

A dalodesmid milliped from southeastern Brasil

by

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With 5 figures

ABSTRACT

The new genus and species *Oeciaconus dyoceragaster*, described from Santa Catarina, provides the first record for the family Dalodesmidae in Brasil and confirms the correctness of a related species named by Schubart in 1954 from the coast of Argentina. Otherwise all known American species of this family occur only in Chile and adjacent parts of Argentina in the Andes range. Possibly at an earlier time dalodesmids were widespread in the south temperate region of South America.

The new generic name *Kuschelodesmus* is proposed for *Anaulacodesmus atlanticus* Schubart, which is manifestly more similar to *Oeciaconus* than to the Chilean species of *Anaulacodesmus*.

It has long been realized that the present-day distribution of the diplopod family Dalodesmidae (formerly Sphaerotrachopidae) reflects an earlier Gondwanaic continuum similar to that of many other invertebrate animal groups. Species of this family occur in Chile, extreme southern Africa, Madagascar, Tasmania, New Zealand, Australia, and New Caledonia.

These areas collectively make up a pervasive and coherent geographic pattern to the extent of having been nominated (KUSCHEL 1963) for consideration as one of the major biogeographic regions of the world. There is, moreover, evidence from the Diplopoda that perhaps a part of southern Brasil qualifies to be included in Kuschel's Austral Region by virtue of having contained a primitive horofauna like that which still persists in Chile and New Zealand, although these ancient elements are now much reduced and overlain by a later and evidently more successful faunal layer.

My recent synopsis of the family Siphonotidae considers the genus *Burinia* to embrace species occurring in South Africa, southeastern Brasil, and Chile. The Brazilian elements are found in Sao Paulo and Santa Catarina. An additional parallel from the distantly related Dalodesmidae may now be exposed. Among the extensive material of soil-inhabiting arthropods obtained from Fritz Plaumann by the Museum d'Histoire

naturelle de Genève, I discovered in 1975 an adult male dalodesmid of an undescribed genus and species; this family is thereby to be added to the Austral Region faunule of Santa Catarina.

My best thanks are here extended to Dr. Bernd Hauser for providing the facilities and opportunity leading to the recognition of this interesting organism.

Family DALODESMIDAE Cook

As presently conceived, this group contains about 47 genera and some 200 nominal species. Although the fauna of South Africa has been summarized (SCHUBART 1956) and those of Chile and New Zealand are currently being revised, there has been no attempt to organize the genera into groups on a world-wide basis even though some lines of affinity are obvious from published information. In the absence of such a synthesis, and since the number of recognized taxa will certainly increase as the soil fauna of the Southern Hemisphere becomes better-known, any assertions about the relationships of the new Brazilian genus must be recognized as holding only temporary authority. Yet it seems desirable to at least suggest some similarities between it and divers known genera.

Oeciaconus gen. nov.

Type species: *O. dyoceragaster* sp. nov.

Diagnosis: Body composed of 20 segments; metaterga with small but distinct paranota, a short middorsal transverse sulcus, three rows of setae, and convex areation; ozopores in normal sequence, located near posterior end of prominent oviform peritremata; limbus pectinate, with numerous straight, simple, close-set projections. Sterna of posterior segments with small, flat, acute, paramedian spines between anterior legs. Sterna and legs in front of gonopods unmodified. Legs relatively long, prefemora strongly convex dorsally; basal three podomeres with dense field of short setae on ventral surface, proximal three podomeres with prominent and conspicuous ventral areas of sphaerotrichomes.

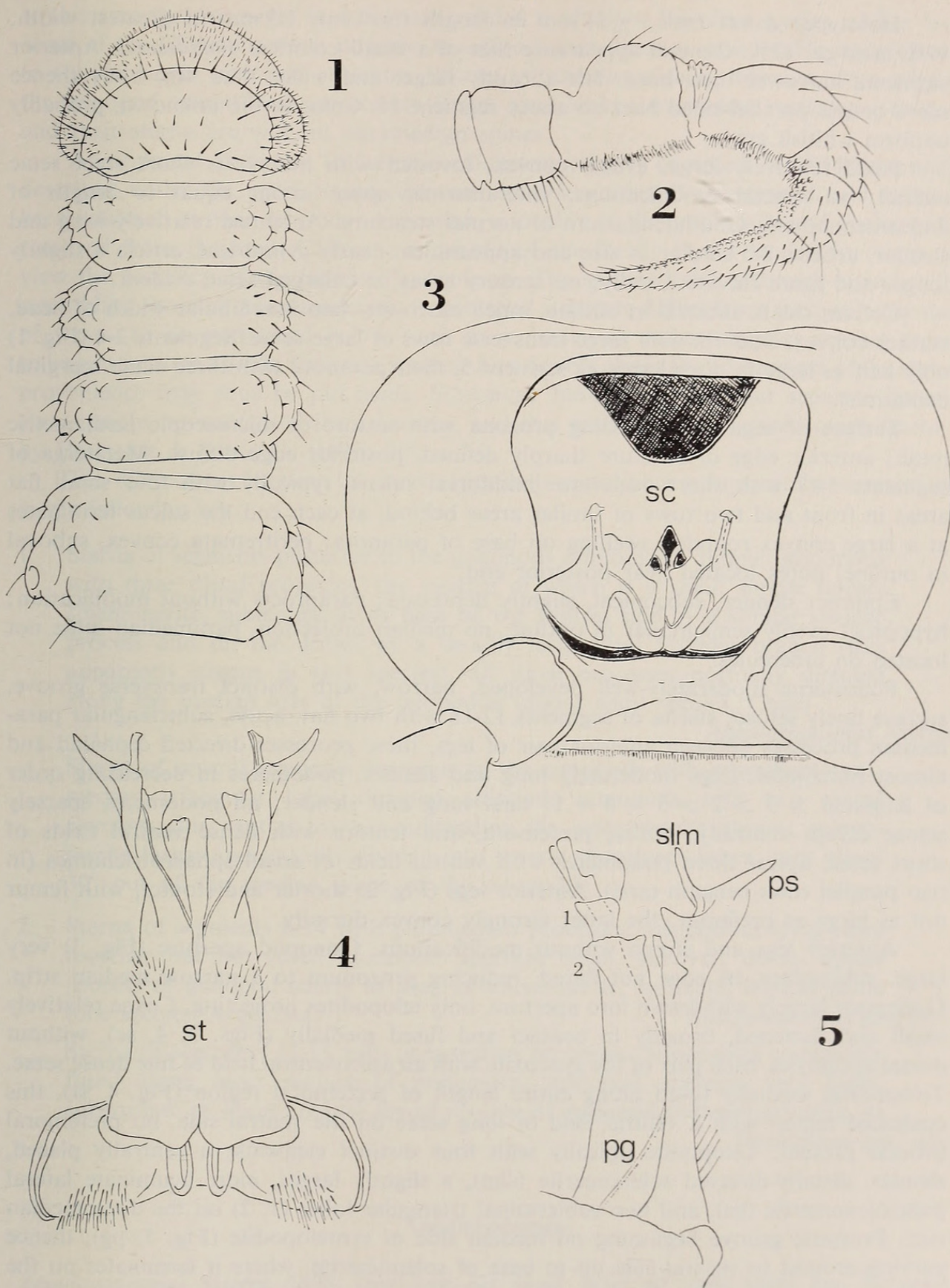
Gonopod aperture unusually large, occupying most of ventral surface of segment 7, subcordiform, widest anteriorly, extending back between coxae of 8th legs, edges not flared or modified. Gonopods withdrawn into aperture, the coxae broadly fused, with apicoventral setal fields; prefemoral region of telopodites likewise fused medially, with long sparse setation on ventral surface; apex of telopodite with two slender acuminate processes (one of them the solenomerite) and two subterminal flattened lobes on the medial side. Prostatic groove medial-dorsad to fused region of prefemora, distally curving ventrad and again dorsad at base of solenomerite.

Etymology: The name is derived from the Greek *oikiakos* (a householder) and is bestowed in honor of my friend and colleague Bernd Hauser, curator of Arthropods and Lower Insects, Museum d'Histoire naturelle, Genève.

Oeciaconus dyoceragaster sp. nov. (Fig. 1-5)

Type material: Male holotype (Mus. Genève) from "Nova Teutonia", Edo. Santa Catarina, Brasil; September 1972 (F. Plaumann).

Diagnosis: With the characters of the genus.



FIGS. 1-5.

Oeciaconus dyoceragaster, sp. n.

FIG. 1: head and first five body segments, dorsal aspect (not all setae shown). — FIG. 2: leg of 5th segment. — FIG. 3: 7th segment, ventral aspect, showing form of gonopod aperture. — FIG. 4: gonopods, in situ, ventral aspect. — FIG. 5: gonopods, anterolateral aspect from right side. Fig. 1 drawn $\times 45$, all others $\times 90$, from holotype.

Holotype: Adult male, ± 11 mm in length (broken), 1.3 mm in greatest width, W/L ratio ca. 12%. General appearance that of a small colorless *Polydesmus*. Anterior segments narrower than head, 5th abruptly larger and wider than 4th, body thence more or less parallel-sided back to about segment 15. Color in life unknown, probably uniform whitish gray.

Head relatively large, evenly convex, invested with numerous short erect setae overall, no special modifications. Interantennal space about equal to length of 2nd antennomere. Gnathochilarium of normal structure. Antennae relatively long and slender, articles 2-5 similar in size and appearance, nearly cylindrical, article 6 slightly longer and more clavate distally; no sensory areas or enlarged setae evident.

Collum small, suboval in outline, much narrower than mandibular width of head, surface convex, smooth, with three transverse rows of large setae. Segments 2-4 (Fig. 1) only half as large in dorsal area as segment 5, their paranota with three acute marginal dentations.

Surface of segments including prozona with texture of microscopic isodiametric mesh; anterior edge of stricture sharply defined, posterior edge diffuse. Metaterga of segments 5-17 with short transverse middorsal sulcus, typically with four small flat areas in front and two rows of similar areas behind, at each end the sulcus terminates at a large convex rounded swelling on base of paranota; peritremata convex, suboval in outline, pores located near posterior end.

Epiproct slender, subconical, slightly depressed; paraprocts without modification; hypoproct evenly semicircular in outline, no median projection, paramedian setae not located on tubercules.

Podosterna moderately-well developed, narrow, with distinct transverse groove, surface finely setose; sterna of segments 12-18 with two flat, acute, subtriangular paramedian processes between anterior pair of legs, these processes directed cephalad and almost horizontal. Legs moderately long and slender, podomeres in decreasing order of length $6 > 3 > 2 > 5 = 4 = 1$; tarsi long and slender; all podomeres sparsely setose except ventrally; coxae, prefemora, and femora with dense ventral fields of short setae, apical three podomeres with ventral fields of small sphaerotrichomes (in two parallel rows beneath tarsi). Anterior legs (Fig. 2) shorter and stouter, with femur not as large as prefemur, the latter strongly convex dorsally.

Anterior legs and sterna without modifications. Gonopod aperture (Fig. 3) very large, subcordate, its edge not flared, reducing prozonum to a narrow median strip. Gonopods largely withdrawn into aperture, only telopodites projecting. Coxae relatively small and flattened, broadly in contact and fused medially (Figs. 3, 4, sc), without dorsal apophysis, each part of the syncoxite with an apicoventral field of fine dense setae. Telopodites medially fused along entire length of prefemoral region (Fig. 4, st), this coalesced region with a ventral field of long setae on the ventral side, no prefemoral process present. Telopodite apically with four distinct elements: a centrally placed, slender, distally-directed solenomerite (slm), a slightly larger, more acuminate lateral parasolenomerite (ps), and two subterminal triangular lobes (1, 2) on the dorsomedian side. Prostatic groove beginning on median side of syntelopodite (Fig. 5, pg), thence curving around to ventral side up to base of solenomerite, where it terminates on the dorsomedian side of that branch.

COMMENTARY

The nearest area to Santa Catarina that is occupied by dalodesmids is the coastal region of central Chile, about 1500 km to the west and across the Andes range. It is

to this area that we might look for taxa related to the new Brazilian species, and in fact some of the Chilean genera, notably *Anaulacodesmus*, bear a considerable resemblance to *Oeciaconus* in gonopod structure. Species of *Anaulacodesmus*, however, do not have the gonopod telopodites appreciably fused, they lack a transverse metatergal sulcus, and their sterna are without paramedian spines.

An apparent exception to the preceding remark may be noted. In 1954 SCHUBART described under the name *Anaulacodesmus atlanticus* a small dalodesmid said to have been collected at Mar del Plata, Argentina, a locality so geographically and ecologically removed from the main Chilean stronghold of the family that I tended for years to view the accuracy of the label with suspicion. The species itself, although superficially resembling those of *Anaulacodesmus* in gonopod structure differs from them in a number of ways—to be mentioned below—and in at least one rather singular respect seems to be related to the Santa Catarina species. Any doubts about the correctness of the stated provenience may thus be put aside. SCHUBART himself implied that separate generic status might be warranted for *atlanticus*, and this sentiment was echoed more recently by DEMANGE & SILVA G. (1976: 20).

The distinctions between the three supposedly coordinate groups can be summarized in the following key:

1. Sterna of segments posterior to the gonopods unmodified, simple; gonopods with three distal processes, the median of which is a small simple falcate solenomerite, subtended at its base on the ventral side by a similar slender process and on the dorsal by a usually larger and broader branch (this apparently absent in two species), all three processes normally directed along the median axis of the telopodite (about eight species, Chile) *Anaulacodesmus* Attems
- Sterna of several segments posterior to the gonopods with prominent paramedian triangular lobes directed anteriorly; gonopods with two apical elements, the ventral process subtending the solenomerite absent; solenomerite larger and apically divided into several prominent lobes, bent about 30° out of the median plane of the telopodite 2
2. Sterna of segments 8-14 with paramedian processes; telopodites lying close together but not fused; gonopod aperture small, suboval; dorsal apical process of gonopod nearly as long as solenomerite, laminate, distally acute (one species, Argentina) *Kuschelodesmus* gen. nov.
- Sterna of segments 12-18 with paramedian processes; telopodites completely fused along inner surface of prefemora; gonopod aperture very large, subcordate in shape; dorsal apical process of gonopod rudimentary (Fig. 4) *Oeciaconus* gen. nov.

Anaulacodesmus

Anaulacodesmus Attems, 1898, *Denkschr. öst Akad. Wiss.* 67: 269; 1940, *Das Tierreich*, 70: 414; DEMANGE & SILVA G., 1976:19. Type species, *A. levissimus* Attems, 1898, by monotypy.

It needs only to be mentioned that by 1940 this genus had become very heterogeneous. A good start on relocating its alien components has been made by DEMANGE & SILVA G. (1976). A complete revision is still however much to be desired.

Kuschelodesmus gen. nov.

Type species: *Anaulacodesmus atlanticus* Schubart, 1954.

Diagnosis: Distinguished from its presumptive nearest relatives by the characters mentioned in the foregoing key.

Distribution: Known so far only from Mar del Plata, Argentina, the type locality of the only included species.

Etymology: It seems entirely appropriate to associate with this interesting "Austral" component in the South American diplopod fauna, the name of Dr. G. Kuschel, a leading advocate for recognition of a separate biogeographic realm in the Southern Hemisphere.

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