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CHELODESMID STUDIES. XXIII. PROPOSAL OF A NEW TRIBE FOR THE DISJUNCT BRASILIAN GENUS *MACROCOXODESMUS* (DIPLOPODA: POLYDESMIDA: CHELODESMIDAE)

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ABSTRACT

The new tribe Macrocoxodesmini is proposed for the genus Macrocoxodesmus Schubart, 1947, with a single species known from Minas Gerais. Autapomorphies supporting this position include trichosteles on postfemora and tibiae of males, enormously enlarged valves of the cyphopods, and unusual curvature of the tracheal apodemes of the 2nd legpair in females.

Fifty years ago, Count Attems (1938) recorded a total of six Brazilian genera of chelodesmids in his treatment of the family "Leptodesmidae", with the great majority of known species being aggregated into a large and heterogeneous genus *Leptodesmus*. Subsequently this number was increased to nearly 30, chiefly in numerous papers published by Otto Schubart, without any attempt being made to establish generic groupings at the tribal or subfamilial levels. Ongoing analysis of the Chelodesmidae commenced by me in 1969 has resulted in the definition of about a dozen tribes, occurring mostly in the southeastern states of Brasil and in the northern Andean region. The recent (May 1987) opportunity to examine the extensive chelodesmid material in the Museu de Zoologia, USP, disclosed that an already-known genus is sufficiently disjunct from its apparent nearest relatives to require accommodation in a monotypic tribal category which is here defined as many years may yet elapse before a summary of all Neotropical chelodesmids can be completed.

For the most cordial hospitality and cooperation that has enhanced my study of MZUSP diplopods both "in situ" and on loan, I remain under continual obligation to Dr. P.E. Vanzonlini and Dr. J.L.M. Leme.

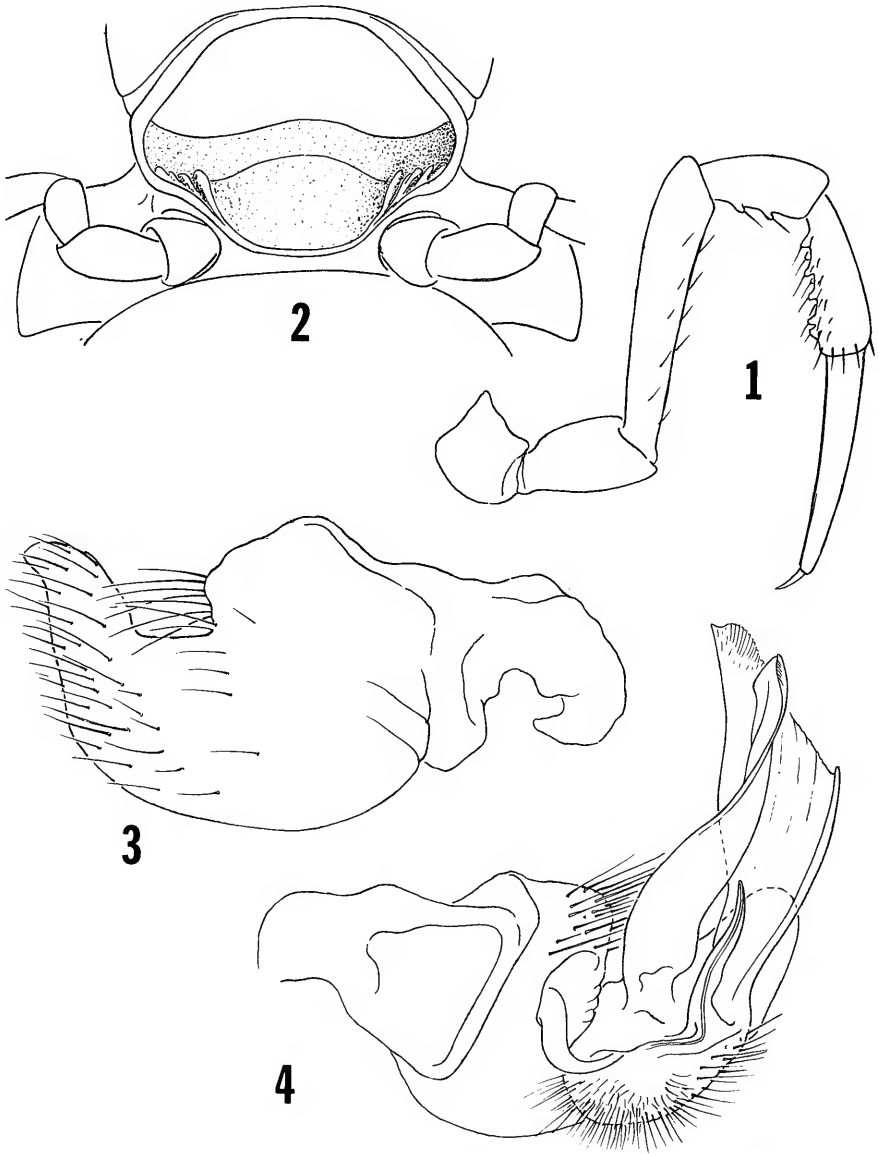
Family Chelodesmidae

Macrocoxodesmini, trib. n.

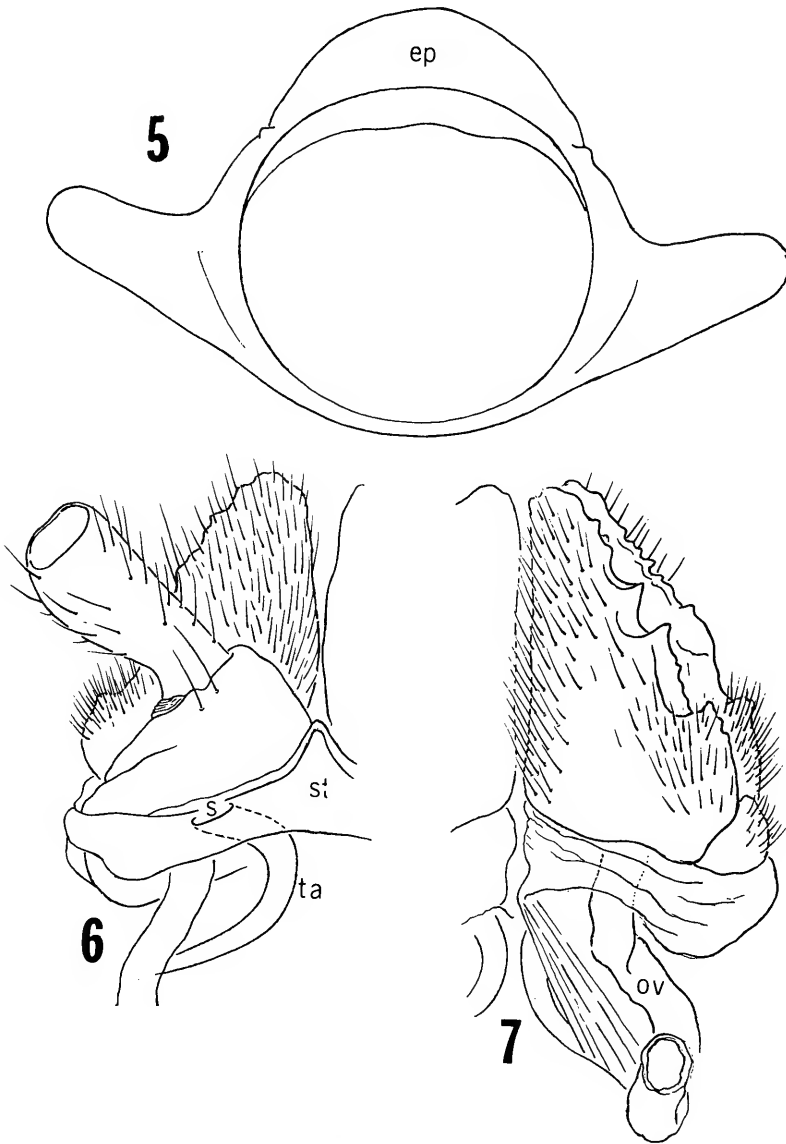
Type genus: *Macrocoxodesmus* Schubart, 1947.

Definition: Moderate-sized (length to 60 mm) chelodesmids with well-developed paranota, body basically parallel-sided over segments 5 through 15, W/L ratio in the only included species, 12-13%. Metaterga microreticulate, with indistinct transverse sulcus; paranota set high on sides, middorsum only slightly convex, paranota slightly divergent posteriad, maximum width therefore at their posterior corners which are acute on all segments and become increasingly prolonged caudad on posterior segments; ozopores in normal sequence, located dorsally toward

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Figs. 1-4, *Macrocoxodesmus marcus* Schubart. 1. Leg from midbody segment, showing postfemoral and tibial trichosteleae. 2. Seventh segment, ventral aspect, gonopods removed, showing size and shape of gonopod aperture. 3. Coxa of left gonopod, lateral aspect. 4. Left gonopod, mesal aspect, drawn from slide preparation with coxa slightly distorted. All drawings from male holotype.



Figs. 5-7, *Macrocoxodesmus marcusii* Schubart. 5. Third segment in posterior aspect, showing modification of sternal region into "epigynal" flange. 6. Sternum and base of second pair of legs, anterior aspect, left cyphopod also shown. 7. Left cyphopod, posterior aspect. Drawings from female topotype. Abbreviations: ep, epigynal flange; ov, oviduct; s, stigmal opening; st, sternum, ta, tracheal apodeme.

posterior end of prominent, flattened peritremata which at least on anterior half of body are distinctly set off from lateral edge; scapularae of most segments with small acute dentation. Limbus unmodified. Epiproct distally acute. Sterna of midbody segments with two pairs of setiferous lobes which become smaller posteriorly. Sternum of 4th segment with broad, spatulate median process covered, like coxae and prefemora of 3rd legs, with dense setation. Sterna of 5th and 6th segments each with an anterior pair of processes. Legs without trace of prefemoral knob and tibial pad, long and slender; 8th-16th pairs of legs of male sex with prominent trichosteles on ventral surface of postfemora and tibiae.

Gonopod aperture extremely large, prolonged lateral beyond coxal sockets, extended also caudad between bases of 8th pair of legs nearly to caudal edge of segment, the rim not notably elevated or flared; posterolateral region of aperture with several distinct longitudinal ridges, median posterior area forming a shallow depression which accommodates bases of telopodites. Gonosternum large and prominent, distally truncate. Coxae large, subglobose, greatly prolonged distolaterad into acutely conical projection extending ventrad far beyond base of telopodite. Dorsal side of coxae with field of large setae adjacent to base of cannula. Telopodite relatively small, with large sinuously laminate prefemoral process; prostatic groove carried by a small, short solenomerite originating at distal end of prefemur, at the base of a large, distally broadened laminate element of uncertain anatomical identity, probably however postfemoral.

Midventral region of 2nd segment of female elevated into prominent transverse lamina ("epigynum") behind base of 2nd legpair. Sternum of these legs slender, ventromedially produced into a low intercoxal angle, stigmata prominently visible, open, more or less centered on coxal base; tracheal apodemes strongly curved mesad and nearly in contact, then recurved caudolaterally and divergent, without branch or projection near midlength. Coxae transversely elongate but not otherwise modified, nearly in contact medially. Receptacle of cyphopod undeveloped, operculum small; both valves enormously enlarged, flattened, densely setose, their distal margins each with three or four large dentations and smaller serrations; cyphopods in situ extending beyond rim of epigynal flange to a distance about equal to end of prefemora.

Relationships: the form of the paranota in *M. marcusii* strongly reminds of that developed in species of *Odontopeltis* (= *Storhotropis* of Attems and Schubart, see Hoffman 1984 for taxonomic and nomenclatorial clarifications), some of which are sympatric with *marcusii*. The totally different gonopod structure of *Odontopeltis* absolutely precludes any close relationship between the two genera, however, and the paranotal similarity can only be regarded as some form of convergence.

On the other hand, both the gonopod aperture and gonocoxae suggest relationship with *Eucampesmella* and some related but as yet undescribed genera from northeastern Brasil. In the first category, the general size and shape of the aperture and the distinct posterolateral internal ridges are nearly identical in the several taxa. In the second, the pronounced lateral elongation of the coxa and the noteworthy field of large setae on the dorsal side also imply affinity. In *Eucampesmella tricuspis* (Attems), the prostatic groove is carried by a slender sub-accular solenomerite which is as long as the other two major processes, and separated from the postfemoral element nearly down to their common base at the prefemur. A reduction in the length of this solenomerite would result in an effect like that presented by the gonopod of *Macrocoxodesmus*, and perhaps it is justified to consider this genus as a derivative of the *Eucampesmella*-group in which paranota, male legs, and genitalia of both sexes have become extremely specialized.

An investigation of *Eucampesmella* and some related taxa, now in progress, should result in the recognition of an additional and appropriate tribal group coordinate with the *Macrocoxodesmini*.

For present purposes, it is sufficient to append some drawings and descriptive notes made from the type material of *M. marcusii*, to supplement the generally adequate original account of this species.

Macrocoxodesmus marcusii Schubart

Figures 1-7

Macrocoxodesmus marcusii Schubart, 1947, Rev. brasil. Biol., v. 7, p. 110, figs. 1-4. Holotype male (MZUSP) from Fazenda Floresta, on the Rio Matipoó, Mun. Manhuassu and Ponte Nova, state of Minas Gerais.

The original description of this species is long and detailed, and taken in connection with the illustrations provides a good concept of most important characters. Schubart gave figures of representative paranota, legs structure, and gonopods in both dorsal and medial aspects. He did not speculate on the possible affinities of *Macrocoxodesmus* aside from placing it in a group of genera characterized by a combination of peripheral and genitalic characters (“...com distribuição normal dos poros, não afastados da margem lateral, tergitos sem cerdas, prefemur das pernas do macho sem cones e com solenomerite não circular”). It is not possible to state with certainty just which genera Schubart had in mind as components of this group.

The original drawing (Schubart's fig. 4) of the gonopod in mesal aspect was made from a slide preparation in which the coxa is somewhat flattened by pressure of the cover slip, and in which the apices of the telopodite processes are tilted downward to a lower level (focal plane) than the basal region. The orientation of the drawing is thus decidedly an oblique ventromedian view. By fixing the entire preparation at a slight angle, I was able to obtain a much better mesal perspective. (fig. 4 of this paper) although deformity of the coxa could not be corrected. From my observation it could be established that the prefemoral process is set off basally by a slight but still distinct cingulum. As seen in lateral aspect of the same gonopod (fig. 3), the lateral coxal prolongation forms nearly a right-angle with the main axis of the podomere producing a configuration not known to me to occur elsewhere in the Chelodesmidae.

The original description referred to (and illustrated) the occurrence of “cerdas grossas articuladas” on the ventral side of the tibiae. It was perhaps not entirely justified to use such a term, which implies that the hairs themselves are segmented. Actually, as the drawings clearly show, the hairs in question are placed at the tips of cylindrical trichosteles, where their mode of attachment does not seem especially different from setal sockets elsewhere on the integument. My study of the holotype showed these unusual structures to occur on legs of pairs 8 through 16, up to as many as 10 on the tibiae, but also usually one or two on the postfemora as well. Somewhat similar modifications occur on the legs of distantly related chelodesmids in the tribes Batodesmini and Trachelodesmini of the northern Andean region, but in these cases the hairs are associated with spherical or spiniform projections and occur at their base rather than apex.

The female of *marcusii* was unknown to Schubart, but this sex is represented in material from the Rio Matipoó which he received at a much later date. Modifications of the 2nd pair of legs and cyphopods, as shown here in figs. 5-7, are so striking that they would not have escaped Schubart's notice had he female material at the time of describing *marcusii*. The enormous size of the valves and their striking dentation is not even approximated by any other chelodesmid so far known to me. To afford them some measure of protection epigynal region is accordingly more enlarged than in other genera.

To date, this unusual species is known only from type locality. As this part of Brasil has scarcely been touched as regards sampling of the diplopod fauna, it is not unreasonable to assume that its actual range is much greater and more importantly, that additional species of *Macrocoxodesmus* will be found eventually.

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