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A FOURTH GENUS OF SMALL-BODIED XYSTODESMID MILLIPEDS FROM THE SOUTHEASTERN COASTAL PLAIN (POLYDESMIDA)

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Abstract.—The minute xystodesmid milliped, ***Lourdesia minuscula***, n. gen., n. sp., is described from the Coastal Plain of southern Alabama. The principal diagnostic features are ridges on the sides of the metazonites near the pleural/sternal junctures, the absence of a cyphopod receptacle in females, and a minute, simple gonopod telopodite that lacks a prefemoral process. Since the milliped also lacks sternal hairs and lobes, and the sternal remnant between the gonopodal coxae, it cannot be assigned to the Rhysodesmini, and its tribal position is uncertain.

Key Words: *Lourdesia,* Rhysodesmini, Xystodesmidae

The Coastal Plain of the southeastern United States harbors a diverse xystodesmid diplopod fauna, among which are three endemic small-bodied genera tentatively assigned to the Rhysodesmini—*Caralinda, Parvulodesmus,* and *Gonoessa*—with four, one, and five species, respectively (Hoffman 1978, Shelley 1979, 1983a, b, 1984). These millipeds are substantially smaller than sympatric forms of *Sigmoria, Dicellarius,* and *Pachydesmus,* which range from two to seven times as large, and hence are a distinctive component of the regional fauna. *Caralinda,* with moderately long, complex gonopods, occurs in the contiguous sections of Alabama, Georgia, and Florida. *Parvulodesmus* and *Gonoessa* have extremely long gonopods, overlapping three segments anterior to the 7th, and may represent a single genus. The former is known only from Abbeville County, South Carolina, and the latter occurs broadly across southern Alabama. While recently sorting specimens loaned by the Florida State Collection of Arthropods, Gainesville (FSCA), I discovered three samples of a minute, undescribed xystodesmid with very small gonopods that clearly requires a new genus and possibly also a new tribe. It lacks such traditional rhysodesmine features as sternal hairs and a sternal remnant between the gonopods, but the species also does not fit in the endemic east Nearctic tribes (Apheloriini, Nannariini, and Pachydesmini). It attests to a substantial fauna of small-bodied xystodesmids in the southeast, and one or more new tribes may be warranted when more material is available and the diversity of these forms is better known. These small millipeds are prevalent in cool weather. Most have been taken from November–March, and they are poorly represented in collections because little field activity traditionally occurs during this time of year. Consequently, anyone conducting winter field trips to the southeast, particularly in the Florida panhandle and southern Alabama and Georgia, may find his efforts rewarded with the unveiling of a largely unknown diplopod fauna. Two other small xystodesmids, definite members of the Rhysodesmini, inhabit this region—*Pleuroloma pinicola* Shelley, in southeastern North Carolina and coastal South Carolina, and *P.*

cala (Chamberlin), in peninsular Florida. However, their congeners—*P. flavipes* Rafinesque, occurring across the northern, central, and midwestern states, and *P. plana* Shelley, ranging from the Florida panhandle to central South Carolina—are considerably larger, so small size is not a feature of this genus (Shelley 1980).

Lourdesia, New Genus

Type species.—*Lourdesia minuscula*, new species.

Description.—A genus of small-bodied rhysodesmine xystodesmids with the following characteristics:

Body composed of head and 20 segments in both sexes; adults ranging from 12–16 mm long and 2–3 mm wide, W/L ratio from 17–18%. Head of normal appearance, smooth; epicranial suture faint, not bifid; facial setae reduced, epicranial, interantennal, and frontal absent. Antennae relatively short, with 4 small apical sensory cones, no other sensory structures apparent.

Terga smooth, polished; strictures distinct, impressed. Collum broad. Paranota strongly depressed; peritremata distinct, ozopores opening laterad. Sides of metazonites with variably elevated ridges just below coxae at pleural/sternal junctures.

All sterna of males and females glabrous and essentially flat and plate-like, at most with only very slight indentations, without lobes or spiniform projections from caudal margins. Gonapophyses moderately long, apically expanded. Coxae and prefemora without tubercles or spines.

Gonopodal aperture relatively small, ovoid. Gonopods with very short telopodites, lying nearly entirely over aperture, only slightly overhanging anterior margin. Coxae large, without apophyses, with clusters of 6–8 setae lateral to cannula, connected by membrane only, no detectable sclerotized sternal remnant; apodemes relatively long and narrow. Prefemur short, without prefemoral process. Acropodite not divided, not demarcated from prefemur, short and blade-like, curving bisinuately and bent mediad near midlength, tapering throughout length, without lobes or projections.

Cyphopodal aperture narrow, encircling 2nd legs. Cyphopods relatively large. Receptacle absent. Valves large, subequal. Operculum large, located laterad to valves.

Species.—One is known; others probably await discovery in southern Alabama and the Florida panhandle.

Remarks.—Though it shares the absence of the cyphopodal receptacle with *Cherokia* (Hoffman 1960) and that of a gonopodal prefemoral process with three species of *Gonoessa* (Shelley 1984), *Lourdesia* cannot be assigned to the Rhysodesmini as currently understood because of the absence of a sternal remnant between the gonopods, sternal hairs, particularly on postgonopodal sterna of males, and lobes or projections from the caudal sternal margins. With short, simple gonopodal telopodites that are undivided and lack flanges, lobes, and lamellae, *Lourdesia* also does not seem closely related to either *Caralinda* or *Gonoessa*. It shares small size, glabrous sterna, and lateral metazonal ridges with *Gyalostethus*, a primarily montane genus that ranges eastward onto the Piedmont Plateau and westward onto the Ridge and Valley, Appalachian Plateaus, and Interior Low Plateaus physiographic provinces. Hoffman (1965) assigned *Gyalostethus* to the Rhysodesmini because of its acicular prefemoral process and the right angle between the coxa and telopodite; however it also apparently lacks the sternal remnant between the coxae. The small-bodied southeastern xystodesmids thus present major difficulties in tribal placement. They are even anomalous in the Rhysodesmini, the only established tribe that can accommodate them, and the enigmatic status of *Lourdesia* is underscored by the absence of ventrodistal spines on the ambulatory prefemora. In this regard, it resembles western Nearctic genera of the tribe Chonaphini.

Lourdesia minuscula Shelley, New Species
Figs. 1–4

Type specimens.—Male holotype and 1 male, 5 female, and 3 juvenile paratypes (FSCA) collected by N. B. Causey, 26 January 1965, along U.S. highway 84, 5.5 mi. E Elba, Coffee Co., AL.

Diagnosis.—With the characters of the genus.

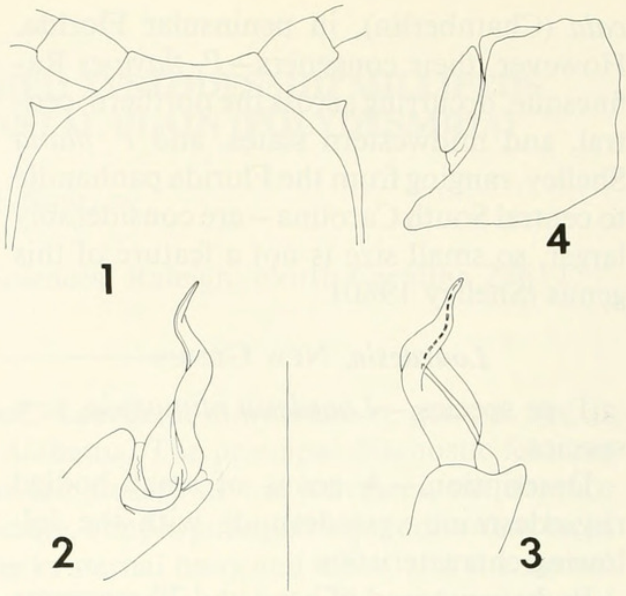
Color in life.—Unknown. All specimens completely blanched in preservative, without trace of pigmentation pattern.

Holotype.—Length approximately 12.2 mm, maximum width 2.1 mm, W/L ratio 17.2%, depth/width ratio 90.0%.

Head capsule smooth, polished; epicranial suture faint, terminating in interantennal region. Antennae reaching back to just beyond caudal margin of 2nd tergite, becoming progressively more hirsute distally; first antennomere subglobose, 2–6 clavate, 7 short and truncate, relative lengths of antennomeres 6>5>4>2>3>1>7. Genae not margined laterally, with faint medial impressions, ends broadly rounded and projecting slightly beyond adjacent cranial margins. Facial setae as follows: epicranial, interantennal, and frontal absent, genal 2-2, clypeal about 9-9, labral about 14-14.

Collum broad, ends extending slightly beyond those of following tergite. Paranota angled sharply ventrad and continuing slope of dorsum; anterior corners rounded, caudolateral corners blunt on all segments. Peritremata relatively broad, strongly elevated above paranotal surface; ozopores located just caudal to midlength of peritremata, opening laterad.

Sides of metazonites smooth, polished, with elevated ridge varying from slightly notched or scalloped to smooth and slightly longer caudad (Fig. 1). Strictures distinct ventrally. Sterna of segments 4–6 glabrous, without distinct modifications, with only slight, barely perceptible concavities. Postgonopodal sterna also glabrous, flat and



Figs. 1–4. *Lourdesia minuscula*. 1–3, holotype. 1, caudal view of 7th segment showing profiles of ridges on sides of metazonites. 2, left gonopod, medial view. 3, the same, lateral view. 4, left cyphopod of female paratype, anterior view. Setation is omitted from all drawings. Scale line = 0.5 mm for Figs. 2, 3, 1.9 mm for Figs. 1, 4.

plate-like, without grooves, elevations, or projections from caudal margins. Coxae and prefemora without projections; tarsal claws of normal length on all legs, variably hooked to sublinear. Hypoproct broadly rounded; paraprocts with margins strongly thickened.

Gonopodal aperture ovoid, without indentations, margins not thickened, caudal margin and caudal halves of sides slightly elevated above metazonal surface. Gonopods *in situ* with coxae protruding through aperture, telopodites projecting ventrad and curving toward midline, apices overlapping and extending slightly beyond anterior margin of aperture. Gonopod structure as follows (Figs. 2, 3): Coxae closely appressed, filling nearly entire aperture opening. Prefemur lightly hirsute, without prefemoral process. Acropodite relatively short, continuous with prefemur, in form of progressively narrowing, undivided blade, curving gently and bisinuately, bending strongly mediad distal to midlength and curving bisinuately to subacuminate tip. Prostatic groove arising in pit in base of prefemur,

running along inner surface of acropodite to terminal opening.

Male paratype.—The male paratype agrees with the holotype in all particulars.

Female paratypes.—Length approximately 15.9 mm, maximum width 2.8 mm, W/L ratio 17.6%, depth/width ratio 75.0%. Agreeing essentially with males in all structural features; paranota only slightly more strongly depressed; ridges on sides of metazonites smaller and more rounded. Cyphopods *in situ* with valves projecting through aperture. Valves (Fig. 4) subequal, relatively large, oriented transversely. Receptacle absent. Operculum relatively large, located laterad below free end of valves.

Variation.—The Baldwin County male agrees closely with the holotype.

Ecology.—The only habitat information on the vial labels is the notation "bluff mixed woods" with the Baldwin County male. Presumably this refers to a mixed pine/hardwood association. I also found light-colored debris in the guts of two individuals, suggesting a sandy substrate. Both samples were collected in January, indicating a preference for cool weather.

Distribution.—Known only from the type locality and the following site, also in southern Alabama, which straddle the Florida panhandle suggesting probable occurrence between Pensacola and DeFuniak Springs, Florida.

ALABAMA. *Baldwin Co.,* ca. 10 mi W Loxley, near junction of US highways 90/98, M, 22 January 1965, N. B. Causey (FSCA).

Remarks.—*Lourdesia minuscula* and *Parvulodesmus prolixogonus* Shelley are the smallest xystodesmids in the eastern Nearctic faunal region. With its narrow width and distinct peritremata, *L. minuscula* appears more like a large paradoxosomatid, for example like a large *Oxidus gracilis* (C. L. Koch), than a xystodesmid. It clearly is not a paradoxosomatid, lacking the dorsal metazonal grooves and the characteristic setal arrangement on the paraprocts, but its general facies differs markedly from those of other eastern xystodesmids.

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