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Notes on *Maderesmus hoogstraali* (Diplopoda: Polydesmida: Cryptodesmidae) and new locality record from Mexico

Fabio Germán Cupul-Magaña[1,] and Julián Bueno-Villegas[2]*

Members of the millipede family Cryptodesmidae (Polydesmida) are small, "flattened" polydesmidans with horizontal paranota and a large collum covering much, most, or all of the head in dorsal aspect (Hoffman et al. 2002). They have a cover of sub-spherical knobs on the dorsal surface of the prozonites and a toothed limbus constituted of a series of lobes which may or may not be acuminate (Akkari & Enghoff 2011).

The family Cryptodesmidae is represented in Mexico by 4 genera, 12 species, and 1 undescribed species (Bueno-Villegas et al. 2004). *Maderesmus hoogstraali* (Chamberlin) was previously known only from Cerro Tancítaro (elevation 2,600 m), the type locality (Chamberlin 1942), and a second location 40.23 km west of Ciudad Hidalgo, Michoacán, Mexico (elevation 2,712 m; 10 males and 1 female; Loomis 1966). In his brief description, Chamberlin (1942) presented illustrations of the left gonopod of the male and dorsal views of the 11th and 13th paranota, and stated that *M. hoogstraali* "agrees with *Peridontodesmus woodianus* (Humbert & De Saussure) and *P. hirsutus* Pocock in having the anterolateral tooth of the keels (paranota) smaller than those following. This tooth, however, is by no means as minute as indicated for *woodianus* in the figure given by the authors of that species. This tooth and the second are blunter than represented for *hirsutus* and the poriferous tooth is distinctly bifid, e.g., on the 13th keels, whereas Pocock's drawings shows this enlarged tooth entire… The dorsum is dusky brown or blackish with the keels not definitely paler. Length, 9 mm." Chamberlin (1942) examined 2 males and 1 female taken "on shrew carcass" (7 Jun 1941) by H. Hoogstraal and Traub.

In this paper, we describe additional external anatomical characteristics of *M. hoogstraali* not mentioned by Chamberlin (1942) in the original description. Eight specimens were examined from samples recently collected in Jalisco and Michoacán, Mexico. Also, a 2nd and 3rd locality for the species in Mexico are recorded.

Polydesmida Pocock, 1887

Cryptodesmidae Karsch, 1880

Maderesmus hoogstraali (Chamberlin, 1942) (Fig. 1)

Peridontodesmus hoogstraali Chamberlin, 1942

MATERIAL EXAMINED

Mexico: Jalisco: Cabo Corrientes Municipality: Vallarta Botanical Garden, A.C.; 15-II-2014; col. M. Vázquez; tropical subdeciduous forest, altitude 370 m; 3♀—body length in mm/width of 10th tergite in mm: 9.75/1.79, 9.59/1.64, 9.57/1.59; 2♂—7.44/1.41, 7.39/1.35; specimens deposited in the Entomological Collection of the Centro de Estudios en Zoología, Universidad de Guadalajara (CZUG).

Mexico: Michoacán: Gabriel Zamora Municipality: Tequecarán, 44 km SE Cerro Tancítaro; 28-III-2010; col. Unknown;1♀ (My-UAEH-74), 1♀ (CIFBUM1001), 1♂ (My-UAEH-74); specimens deposited in the collection of the Universidad Autónoma del Estado de Hidalgo (My-UAEH) and in the Colección de Insectos de la Facultad de Biología de la Universidad Michoacana (CIFBUM).

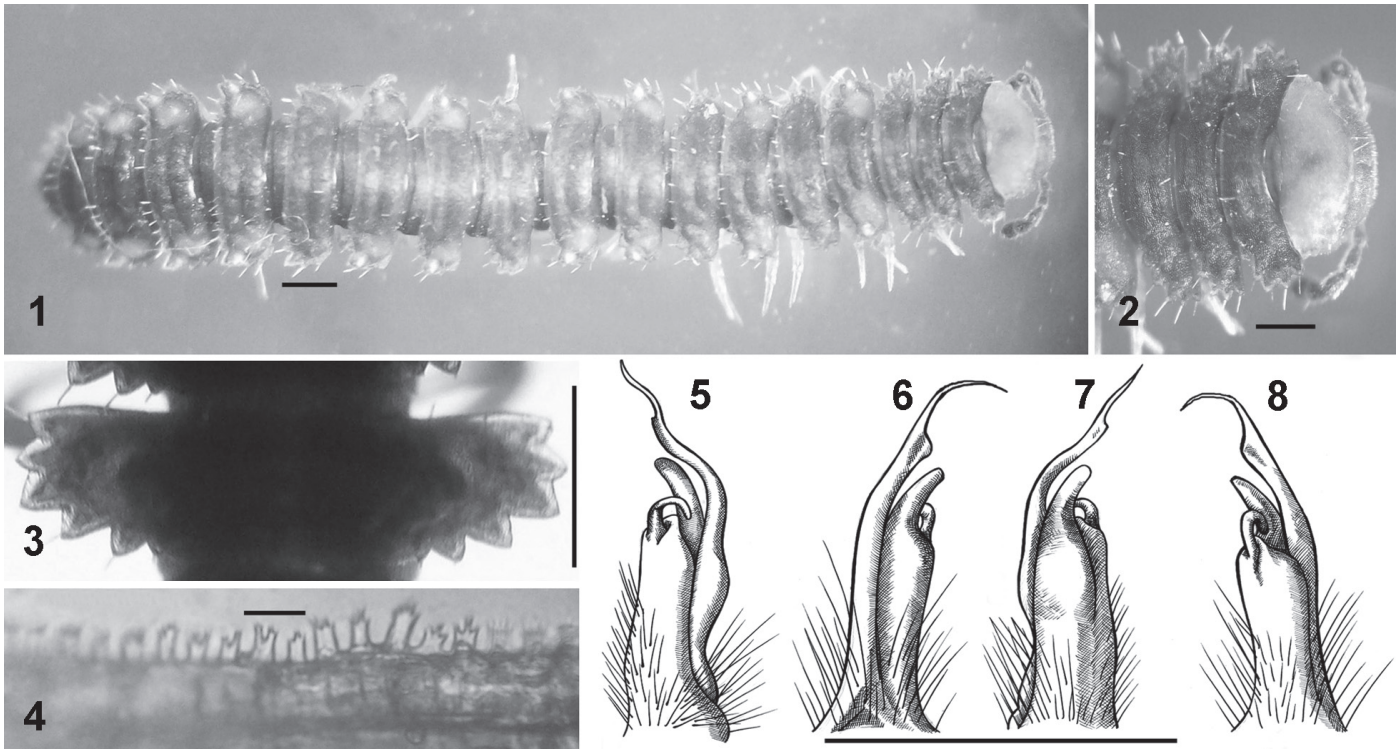
Notes: The body is composed of 20 segments in both sexes; 31 pairs of legs in female and 30 in male; general coloration dorsally brown; collum, head, preanal segment, anal valves, sternal region, and legs yellowish-brown; antennae brown. Median suture line on front of head not extending to labrum; ocelli absent; antennae clavate with 7 articles; collum transversally elliptical and as wide as head, which is not entirely concealed in dorsal aspect by the collum, with irregularly placed tubercles on the surface of the collum, and lateral edge with 8 small lobes in each side (Fig. 2). Ozopores are present on segments 5, 7, 9, 10, 12, 13, 15–18; metatergite with 2 slightly developed transverse rows of tubercles with long slender setae; paranota narrow in transverse direction and set at segment mid-height, with marginal teeth (6–8) and large setae (Fig. 3); limbus with a simple row of ramified spikes (Fig. 4). Epiproct in dorsal view narrow and broadly blunt, in lateral view long and extending well past the paraprocts; hypoproct triangular; paraprocts smooth, without modifications. Legs in both sexes with tarsus 1.2 times as long as the femur. Gonopod aperture shape ovoid; gonopods relatively large; coxae and prefemur with a few long setae; telepodite much longer than coxae; mesomerite larger than the other processes of the gonopod, uniformly broad and extending apically into a slender process; solenomerite apically curved; paracoxite uniformly broad (Figs. 5–8).

In the field, males were observed "riding" females. This behavior has been observed in other Polydesmida species, such as *Amplinus bitumidus* (Loomis) and Pyrgodesmidae, and probably is a mate guarding strategy in a stage preparatory to mating (Adolph & Geber 1995).

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Figs. 1–8. *Maderesmus hoogstraali*. 1, Female specimen, dorsal aspect; 2, head, collum, and tergites 3–5, dorsal aspect; 3, tergite 7, dorsal aspect; 4, the characteristics of the limbus; 5–8, left gonopod in anterior (5), lateral (6), posterior (7), and medial (8) views. Drawings from Ubaldo Sebastián Flores Guerrero. Scale bar figures 1, 2, 3, and 5–8 = 0.5 mm; scale bar figure 4 = 0.01 mm.

Summary

New morphological characteristics are described to *Maderesmus hoogstraali* (Chamberlin) (Polydesmida: Cryptodesmidae), which were not described by Chamberlin (1942) at the original description. Further, 2 new distribution localities were recorded for the species.

Key Words: re-description; morphology; millipede

Sumario

Se describen nuevas características morfológicas para la especie *Maderesmus hoogstraali* (Chamberlin) (Polydesmida: Cryptodesmidae) no consideradas por Chamberlin (1942) en la descripción original, además se mencionan dos nuevas localidades de distribución para la misma.

Palabras Clave: redescripción; morfología; milpiés

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