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A new Mexican species of *Hologymnetis* Martínez (Coleoptera: Scarabaeidae: Cetoniinae: Gymnetini)

*Héctor Jaime Gasca-Álvarez and Cuauhtémoc Deloya**

Abstract

A new Mexican species of the Neotropical genus *Hologymnetis* Martínez (Coleoptera: Scarabaeidae: Cetoniinae: Gymnetini) is described and illustrated. A new key to identify adults of *Hologymnetis* species is provided.

Key Words: taxonomy; scarab beetle; Neotropics; Gymnetina

Resumen

Se describe e ilustra una nueva especie del género neotropical *Hologymnetis* Martínez (Coleoptera: Scarabaeidae: Cetoniinae: Gymnetini) de México. Se proporciona una nueva clave para identificar las especies de *Hologymnetis.*

Palabras Clave: taxonomía; escarabajo; Neotrópico; Gymnetina

The genus *Hologymnetis* Martínez was comprehensively reviewed by Ratcliffe & Deloya (1992). They recognized 7 species in the genus: *H. argenteola* (Bates, 1889) in Mexico and USA, *H. cinerea* (Gory & Percheron, 1833) in Guatemala, Mexico and USA, *H. kinichahau* Ratcliffe & Deloya, 1992 in Mexico, *H. margaritis* (Bates, 1889) in El Salvador and Mexico, *H. moroni* Ratcliffe & Deloya, 1992 in Mexico, *H. undulata* (Vigors, 1825) in Brazil and Paraguay, and *H. vulcanorum* Ratcliffe & Deloya, 1992 in El Salvador.

Hologymnetis is an American genus, with most (75%) of the species occurring in Mexico. A preliminary biogeographical study indicates that the probable origin in the south of the Amazon basin, followed by dispersal and speciation from El Salvador through southern and western Mexico and southern Arizona. Isolated populations of *H. vulcanorum* and *H. knichahau,* found in El Salvador and southern Guatemala, probably arose because of the geographical barrier of the Nicaraguan Depression, located between El Salvador, southern Honduras and northern Nicaragua (Ratcliffe & Deloya 1992). Almost all species of *Hologymnetis* occur in the Mexican Transition Zone (MTZ), and the distribution species patterns in *Hologymnetis* are consistent with Halffter´s Typical Dispersal Pattern, where north-south direction of the dispersal corridor in MTZ has been a major factor in the displacement of American biotas (Ratcliffe & Deloya 1992). This pattern corresponds to the Typical Neotropical Dispersion Pattern with maximum penetration, where elements of recent penetration (end of the Pliocene) have many species in South America and the MTZ (Halffter 1976).

Adults of *Hologymnetis* species can be distinguished by the following characters: robust body, dorsal coloration opaque and variable; ventral coloration dark and bright, in some species iridescent; head sub-rectangular, anterior margin of clypeus slightly emarginated, frons without projection or keels (unarmed), elytra with discal costae, pygidium with transverse punctures, prosternal spur absent, meso-metasternal protrusion short, protibiae tridentate in both sexes and inconspicuous sexual dimorphism (Ratcliffe & Deloya 1992; Deloya & Morón 1997).

Little is known about the natural history of *Hologymnetis* species. Adults of *H. cinerea* have been found in detritus piles of leafcutter ants (*Atta* spp.) and are known to feed on rotting fruit and flowers, and the sap of several trees and shrubs such as *Baccharis glutinosa* Pers. (Compositae) and *Acacia angustissima* (Mill.) Kuntze (Leguminosae) (Deloya 1988; Deloya & Morón 1997; Micó et al. 2001). In Mexico, adults of *H. cinerea* and *H. margaritis* inhabit tropical deciduous forests and dry oak forests (Deloya & Morón 1997). Larvae feed in compost and rotting wood. The third instar larva of *H. cinerea* was described by Micó et al. (2001). Larvae of *Hologymnetis* are most similar to those of *Cotinis* species and can be distinguished by a tarsungulus with seven setae, a maxillary stridulatory area with five irregularly spaced, low teeth, and the last segment of the antenna with three ventral sensory spots (Micó et al. 2001).

Material and Methods

In this work, we describe a new species found in Colima, Mexico. We use the phylogenetic species concept of Wheeler & Platnick (2000), which defines species as the smallest aggregation of populations diagnosable by a unique combination of character states. Illustrations were made using a Stemi SV6 Zeiss camera lucida stereomicroscope. Photographs were taken with a Canon 7d with 60 mm macro lens. Measurements were obtained with an ocular micrometer on a Zeiss stereomicroscope and with 0-150 mm digital caliper.

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Results

Hologymnetis reyesi Gasca-Álvarez and Deloya, new species (Figs. 1–6)

TYPE MATERIAL

Holotype male labeled "MEXICO, Colima, 11.3 mi S. Colima. vi.27.1983. B. K. Dozier" and deposited in Florida State Collection of Arthropods, Division of Plant Industry - Entomology, Gainesville, Florida 32608 USA.

DESCRIPTION

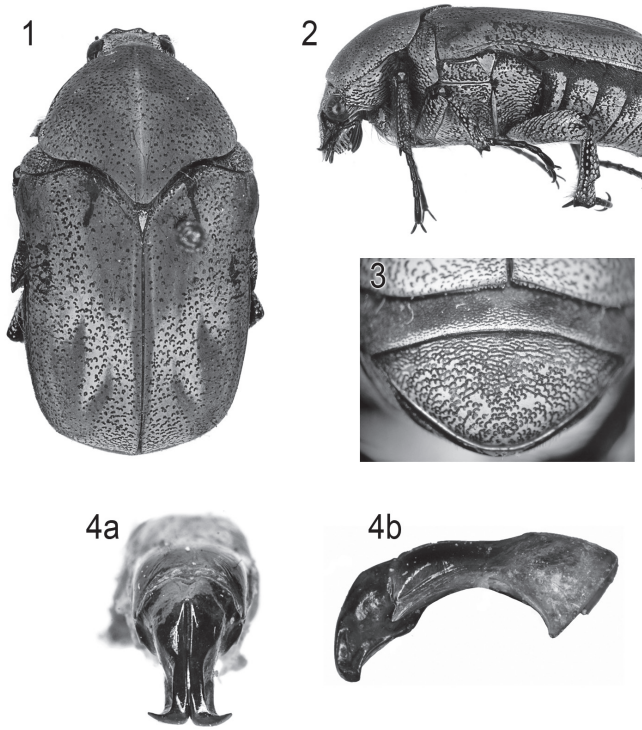
HOLOTYPE. Male (Figs. 1–2). Length 17.57 mm; width across humeri 9.97 mm. Color dorsally varying from opaque light to smokey gray; pronotum usually with light brown, longitudinal line in center; elytra usually with broad, transverse, diffuse light brown 'band' just behind middle, with 2 black spots and usually with weakly raised costae (terminating at apical umbone) darker than background color; venter weakly glossy, darker smoky gray, occasionally with faint metallic copper reflection; punctures and other sculpturing black. Head: Surface densely punctate; punctures small to large, round to irregular in shape; setae minute, straw colored. Clypeus feebly tumescent at center; apex strongly reflexed, emarginate at center, apices usually distinctly angulate either side of center. Interocular width is 4.0–5.0 eye diameters as seen from above. Antenna with basal antennomere at apex with 10 or fewer pale, slender setae on dorsal edge. Pronotum. Surface moderately punctate; punctures small to large (larger and denser laterally), round to kidney-shaped, disk strongly punctate. Anterior margin without tubercle. Bead of lateral margin incomplete; margin just anterior of basolateral angle distinctly emarginate. Mesepimera densely punctate; punctures round to kidney-shaped, setigerous; setae pale, often dense, long. Elytra. Surface densely punctate (much less so basomedially); punctures varying from small to mostly large, round kidney-shaped, U-shaped near to apex. Weakly elevated sutural costa and 2 discal costae terminating at apical umbone. Pygidium. Surface with coarsely, transverse, vermiform punctures; punctures strongly impressed, kidney-shaped to elongate, setigerous (Fig. 3); setae very short, pale. Venter: Setae testaceous. Mesometasternal protrusion short, broad, extending anteriorly beyond mesocoxae but not reaching procoxae; surface piceus, glossy, apex rounded, anterior surface with long, slender setae that curl around apex of protrusion. In ventral view, sides of mesometasternal protrusion slightly diverging to rounded apex (Fig. 5). Last sternite at apex with fringe of slender, short, testaceous setae. Sternites completely smokey gray and with small piceous spot basomedially; punctures moderate to large (larger laterally), kidney-shaped. Legs. Femora colored similarly to venter, tibiae predominantly piceous. Protibia with 3 subequally spaced teeth, middle tooth slightly closer to anterior tooth than basal. Parameres**:** Rounded at base in caudal view, apices with strong, laterally projecting tooth (Figs. 4, 6).

FEMALE

Unknown.

DISTRIBUTION

Hologymnetis reyesi is known only from the type locality at 18.181 km south of Colima, Colima State, Mexico; probably corresponding to the municipality of Ixtlahuacan. The habitat is tropical deciduous forest.

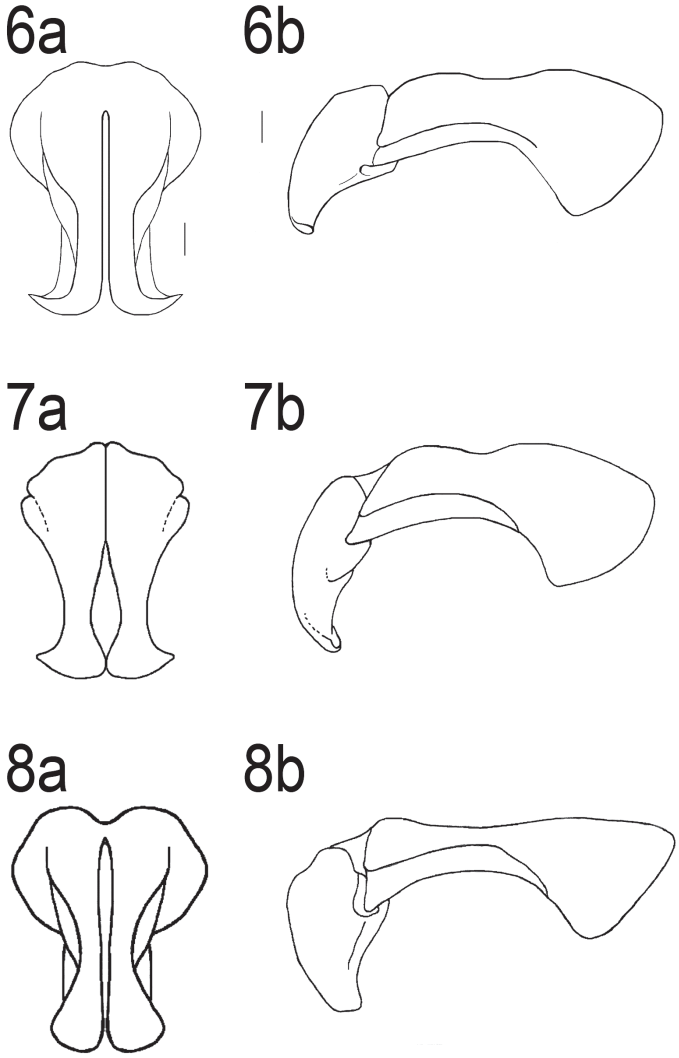


Figs. 1–4. *Hologymnetis reyesi,* 1, habitus, dorsal aspect; 2, habitus, lateral aspect; 3, pygidium, 4a, parameres, frontal view; 4b, parameres, lateral view.

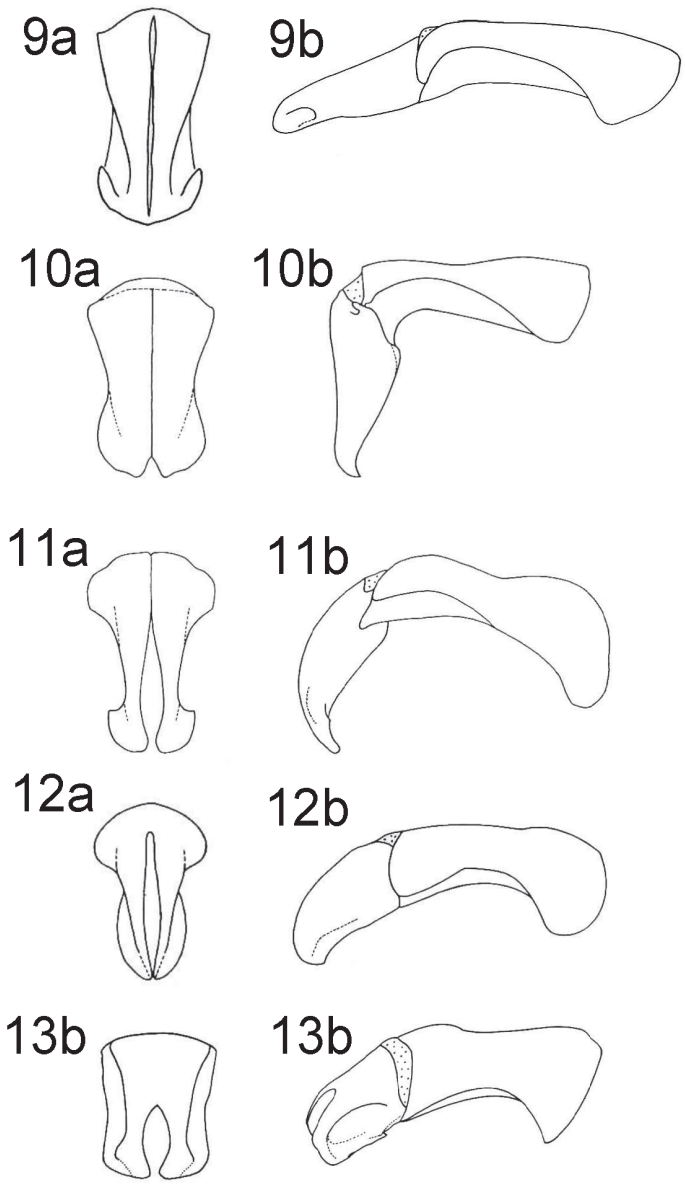


Fig. 5. *Hologymnetis reyesi***,** mesometasternal process (scale bar: 0.5 mm).

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Figs. 6–8. Parameres, 6a, *Hologymnetis reyesi*, frontal view (scale bar = 0.3 mm) and 6b, lateral view (scale bar = 0.3 mm); 7a, *H. argenteola*, frontal view and 7b, lateral view [modified from Ratcliffe &Deloya 1992]; 8a, *H. margaritis* frontal view and 8b, lateral view [modified from Ratcliffe & Deloya 1992].



Figs. 9–13. Parameres, 9a, *Hologymnetis cinerea*, frontal view and 9b, lateral view; 10a, *H. undulata*, frontal view and 10b, lateral view; 11a, *H. moroni* frontal view and 11b, lateral view; 12a, *H. vulcanorum* frontal view and 12b, lateral view; 13a, *H. kinichahau* frontal view and 13b, lateral view [modified from Ratcliffe & Deloya 1992].

ETYMOLOGY

This species is named in honor of Dr. Pedro Reyes Castillo in recognition of his important contribution to the Passalidae of America.

TAXONOMIC REMARKS

Hologymnetis reyesi is closely related to *H. margaritis*. Adults of these species are externally similar in color, punctures of the frons, pronotum, elytra and pygidium. However, the lighter longitudinal narrow band in the pronotum is more strongly delineated in *H. reyesi*. The parameres of *H. reyesi* are unique among *Hologymnetis* species; they resemble most closely *H. argenteola* but the apicolateral tooth is much more developed and elongated (Fig. 7).

In the Ratcliffe & Deloya (1992) key, *H. reyesi* will key out in the final couplet, where it is compared with *H. margaritis* by the form of parameres:

7.— Parameres thin at middle, internal margin sinuate, latero-apical region rounded and short (Fig. 8) . . . . *H. margaritis* (Bates)

7′.— Parameres wide at middle, internal margin straight, latero-apical region with curved, narrow, elongate tooth (Figs. 4, 6) . . . . . *H. reyesi* Gasca-Álvarez & Deloya **n. sp.**

This key is mainly made with coloration characters of the body, which could contain intraspecific variation. We propose a new identification key for current *Hologymnetis* species based on morphological characters, with emphasis on the form of the parameres:

Key to adults of *Hologymnetis* Martínez

1.— Venter largely glossy black in both sexes, sternites laterally often with cretaceous (chalky white) marking 2

1′.— Venter brown to grayish brown or pale brassy green or blue, weakly glossy or weakly to strongly metallic; females with central third of sternites bare, piceous 3

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2.— Dorsum unicolorous or black, rarely strongly punctuate. Parameres elongate, apex rounded, lateral lobes formed into teeth directed posteriorly (Fig. 9) . . . . . *H. cinerea* (G. & P.)

2′.— Dorsum black or piceous patterned with cretaceous lines; lines present longitudinally on pronotum and radiating from midline on elytra; occasionally reduced or nearly absent. Parameres elongated, quadrangular, without lateral lobes, apex slightly curved (Fig. 10) . . . . . *H. undulata* (Vigors)

3.— Pronotum with a lighter, longitudinal, narrow band at center 4

3´.— Longitudinal, narrow band at center of pronotum absent 7

4.— Bead of lateral margin of pronotum complete. Elytra unicolorous. Protibia with median tooth distinctly closer to apical tooth. Parameres elongate, thin at middle; apicolateral teeth developed (Fig. 11) . . . . . *H. moroni* Ratcliffe & Deloya

4.— Bead of lateral margin of pronotum incomplete. Elytra pattern with darkening of costae. Protibia with teeth subequally spaced 5

5.— Mesometasternal process with glossy apex usually sharply and transversely delineated from shaft. Mesotibial carina present at middle of tibia. Parameres with apical, median ridges that taper to a point (Fig. 12) . . . . . *H. vulcanorum* Ratcliffe & Deloya

5′.— Mesometasternal process with glossy apex and shaft usually broadly joined by a broad, piceous region. Mesotibial carina absent. Parameres not as above 6

6.— Pygidium with moderate to dense C-shaped to elongate punctures. Parameres thin at middle, internal margin sinuated, latero-apical region rounded, short (Fig. 8) . . . . . *H. margaritis* (Bates)

6´.— Pygidium with punctures kidney-shaped to elongate. Parameres wide at middle, internal margin straight, latero-apical region with narrow, elongateed tooth (Figs. 4, 6). . . . . *H. reyesi* Gasca-Álvarez & Deloya **n. sp.**

7.— Clypeus slightly convex on disc; apex broadly reflexed, distinctly emarginate at center. Elytral punctation relatively large, punctures usually U-shaped. Parameres short, stout, apex quadrangular (Fig. 13) . . . . . *H. kinichahau* Ratcliffe & Deloya

7´.— Clypeus weakly tumescent at center; apex strongly reflexed, usually strongly arcuate. Elytral punctation greatly reduced. Parameres curved, apicolateral teeth elongated and strongly narrowed (Fig. 7) . . . . . *H. argenteola* (Bates)

Acknowledgments

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