

FIVE NEW ARKANSAS MILLIPEDS OF THE GENERA  
EURYMERODESMUS AND PARESMUS  
(XYSTODESMIDAE)

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The Arkansas millipedes described in this paper were collected by the author with the assistance of Dr. David Causey. The Illinois specimen was obtained through the kindness of Dr. Milton W. Sanderson. Holotypes will be deposited in the collection of the Philadelphia Academy of Sciences; paratypes will be retained by the author.

During the summer of 1887 Charles H. Bollman, then a student at the University of Indiana, collected myriapods in Arkansas incidental to his work on the Geological Survey of Arkansas.<sup>1</sup> This work covered the region lying between the Ouachita River near Arkadelphia and the Indian Territory line near Ultima Thule in Sevier County. The specimens which he identified as *Leptodesmus hispidipes* (Wood) and reported as "abundant everywhere . . . very common throughout the state"<sup>2</sup> were undoubtedly various species now assigned to *Eurymerodesmus* and *Paresmus*.

Genus *Eurymerodesmus* Brölemann

Tergites smooth. Keels moderately extended, their margins thickened, anterior angles rounded, posterior angles from rounded to subacute, pores lateral. Femora of legs not spined. Gonopods small, telopodite a single unbranched slender blade with setae usually in rows. Margin of gonopodal opening variously modified posteriorly and laterally with setose lobes. The genotype is *E. hispidipes* (Wood).

*Eurymerodesmus hispidipes* (Wood)

Figures 1-4

*Polydesmus hispidipes* Wood. Proc. Phila. Acad. Sci., 1864, p. 7; Trans. Amer. Phil. Soc., 1865, p. 220, fig. 48.

*Leptodesmus hispidipes* Bollman. Ent. Amer. IV, 1888, p. 2.

*Eurymerodesmus hispidipes* Brölemann. Mem. Soc. Zool. Fr., XIII, 1900, p. 101, pl. 6, fig. 32.

In a collection of several hundred millipedes made by the Illinois Biological Survey, there was only one specimen of *Eurymerodesmus hispidipes*. Such relative scarcity in the type state makes publication of additional details of this species seem desirable. Wood's (1865) description is as follows:

"Olive-brown, immaculate; anal scutum triangular, with long hairs; apex truncate and decurved; feet roughly hairy; male appendages short, robust; their terminal spine moderate, distally abruptly curvate, densely pilose.

"The side plates are rather short, with their edges much thickened. The head has its vertex strongly caniculate. Its anterior face is marked with two small punctiform impressions. The lower border is not very strongly emarginate, and is set with a fringe of short thick hairs. The antennae are mostly dark-colored, scarcely at all clavate, and coarsely pubescent. The feet are rough, with closely set, stiff hairs. The anal scutum is prolonged posteriorly, so as to come almost to a blunt point. The appendages of the male are short and thick. Their terminal spine is slightly curved at its base, thence is nearly straight, save at its distal extremity, where it is abruptly curved, becoming nearly horizontal. It is beset with very numerous long hairs. . . . The female appendages consist of a pair of short, conoidal, very pilose processes, which have an opening along their inner edge. Length, 1½ inches.

"Hab. Illinois."

Although my specimen is faded, there are indications of the usual mid-dorsal black line and the colored, probably orange, keels and margins around the collum and on the posterior edges

<sup>1</sup>Ann. Rep. Geol. Sur. Ark. 1888.

<sup>2</sup>Bull. U. S. Nat. Mus. 1893, No. 3, p. 74.

of the tergites. The olive pigment extends down the sides under the keels in triangular areas almost to the sternum. The legs are darker distally. Antennal joints are edged in black.

The process on the mandibular stipe has a longitudinal ridge on the anterior surface and an oblique ridge ectad. Distally it is flattened and pigmented (Fig. 1).

The coxal joint on the second pair of legs is unusual in that the anterior of the two conical tubercles is about twice as long as that observed in any other species; the posterior is the usual size (Fig. 2).

Between the fourth, fifth, and sixth pairs of legs there are low, rounded, hirsute prominences. The sternal processes between the eighth legs are shown in Fig. 3. Similar but smaller processes are between the seventh legs. The claws of the legs have a bulbous process at the base.

In *situ* the telopodites of the gonopods lie parallel, the laterally pointing apices acuminate and slightly flattened. Setae occur in three rows: a short subterminal medial row and long lateral and ventral rows.

The gonopodal opening is broadly oval, emarginate as usual anteriorly, and with a row of long stiff setae on the anterior margin. A pair of conspicuous quadrate lobes is set obliquely near the latero-posterior angles of the opening (Fig. 4). The lobes are raised about half the height of the first joint of the eighth pair of legs, bear a few setae on their inner or posterior surfaces, longer setae on the highest margin, and numerous setae on the anterior or lateral surfaces. Similar lobes occur in *E. spectabilis*, *E. bentonus*, and *E. minimus* Loomis.<sup>3</sup>

Length of male about 30 mm., width 4.2 mm.

Locality: Illinois, Dixon Springs. Collected by Mr. Phillip W. Smith, April 3, 1948.

#### *Eurymerodesmus bentonus*, n. sp.

##### Figure 5

Tergites dark olive with mid-dorsal black line, orange keels and orange bands of almost uniform width around collum and across posterior margins of tergites. Anal tergite orange distally. Antennae, legs, and venter cream. Dark triangular areas extend down the sides of the pronotites almost to the legs; similar areas are shorter on the metazonites.

Lateral margins of keels almost straight; posterior angles of fourteenth through nineteenth acute. This is in contrast to *E. hispidipes*, where the keels are well rounded laterally and the posterior angles of only the seventeenth through the nineteenth are acute. This alone makes *bentonus* easily distinguished from *hispidipes*.

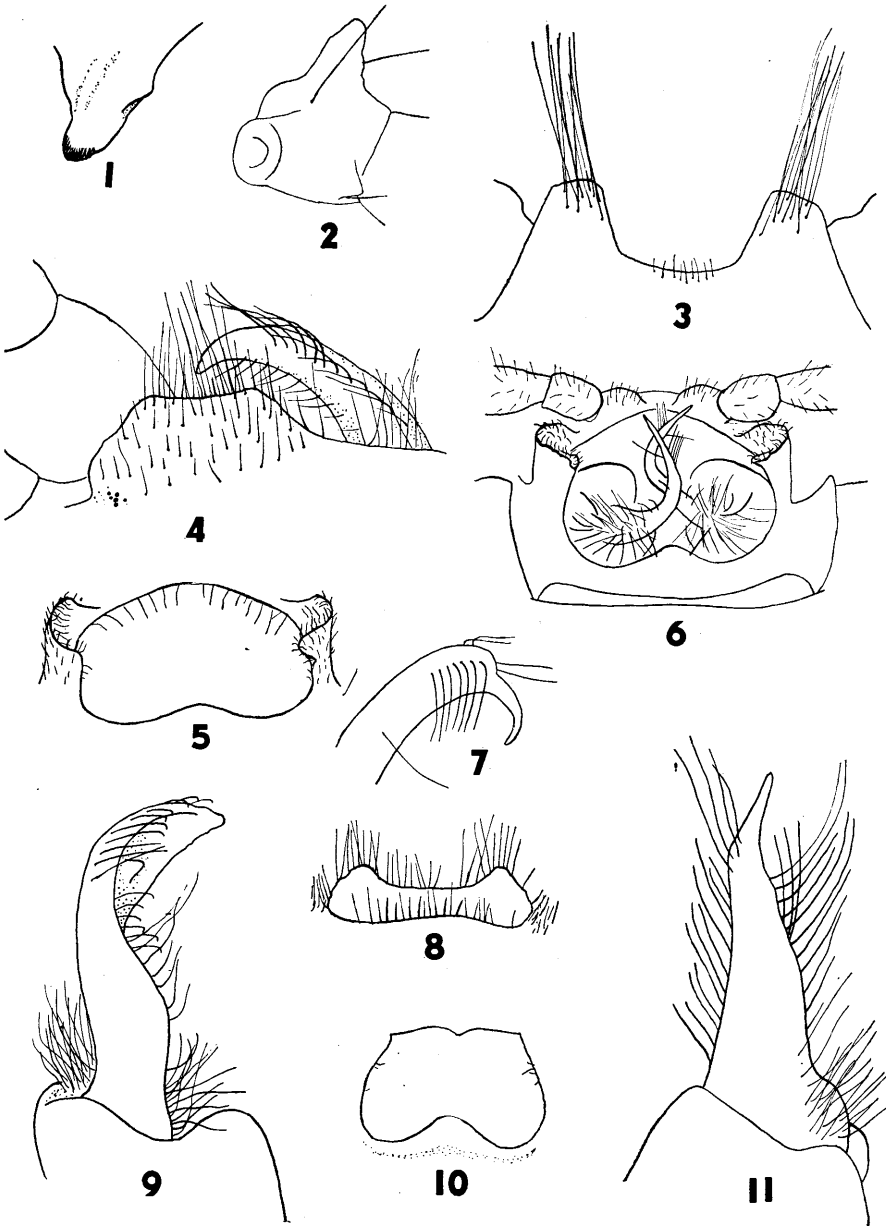
Process on mandibular stipe of male about half as large as in *hispidipes*, but slightly pigmented, and without ridges.

Coxal joint on second legs of male with the usual two conical tubercles, the anterior scarcely larger than the posterior. Legs and sterna are less hirsute than in *hispidipes*. Claws of male

<sup>3</sup>Loomis, H. F. 1943, Jour. Wash. Acad. Sci. XXXIII, no. 10, p. 320, fig. 2.

#### EXPLANATION OF FIGURES

- FIG. 1. *Eurymerodesmus hispidipes* (Wood). Mandibular process, left, anterior view,  $\times 40$ .  
 FIG. 2. *Eurymerodesmus hispidipes* (Wood). Coxa of left second leg, ventral view.  
 FIG. 3. *Eurymerodesmus hispidipes* (Wood). Sternal processes between eighth legs of male, posterior view.  
 FIG. 4. *Eurymerodesmus hispidipes* (Wood). Telopodite of male gonopod, lobe of gonopodal opening, base of eighth leg, left side, antero-lateral view.  
 FIG. 5. *Eurymerodesmus bentonus*, n. sp. Gonopodal opening (gonopods omitted), antero-ventral view.  
 FIG. 6. *Eurymerodesmus spectabilis*, n. sp. Seventh segment, antero-ventral view.  
 FIG. 7. *Eurymerodesmus spectabilis*, n. sp. End of left telopodite, ectal view.  
 FIG. 8. *Eurymerodesmus plishneri*, n. sp. Gonopodal opening (gonopods omitted), anterior view.  
 FIG. 9. *Paresmus pulaski*, n. sp. Right gonopod, ventro-lateral view.  
 FIG. 10. *Paresmus columbus*, n. sp. Gonopodal opening (gonopods omitted), ventral view.  
 FIG. 11. *Paresmus columbus*, n. sp. Right gonopod, ventral view *in situ*.



finer and without the large bulbous base as in *hispidipes*. Small hirsute prominences occur between the bases of legs four through seven. The processes on the sternum between the eighth legs are not as high or as widely separated as in *hispidipes*.

Gonopodal opening broadly oval, slightly emarginate anteriorly (Fig. 5). No setae occur on the anterior margin, but they are present posteriorly and on the marginal lobes. The lobes are quadrate as in *hispidipes*, but they are nearer the margin and the highest point is the anterior corner. Setae occur on the anterior and posterior surfaces of the lobes; they are shorter than the setae on the lobes of *hispidipes*. In *hispidipes* the setae on the free edge are long, tending to give the lobe a triangular rather than a quadrate appearance.

Telopodite of gonopod simple, curved sharply distally. The acute amber tip projects slightly beyond the posterior margin of the gonopodal opening. *In situ* the telopodites of some males are parallel, in others they are crossed and subparallel. As in *hispidipes* there are three rows of setae on the telopodite: a short subterminal medial row and two long rows, one lateral and the other ventral.

Length of male holotype, 33 mm.; width 4.4 mm. Length of female allotype, 26 mm., width 4.2 mm. An intersex in the type collection was 27 mm. long and 4 mm. wide; it had secondary sex characteristics of the female; vulvae, gonopods, and gonopodal opening appeared normal.

Locality: Arkansas, Benton County, Monte Ne. One male, two females, and the intersex were collected November 19, 1949, at the base of a north sloping hillside on which oaks predominated. Numerous other specimens were collected with *E. plishneri* at Blue Spring, Carroll County, Arkansas, October 29, 1949. This site is also hardwood, predominantly oak.

#### ***Eurymerodesmus spectabilis*, n. sp.**

Figures 6 and 7

Tergites black and beige mottled, some specimens black and orange; the latter probably is the mature color; prozonites usually darker than metazonites. Intermittent mid-dorsal black line. Entire margin of collum, the keels, and distal part of twentieth segment orange. Some specimens have an irregular orange band which does not reach the keels on the posterior region of the tergites; in some specimens the orange band is replaced by four orange spots; in some the color is so intense that at a distance they appear to be orange. Antennae tan, the sixth segment darkest. Distal half of legs, anal valves, and scutum, and sides of body dark mottled. The mottled pigment extends far down near the attachment of the legs on the metazonites but less far on the prozonites. Venter and proximal half of legs cream.

Keels slightly rounded laterally, but less so than in *hispidipes*; posterior angles of fourteenth through nineteenth acute.

Process on mandibular stipe less than half as long as in *hispidipes*; not pigmented.

Coxal joint of second legs of male without the usual two conical tubercles. Female very sparsely hirsute ventrally; male much less hirsute ventrally than in *hispidipes*. Claws of male heavy and somewhat twisted, the bulbous base not conspicuous. Processes on the sternum between the eighth legs not as high or as widely separated as in *hispidipes*. Sterna of legs three through seven without special processes.

Gonopodal opening typically emarginate anteriorly and almost free of setae; posteriorly the margin is difficult to determine since the opening reaches far back to the eighth sternum; quadrate lobes arise from the postero-lateral margins, flare widely, and end behind the margin near the eighth legs; their anterior corners are sharp and the anterior edges are folded back; the free edges behind the anterior corners are black, and short recurved setae occur on the edges and the medial surfaces (Fig. 6).

Telopodite of gonopod simple, sickle shaped; end abruptly acuminate, giving it a beak-like appearance (Fig. 7), two sparse rows of setae, most of them on distal half of telopodite.

Length of male holotype, 21 mm., width 3 mm. Length of female allotype, 22 mm., width 3.2 mm.

Locality: Arkansas, three miles east of Magnolia in a climax pine-hardwood area. Three males and six females were collected Dec. 24, 1949.

**Eurymerodesmus plishneri**, n. sp.

## Figure 8

Adults in full color with gray-brown tergites, intermittent mid-dorsal black line. Keels, margin of collum, posterior margins of tergites, and distal part of twentieth tergite orange. Orange margins on tergites usually wider medially, almost giving the animal a trimaculate appearance, and causing it to resemble *Auturus florus*, with which it is usually found. Antennae and distal half of legs dark gray. Underparts and proximal half of legs cream. Brown pigment extends far down sides, almost to attachment of legs.

Lateral margins of anterior and middle keels rounded, but not as much as in *hispidipes*; posterior angles of sixteenth through nineteenth acute.

Process on mandibular stipe about size and shape of that in *hispidipes*, but without ridges or pigmentation.

Coxal joint of second legs of male with the usual two conical tubercles, about equal in size and not conspicuous. Claws of male thick, not twisted, but with bulbous base. Sternal processes between eighth legs of male with space between them about equal to width of one of the processes inverted; with long setae. Sterna between legs four through seven setose, lightly rounded; remaining sterna between legs of male moderately setose. Sterna of female almost glabrous.

Gonopodal opening emarginate anteriorly and slightly emarginate posteriorly. The margin bears posteriorly a pair of widely separated triangular lobes; similar lobes occur in *E. viridi* Chamberlin, but the illustration given for that species<sup>4</sup> shows the lobes sharper and closer together than in *plishneri*. The elevation of the margins is shown in Fig. 8. The row of long setae across the anterior margin of the opening makes *plishneri* easily distinguished from *E. bentonus*, whose range it overlaps. Setae are seen laterally on the margin, which is pigmented there, and out on the sternum. Setae also occur on the margin of the lobes, on their posterior surface, and on the margin between the lobes.

Telopodite of gonopods of male simple, curved gently proximally and sharply distally. Its setae are in three rows: a short subterminal row of four or five setae, and two rows which extend almost the full length of the telopodite; the dorsal of these two rows is sparser.

Length of male holotype, 29 mm., width 4.2 mm. Length of female allotype, 29 mm., width 4.4 mm.

Locality: Arkansas, Mount Kessler, Fayetteville, November 10, 1949. Other collection sites in Washington County are Devil's Den State Park, Mount Sequoyah, Elkins, and Eden's Bluff. Blue Spring in Carroll County. Oaks are dominant at all sites.

I take pleasure in naming this species for Mr. M. J. Plishner, National Tuberculosis Association, in recognition of his assistance.

Genus **Paresmus** Chamberlin<sup>5</sup>

Agreeing in general with *Eurymerodesmus*. The gonopods of the male are stouter throughout. Lobes of gonopodal opening are continuous with margin, not flaring widely laterally or between the legs as in *Eurymerodesmus*.

**Paresmus pulaski**, n. sp.

## Figure 9

Tergites dark olive with indistinct mid-dorsal black line; prozonites darker than metazonites. Keels and distal part of anal tergite orange; entire margin of collum and posterior margin of tergites orange. On most of the metazonites the orange area is wider medially, narrower laterally, resulting in almost a trimaculate appearance. Legs dark distally; some spots of the dark pigment also on the sterna and proximal region of the legs, which otherwise are cream. Sides well mottled with pigment. Antennae tan except for sixth segment, which is brown.

<sup>4</sup>Chamberlin, R. V. Ent. News, 1931, XLII, no. 4, pp. 101-102, fig. 8.

<sup>5</sup>Chamberlin, R. V. Bull. Univ. Utah, vol. 32, no. 8, p. 7, figs. 18 and 19.

Lateral margins of keels rounded, but not as much as in *hispidipes*; posterior angles of fourteenth through nineteenth acute.

Process on mandibular stipe of male about one-fourth longer than in *hispidipes*; laterad surface with low, broad prominence near base; no dark pigment.

Coxal joint of second legs of male with the usual two conical tubercles, both rather sharp, but shorter than the genital process. Coxae of the third and fourth legs have a conical tubercle similar in shape and position to the anterior tubercle on the coxae of the second legs. Sterna between the legs of male hirsute. Sternal processes between the eight legs are triangular, with relatively few setae, and widely separated. Low, setose processes also occur between the legs of the fifth and sixth segments. Claws not twisted.

Gonopodal opening sharply emarginate anteriorly and broadly oval posteriorly. When viewed laterally, the margin rises from its lowest point on the anterior margin to a triangular lobe laterally, falls somewhat and then rises to another small triangular lobe near the base of the eighth leg. The lobes are continuous with the margin and are not apparent as lobes when viewed ventrally. All of the margin except the anterior is setose, and the lobes are setose on their outer surfaces.

Male gonopods relatively large. *In situ* the telopodites cross proximally, then continue parallel, their dorsally curved ends reaching beyond and resting in the depression between the sternal processes between the eighth legs. The ventral surface of the telopodite is convex; dorsally it is concave and there is a subterminal tooth on the dorsal surface (Fig. 8); the distal third is bright amber color. Setae occur in two rows on the telopodite: one on the dorsal surface running almost the full length, and the other latero-ventral (*in situ*) on the distal half.

Length of male holotype, 38 mm., width 6 mm.

Locality: Arkansas, Pulaski County, three miles south of Sweet Home. Two males were collected December 22, 1949, in an oak-pine association.

#### *Paresmus columbus*, n. sp.

Figures 10 and 11

In color, pattern, and shape of keels similar to *P. pulaski*. Process on mandibular stipe without prominence at base; light brown.

Coxal joint of second legs of male with the usual two conical tubercles, both rather sharp and slightly shorter than the genital process, which is somewhat truncated in this species. Small sternal setose processes are between the bases of all the legs from the fourth through the tenth; those between the eighth legs are largest, and the excavation between them is narrow, about half the width of one of the processes. Sterna of female almost glabrous.

Gonopodal opening emarginate both anteriorly and posteriorly and angular posteriorly (Fig. 10). When viewed laterally the margin rises from its lowest point anteriorly to a triangular lobe laterally; the highest point of the margin is just anterior to the postero-lateral angle of the gonopodal opening. As in *P. pulaski* the lobes are continuous with the margin and are not apparent as lobes when viewed ventrally. The lobes are sparsely setose on their margins and lateral surfaces; their margins are pigmented. The anterior and posterior margins of the gonopodal opening are glabrous.

Male gonopods with the usual large coxa and small telopodite; telopodite broad at base, acuminate distally, the tip curving dorsally (Fig. 11) and overlapping. Two long rows of setae distinguish this from the telopodite of *E. creolus* Chamberlin.<sup>6</sup> A longitudinal ridge is on the dorsal surface.

Length of male holotype, 35 mm., width 5.2 mm. Length of female allotype, 32 mm., width 5.3 mm.

Locality: Arkansas, three miles east of Magnolia in a climax pine-hardwood area. Two males, two females, and several larvae of the sixth and seventh stadia were collected December 24, 1949. *E. spectabilis* occurred at the same site.

<sup>6</sup>Chamberlin, R. V. 1942, Bull. Uni. Utah, vol. 32, no. 8, p. 6, fig. 16.