *Belonuchus* to other genera of the subtribe Philonthina, principally *Philonthus*, but it can also be confused with *Gabrius*, *Bisnius*, *Neobisnius* and *Chroaptomus*. Thanks to the work of Smetana (1995), the identification of *Belonuchus* has been clarified and several Mexican species previously included in *Philonthus* were transferred to *Belonuchus*; among reassigned species are *B. alternans* (Sharp, 1885), *B. apiciventris* (Sharp, 1885), *B. colon* (Sharp, 1885), *B. godmani* (Sharp, 1885), *B. oxyporinus* (Sharp, 1885), *B. trochanterinus* (Sharp, 1885), and *B. zunilensis* (Sharp, 1885) (Navarrete-Heredia et al., 2002).

Belonuchus godmani (Fig. 1) was described by Sharp (1885) as *Philonthus*, based on the study of nine specimens from Mexico, Guatemala and Panama. With the exception of the transfer from *Philonthus* to *Belonuchus*, publication of state records from Mexico (Navarrete-Heredia et al., 2002; Márquez 2004, 2006), and the inclusion of this species in some catalogs (Bernhauer and Schubert 1914, Herman 2001), little is known about the species.

My objective is to redescribe *B. godmani* and to provide the first country record from Costa Rica and the first records from the Department of San Marcos, Guatemala, and the state of Querétaro, Mexico. The intent of the redescription and designation of lectotype and paralectotypes is to clarify the identity of this species in the future when it is compared with similar species.

Specimens from the following collections were studied (acronyms identify collections in the text):

BMNH The Natural History Museum, London, UK (R. Booth).
CC-UAEH Colección de Coleoptera, Universidad Autónoma del Estado de Hidalgo, Pachuca, Hidalgo, Mexico (J. Márquez).

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- CZUG Centro de Estudios en Zoología, Universidad de Guadalajara, Zapopan, Jalisco, Mexico (J. L. Navarrete-Heredia).
- MZFC Museo de Zoología "Alfonso L. Herrera." Facultad de Ciencias, Universidad Nacional Autónoma de México, Mexico, D. F., Mexico (J. J. Morrone).

The measurements given here are averages based on the analyses of ten specimens from several localities, and were obtained with a micrometer attached to the ocular. The question mark in the type material indicates that it was not possible to know the sex of the specimen.

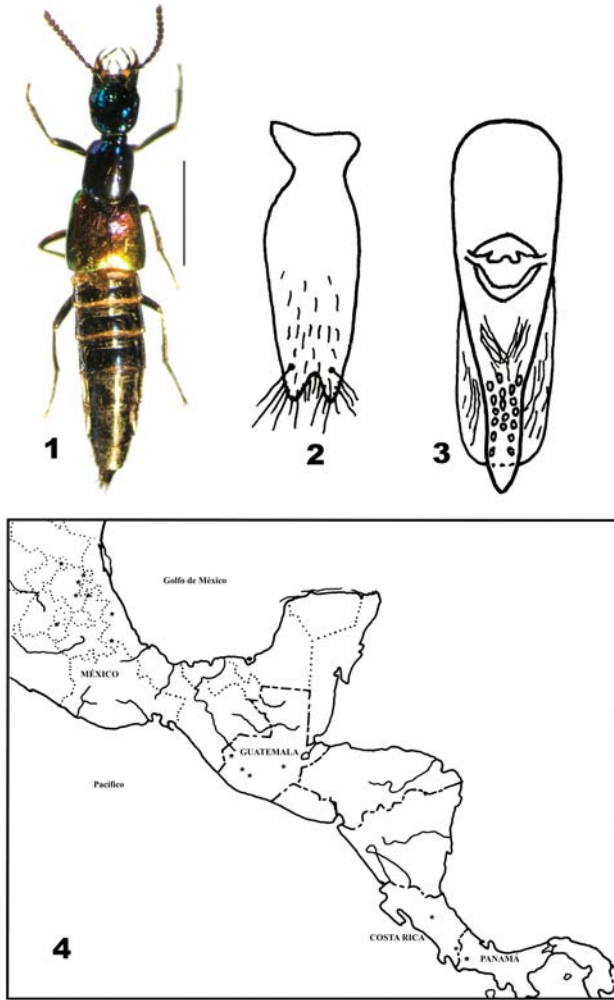
***Belonuchus godmani* (Sharp, 1885) Fig. 1**

Philonthus godmani Sharp, 1885: 413; Bernhauer and Schubert, 1914: 340 (*Philonthus*); Herman, 2001: 2834 (*Philonthus*); Navarrete-Heredia et al., 2002: 335 (*Belonuchus*); Márquez, 2004: 92 (*Belonuchus*), 2006: 183 (*Belonuchus*).

Diagnosis. The species can be distinguished from all others of the genus by the head and pronotum metallic, dark blue; the elytra metallic purplish, green or golden; the head round, with sparse setae on the dorsal surface and almost glabrous on the ventral surface; the pronotum with four pairs of central punctures aligned longitudinally; the elytra with sparse fine setae; the legs long and slender; the visible abdominal tergites 1-3 with transverse line near to the anterior margin; and the aedeagus 1 mm in total length.

Redescription. Total body length 7.9-10.2 mm. Head and pronotum metallic, dark blue; elytra metallic purplish, green or, less frequently, golden; maxillary and labial palps, tarsi and genital segment reddish brown; remaining body black, with shining abdomen.

Head round, posterior corners convex; dorsal surface convex; almost as long as wide (0.96 times); with few setae on dorsal surface, six on central area (between eyes) and 12 near to lateral (below eyes) and posterior margins; front with longitudinal groove and depressed area with cross shape, slightly deeper in male; ventral surface with only pair of small setae on anterior portion and pair of long setae laterally, with conspicuous microsculpture consisting of wavy lines. Eyes 0.37 times as long as head. Antennae long, reaching middle pronotum when directed backward; first antennomere 1.44 times as long as second antennomere, third antennomere 1.29 times as long as second antennomere; fourth slightly elongated; fifth square; 6-10 slightly transverse. Anterior margin of labrum narrow and membranous, with six long setae and eight short setae. Mandibles slender, 0.86 times as long as head, each with small tooth on basal half and with external channel in basal half. Maxillary palps long, acute apically; first palpomere the shortest, second as long as apical palpomere and apical palpomere 1.62 times as long as preapical palpomere. Labial palp with similar shape as maxillary palp, first palpomere slightly shorter than second, second slightly shorter than apical palpomere.



Figs. 1-4: Fig. 1. *Belonuchus godmani*, dorsal view (male; scale bar 2.5 mm). Fig. 2. Male genital sternite of *Belonuchus godmani* (total length 0.76 mm). Fig. 3. Aedeagus of *Belonuchus godmani* (ventral view; total length 1.0 mm). Fig. 4. Geographical distribution of *Belonuchus godmani* (stars: recorded localities).

Thorax. Pronotum with lateral sides parallel, smooth, with few setae on margins; 1.21 times as long as wide; 1.22 times as long as head and 0.7 times as long as elytra; with four pairs of central punctures aligned longitudinally (excluding pair near anterior margin). Upper line of pronotal hypomeron joining to inferior line at level of procoxae. Scutellum black, contrasting with metallic elytra, with 9-12 conspicuous punctures. Elytra metallic, smooth, with sparse fine punctures. Legs slender and long; tarsi slender in both sexes, without modified setae; pro-

tarsi with first tarsomere slightly longer than second tarsomere, tarsomeres 2-4 smallest and similar in size; fifth tarsomere longest, almost as long as tarsomeres 2-4 together. Profemora with 4-5 spines on apical, inside area. Tarsi of middle and last legs with first tarsomere longer than tarsomeres 2, 3 or 4, and slightly shorter than apical tarsomere. Prosternum with sunken area near to anterior margin, slightly carinated in posterior half, glabrous. Mesosternum glabrous, with microsculpture consisting of wavy lines. Metasternum with longitudinal groove on posterior half, with fine setae as dense as on abdominal sternites.

Abdomen shiny; tergites with sparse long and black setae placed mainly on margins; sternites most densely setose; first three visible tergites with horizontal line near to anterior margin. Pregenital sternite of males slightly narrower apically. Genital sternite of males with narrow "v" shaped apical emargination, with few dense long setae on apex combined with few dense fine and short setae (Fig. 2).

Aedeagus. Total length 1 mm; moderately acute in apical third and moderately wide basally; internal sac few visible (Fig. 3).

Variation. The metallic color of the elytra varies greatly, with purple as the dominant color, followed by green; the gold tonality is rare. One additional puncture can be present in the aligned four pairs of punctures of the pronotum. The depressed area on the front of the head of males can be deeper than in females. Some specimens have the head and pronotum with metallic blue poorly visible, almost black.

Type material (9 specimens, BMNH). **Lectotype** female: "*Philonthus godmani* Type D. S. Calderas, Champion (in the plaque with the specimen) / Type / Calderas, Guatemala. Champion / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Lectotype J. Márquez des. 2009" (♂). **Paralectotypes** "Calderas, 1200 ft, Champion / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1?). "*Philonthus godmani* D. S., S. Geronimo, Guat. Champion (in the plaque with the specimen) / San Geronimo, Vera Paz. Champion / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1?). "S. Geronimo, 3000 ft Champion / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1?). "Panajachel, 5000 ft, Champion / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1♀). "Orizaba / Mexico. Salle Coll. / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / *Philonthus trochilus* Guer. A. Salle / 1040 / Syntype / Paralectotype J. Márquez des. 2009" (1?). "*Philonthus godmani* D. S. Boquete. Champion (in the plaque with the specimen) / Boquete, 3500 ft Champion / Sharp Coll. 1905-313 / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1♂). "*Philonthus godmani* D. S. Boquete, Panama. Champion (in the plaque with the specimen) / Boquete, 3500 ft Champion / Sharp Coll. 1905-313 / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1♂). "Boquete, 3500 ft Champion / *godmani* / B.C.A. Col. I. 2. *Philonthus godmani* Sharp / Syntype / Paralectotype J. Márquez des. 2009" (1♂).

Additional material (78 specimens): "COSTA RICA: Puntarenas, Área de Protección El Progreso, Sierra de Talamanca, N 8° 55.296' W 82° 47.854', 1535 m, selva alta subperenifolia, fumigación de troncos con hongos, 24-II-2000, J. L. Navarrete y J. Márquez cols." (1, MZFC). "Costa Rica: Alajuela, Poasito, N 10° 9.805' W 84° 12.32', 1938 m, bosque mesófilo de montaña, en troncos podridos, 17-II-2000, J. L. Navarrete col." (1, MZFC). "GUATEMALA: San Marcos, 2 km E de Tajomulco, N 15° 04.99' W 91° 55.563', 2062 m, bosque mesófilo de montaña perturbado, en hongos de repisa, 23-XI-1999, J. Márquez col." (6, MZFC). "MEXICO: Hidalgo, Molango, Acuatitlán, N 20° 45' 38.4", W 98° 42' 50.7", 1715 m, bosque mesófilo de montaña, en troncos con hongos, 10-VI-2008, J. Márquez, J. Bueno y M. García cols." (3, CC-UAEH). "México: Hidalgo, Tlanchinol, cerca de La Cabaña, N 21° 01.328', W 98° 38.770', 1450 m, bosque mesófilo de montaña, en hongos de repisa de troncos, 16-IV-2003, J. Márquez y J. Asiain cols." (4, CC-UAEH). "México: Hidalgo, Zacualtipán, 2 km antes de Tizapán, N 20° 38' 44.5", W 98° 36' 7.2", 1790 m, bosque mesófilo de montaña, en trampa de intercepción de vuelo, 14 a 18-X-2006, J. Márquez y J. Asiain cols." (1, CC-UAEH). "México: Hidalgo, Zacualtipán, La Mojonera, N 20° 37' 59", W 98° 35' 48", 1886 m, bosque mesófilo de montaña perturbado, en troncos podridos, 25-IV-2002, J. Asiain y J. Márquez cols." (9, CC-UAEH). México: Hidalgo, Zacualtipán, camino a Santo Domingo, N 20° 38' 0.7", W 98° 34' 00.5", 1800 m, bosque mesófilo de montaña, en hongos de troncos, 31-X-2003, J. Márquez y J. Asiain cols." (1, CC-UAEH). "México: Hidalgo, Zacualtipán, camino a Santo Domingo, N 20° 37' 44.9", W 98° 34' 51.06", 1830 m, bosque mesófilo de montaña, en troncos, 6 y 7-X-2006, J. Márquez y J. Asiain cols." (6, CC-UAEH). "México: Morelos, Huitzilac, Derrame del Chichinautzin, bosque de encino-pino, en troncos podridos, 10-IV-1995, J. Márquez col." (1, MZFC). "México: Querétaro, Landa de Matamoros, Sierra Gorda, 1 km E de camino a Tres Lagunas, N 21° 17' 54.2", W 99° 10' 26.7", 1960 m, bosque de encino, en hongos de troncos, 10-IV-2006, J. Márquez y J. Asiain cols." (35, CC-UAEH). "México: Querétaro, Landa de Matamoros, Sierra Gorda, 2.5 km hacia Tres Lagunas, N 21° 17' 55", W 99° 10' 37.2", 1963 m, bosque de encino-pino, en troncos, 2-VI-2007, J. Márquez y J. Asiain cols." (7, CC-UAEH). "México: Veracruz, Naolinco, Cerro Acatlán, BMM, 18-VIII-1990, ex poliporáceo, J. L. Navarrete, G. A. Quiroz y L. Delgado, No. 512" (3, CZUG).

Taxonomic remarks. *Belonuchus godmani* has a color pattern of the body and total body length that is similar to other species, many of them placed in the genus *Philonthus*, but the generic assignments of these species require corroboration. Sharp (1885) commented that one Mexican specimen of *B. godmani* was identified by Sallé as *Philonthus trochilus* Solsky, but he correctly distinguished both species noting some morphological differences. Additionally, *P. trochilus* is recorded from Venezuela, a country where *B. godmani* has not been recorded. In Mexico, one unidentified species of *Belonuchus* is sympatric with *B. godmani*, and probably has similar habits, but differs from the latter by the black head and pronotum that lacks the metallic tonality.

Bionomics. *Belonuchus godmani* is a predatory species found mainly on

mushrooms on logs, but also has been collected directly inside rotten logs. It is found in cloud forests, and with less frequency is found in tropical evergreen forests.

Geographical distribution. Recorded from Guatemala (Baja Verapaz: San Geronimo, Chimaltenango: Calderas and Sololá: Panajachel), Mexico (Hidalgo: Zacualtipán, Morelos: Huitzilac and Veracruz: Orizaba) and Panama (Chiriquí: Boquete) (Sharp 1885, Navarrete-Heredia et al., 2002, Márquez 2004, 2006). It is recorded for the first time from Costa Rica (Alajuela: Poasito and Puntarenas: protected area El Progreso); Department of San Marcos (near Tajomulco), Guatemala; and the state of Querétaro (Landa de Matamoros) in Mexico. Additionally, it is recorded from some new localities of Hidalgo (Molango: Acuatitlán and Tenango de Doria: El Potrero) and Veracruz (Naolinco), Mexico (Fig. 4).

The geographical distribution of *B. godmani* is basically Mesoamerican, from Mexico to Panama, though in several countries this species has not been recorded (El Salvador, Honduras and Nicaragua; Fig. 4). Following the biogeographical regionalization of Latin America proposed by Morrone (2006), in Mexico this species is recorded from the Sierra Madre Oriental, Mexican Gulf, and Transmexican Volcanic Belt provinces. From Guatemala it is recorded from the Chiapas province; and from Costa Rica and Panama from the Western Panamanian Isthmus provinces.

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