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A new, disjunct, diplopod genus from Espirito Santo, Brasil (Polydesmida: Chelodesmidae)

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ABSTRACT

The new generic and specific names Cryptosolenomeris macrogon *are proposed for a large chelodesmoid milliped collected at Linhares, Espírito Santo, Brazil, and characterized particularly by the elongated gonotelopodites lacking torsion and apically recurved into a calyciform shield concealing the solenomere; the typical chelodesmoid prefemoral process appears to be either undeveloped or present in a disjunct position. There are no known close generic relatives in the known Brazilian fauna.*

Keywords: Diplopoda; Polydesmida; Chelodesmidae; Brazil; Espírito Santo.

INTRODUCTION

The following account documents a recently identified new element in the milliped fauna of Espírito Santo, distinguished from all other known genera of the Chelodesmidae by a combination of unusual traits in gonopod structure. It is especially desirable to add this apparently endemic taxon to the diverse and endangered biota of the Atlantic forest region, in so doing calling attention to the hitherto largely neglected millipeds of the coastal mountains between Rio de Janeiro and Bahia. Although the peripheral features of the new animal are generally consonant with various other genera of southeastern Brazil, no attempt is made to suggest tribal relationships owing to the still retarded condition of chelodesmoid classification.

RESULTS

Taxonomy

Family Chelodesmidae

Chelodesmidae Cook, 1895, Ann. New York Acad. Sci., v. 9, p. 4. – Hoffman, 1980, Classification of the Diplopoda, p. 151 (list of genera proposed to 1978).

Leptodesmidae Attems, 1938, Das Tierreich, v. 69, p. 1. – Schubart, 1946, An. Acad. Brazil. Sci. v. 18, p. 165 (and in many subsequent papers on the Brazilian fauna).

As recently as 1938, the majority of Brazilian chelodesmids (less than 100) were contained in the

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single multiformous genus Leptodesmus. Investigations conducted from 1938 to 1962 by Otto Schubart, and since that time by the present author, working with far more extensive material than available to our predecessors, have gradually exposed the actual size and diversity of this family. While substantial progress has been made in the direction of diagnosing homogenous genera and defining some obvious tribal units, probably less than 20% of the native species have been described and even a preliminary classification of the Chelodesmidae is unlikely to be achieved in the near future. While the opportunistic description of individual new taxa is not an ideal solution, publication of the more significant elements seems preferable to suppressing them indefinitely with the loss of useful information.

Cryptosolenomeris gen. nov.

Type species: Cryptosolenomeris macrogon, sp. nov.

Name: A neologism derived from the Greek elements *kryptos* (hidden) + *solaenomeron* (a grooved part), referring to the concealed position of the gonopod solenomere.

Diagnosis: Body elongate, broadest and with largest paranota on anteriormost segments, paranota of midbody segments reduced in size and widely separated by the minimally inserted prozona, posteriormost segments abruptly reduced in size, 19th almost entirely telescoped into 18th and lacking ozopores. Legs long and slender, tibial pads present on 2nd to 8th pairs in males; femora of last two pairs elongated and notably curved. Sternum of 5th segment with large apically indented process between anterior legpair.

Gonopod aperture small, oval, not contacting posterior edger of stricture, edges flared upward. Gonopods without median sternal remnant, coxosternal apodemes long and straight, coxae moderately compressed, coxal apodeme large, displaced to dorsolateral side of coxa. Prefemoral region of gonopods small proportionate to length of telopodite, latter long, nearly straight, with incipient torsion (the prostatic groove deflected to ventral surface and not visible in mesal aspect; a long, straight, acuminate accessory process at about midlength on mesal side; telopodite recurved apically, forming a calyciform shield over solenomere which is concealed on the dorsal side, without trace of cingulum or other structural separation into prefemur and acropodite regions.

Species: Only the type species is known.

Distribution: The genus is known only from the type locality of the single included species, in the Atlantic forest region of southeastern Brazil.

Cryptosolenomeris macrogon sp. nov.
Figures 1-11

Material: Male holotype (MZUSP) from Linhares, Espírito Santo, Brazil; 19 October 1967, "Exped. Depto. Zool." legit.

Name: A neologism composed of the Greek elements *macros* (long) + *gon* (from gonopod), in reference to the unusually elongated gonotelopodite.

Diagnosis: With the characters of the genus, gonopod structure as shown in Figures 600.

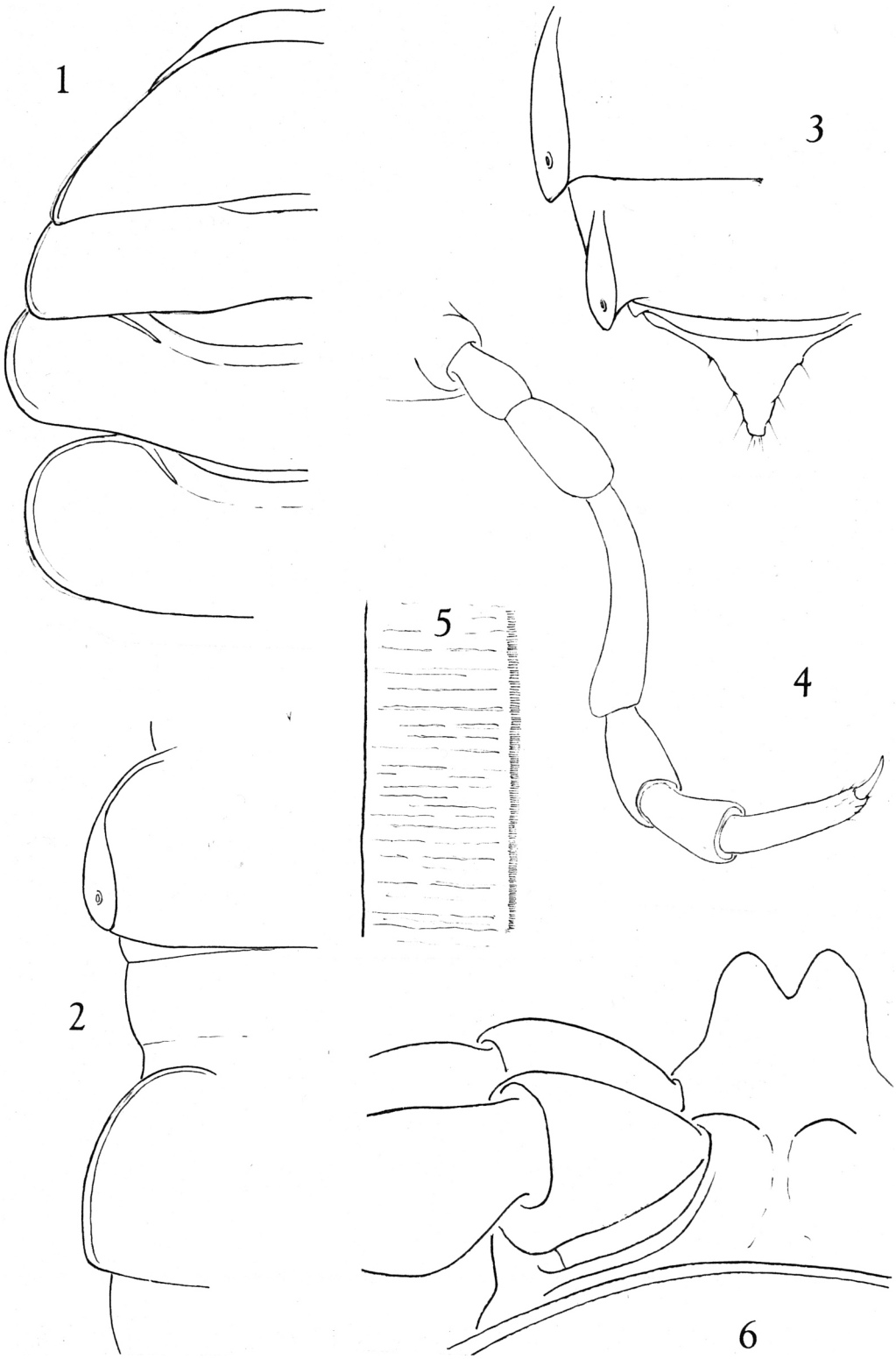
Holotype: Adult male, broken into several fragments and largely decolored. Body relatively slender owing to reduced size of paranota; broadest at segment 3, notably narrower back to segment 7. Penultimate segment reduced in size and deeply telescoped into 18th, its paranota scarcely evident. W/L ratio at midbody ca. 12%. Length ca. 68 mm., segment width across paranota:

2 – 9.8 mm	7- 8 – 8.8 mm
3 – 10.4	10-14 – 8.3
4 – 9.9	16 – 8.0
5-6 – 9.2	18 – 5.0

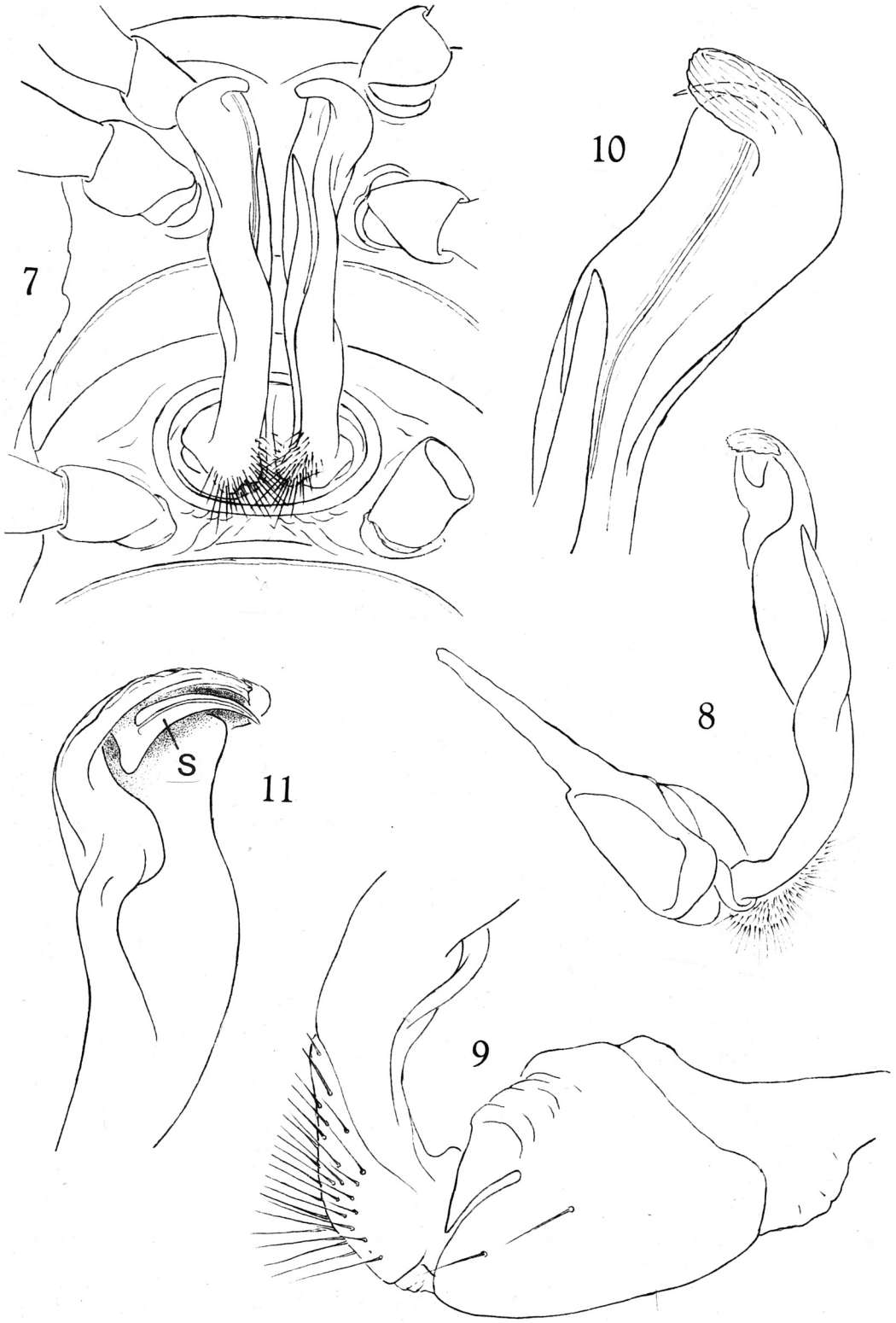
Color in life unknown, but appearing to have been maroon dorsally and laterally, with head, antennae, peritremata, legs, and possibly a transverse metatergal stripe yellow.

Surface of head entirely smooth, most facial setae abraded, genae without median depression or lateral margin. Width across genae 5.1 mm, interantennal space 1.3 mm. Antennae long (ca. 12.2 mm), ratio 2 = 6 > 3 = 4 = 5 > 1 = 7, antennomeres evenly and moderately clavate, 6th without apical lateral sensory groove, 7th without lateral hemispherical sensory organ. Four apical sensory cones, about equally separated.

Collum transversely ellipsoidal, lateral ends elongate-acute, declivent, surface entirely smooth. Paranota of segments 2-4 (Fig. 1) large, subquadrate, strongly depressed lateroventrad (thus broader than as illustrated), corners rounded and overlapping, edges marginate; paranota of subsequent segments progres-



FIGURES 1-6: *Cryptosolenomeris macrogon* n. sp., peripheral structures. **1.** Left side of segments 1-4, dorsal aspect. **2.** Left paranota of segments 9 and 10, dorsal aspect, showing their separation by minimal insertion of prozona typical of midbody segments. **3.** Epiproct and left side of segments 17-19, showing abrupt inclusion of 19th into 18th. **4.** Leg of the last pair, ventral aspect, showing curvature of the femoral podomere. **5.** Limbus from midbody segment, greatly enlarged to show marginal fimbriation. **6.** Sternal region of 5th segment. Figures 1-3 drawn to same scale, others from different magnifications.



FIGURES 7-11: *Cryptosolenomeris macrogon* n. sp., gonopod structure. **7.** Ventral aspect of segments 6 and 7, showing natural position of gonopods and notably reduced size of gonopod aperture. **8.** Left gonopod, mesal aspect, showing elongated coxosternal apodeme and basal diminuation of telopodite (AP, accessory process of uncertain identity). **9.** Coxa and telopodite base of left gonopod, lateral aspect, showing displaced and deflected orientation of coxal apophysis. **10.** Distal third of telopodite of left gonopod, ventral aspect. **11.** The same region, in dorsal aspect (S, solenomere).

sively smaller and less depressed. Midbody paranota (Fig. 2) separated by as much as their own length by the minimally telescoped prozona. Peritremata elongate-ovate, not set off from lateral edge, pores small, placed near posterior end, on segments 5, 7, 9, 10, 12-18. Metazona convex, smooth, without tubercles, setae, or transverse sulcus; stricture smooth, strongly defined around segment, anterior edge sharp and overhanging, posterior edge diffuse. Limbus (Fig. 5) relatively broad, the edge fimbriated with microscopic cilia. Sides of metazona smooth, pleurosternal carinae present back to 8th segment.

Stigmata elongated slits, similar in size and shape, placed just anterior to dorsal coxal condyles, the latter produced into small acute lobes.

Posterior segments (Fig. 3) similar to the preceding except paranota progressively smaller and narrower, 19th segment almost entirely telescoped into 18th, its paranota reduced to minute lobes lacking ozopores. Epiproct acutely conical, paraprocts nearly flat, unmodified, hypoproct transverse triangular without enlarged setiferous tubercles.

Podosterna low, flat, and glabrous, about as wide as length of prefemora (2.5 mm), produced into small conical tubercles just posterior to coxal condyles. Legs long and slender, virtually glabrous except near base of tarsal claw. Anterior legs with small apical tibial pads on 2nd to 8th pairs, otherwise unmodified. Sternum of segment 5 produced into conspicuous, apically bifid median process between anterior legs (Fig. 6). Gonopores opening on low, inconspicuous convexities.

Gonopod aperture small, oval, the entire edge elevated, highest at lateral ends. Gonopods without median sternal element, coxae small relative to telopodites, largely withdrawn into aperture; coxosternal apodeme straight, slender, as long as main body of coxa; coxal apophysis notably displaced into a lateral position (Fig. 9); no coxal macrosetae evident except two on lateral side. Telopodites unusually long, straight, without torsion, extending anteriad to sternum of 5th segment, narrowest proximally at prefemoral region, claviform distad, the two telopodites lying parallel *in situ* (Fig. 7). Setose prefemoral region short, no verifiable prefemoral process present. Mesal face of telopodite near midlength with an elongate, slender, acuminate accessory process. Prostatic groove located on ventral surface and not visible in mesal aspect, implying a moderate torsion at base. Apex of telopodite recurved mesad, calyptrate and concealing the small slender solenomere (Fig. 11, S), to which the groove gains access by crossing over beneath the hyaline apical lobe from ventral to dorsal side. No trace of cingulum setting off acropodite from prefemur.

DISCUSSION

The known chelodesmid fauna of southeastern Brazil is largely characterized by a general external body facies in which the paranota of the anteriormost segments (1-3 or 4) are broadest despite being notably declivent, midbody paranota tend to become smaller and separated, and the 19th segment largely telescoped into the 18th. In these taxa, the legs are long and slender, with tibial pads present back to at least the gonopodal segment, and pleurosternal carinae are present. A median sternal process (or two) is usually present between the anterior leg pair of the 5th segment. The gonopodal aperture is small, not extending anteriad into the stricture, nor laterad beyond the coxae of the 8th legs; median gonosternal element is usually not present, coxosternal apodeme tends to be slender and straight. Coxae typically are provided with a slender acuminate coxal apophysis, and not are prolonged on the lateral side. The prostatic groove of the telopodite terminates on a small but discrete solenomere. Within this framework, *Brasilodesmus* and *Henrisaussurea* are locally abundant representatives. Although subgroups can be recognized, for instance, by the larger gonapertures such as occur in *Leptodesmus* and *Brachyurodesmus,* such distinctions are currently limited by the fact that numerous distinctive chelodesmid genera remain to be distinguished, named, and placed in a tentative systematic pattern. Of the few genera that are fairly-well established, *Brasilodesmus* perhaps best qualifies as a plausible relative of *Cryptosolenomeris* (at least in terms of shared peripheral features).

An important caveat affecting research on this family is realization that modifications of the basic gonopod structure are relatively constrained: there is only so much diversification possible with the basic elements of a coxa and a biramous telopodite. Considering the family in its present broad context, it is inevitable that homoplasy would occur frequently in lineages (clades) considered to be unrelated on the basis of both structural and geographic indications. Attention to details of peripheral traits therefore assumes an increasingly important role in the resolution of chelodesmid taxonomy.

RESUMO

O nome genérico e o epíteto específico novos – Cryptosolenomeris macrogon *– são propostos para um diplópodo quelodesmóide de grande porte, o qual foi coletado em Linhares, estado do Espírito Santo, Brasil. Ele é caracterizado em especial pelos gonotelopoditos alongados*

sem torção e recurvados no ápice para transformar-se em um escudo caliciforme que oculta o solenomero; o típico processo pre-femoral dos quelodesmóides parece ser ou, pouco desenvolvido ou, presente numa posição disjunta. Não são descritos gêneros de parentesco próximo na fauna brasileira já conhecida.

Palavras-chaves: Diplopoda, Polydesmida, Chelodesmidae, Brasil, Espírito Santo.

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