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west of the Mississippi River; occurrence of *E. leachii* (Gray, 1832) on
Crowley's Ridge, Arkansas

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The milliped genus *Euryurus* Koch, 1847 (Polydesmida: Euryuridae) west of the Mississippi River; occurrence of *E. leachii* (Gray, 1832) on Crowley's Ridge, Arkansas

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Abstract. The milliped genus *Euryurus* Koch, 1847, and the species, *E. leachii* (Gray, 1832) (Polydesmida: Euryuridae), are recorded from three sites on the northern part of Crowley's Ridge (Cross, Lee, and Poinsett counties), Arkansas, where the only prior familial records are of *Auturus evides* (Bollman, 1887). Coupled with the published locality of *E. leachii* in Phillips Co., at the southern extremity of the Ridge, the only known occurrences of both the genus and species in Arkansas and west of the Mississippi River are in this physiographic feature. The Arkansas population is geographically peripheral but anatomically intermediate between the two recognized subspecies, *E. l. leachii* and *E. l. fraternus* Hoffman, 1978, and we do not assign it to a race. Molecular investigations seem necessary to resolve relationships in the "*E. leachii* complex."

Keywords. Euryuridae, *Auturus*, *Euryurus*, *E. leachii*.

Introduction

The milliped family Euryuridae (Polydesmida), native to the eastcentral and southeastern United States (US), occurs almost exclusively in association with decaying deciduous logs and stumps in riparian habitats (Dowdy 1968, Shelley 1982a); only once, in Gaston County, North Carolina, has RMS found them in pine woods. East/west, the family ranges from the Atlantic coast to the eastern periphery of the Central Plains (northeastern Texas and eastern Oklahoma), and north/south, it extends from southeastern Minnesota/northern Ohio/southern Virginia to northern peninsular Florida and the Gulf Coast west to Louisiana (Hoffman 1978, 1980, 1999; Shelley 1978, 1982a, b, 1990, 2000, 2001; McAllister et al. 2002a, b, 2003; McAllister and Shelley 2003, 2005; Jorgensen 2009; McAllister and Robison 2011). It comprises two genera, *Auturus* Chamberlin, 1942, and *Euryurus* Koch, 1847, with four and eight species, respectively; two species of the former genus and one of the latter are divided into two geographic races each. An additional monotypic genus, *Illiniurus* Shear, 1968, seems to be based on an aberrant male (Shear 1968, Jorgensen 2009). *Auturus* primarily inhabits the eastern, western, and southeastern familial peripheries while *Euryurus* occurs centrally; the former thus abounds in the Mississippi Valley and the Ozark and Ouachita Plateaus to the west, while *Euryurus* dominates from Ohio, Indiana, and Illinois to southern Alabama and Mississippi. Only one published record of *Euryurus* exists from west of the Mississippi

River, of *E. l. leachii* (Gray, 1832) from Helena, Phillips Co., Arkansas (Hoffman 1978), at the detached southern extremity of Crowley's Ridge physiographic feature.

A narrow region of rolling hills 8-19 km (0.5-12.0 mi) wide rising 75-170 m (250-560 ft) above the surrounding Mississippi embayment, Crowley's Ridge extends in an arc some 240 km (150 mi) between Cape Girardeau, Missouri, and the Mississippi River at Helena, Arkansas. It may have originated as an island between the Mississippi and Ohio Rivers that became a ridge of low hills after their courses changed. The predominantly oak/hickory forest is ideal for euryurids, and *A. evides* (Bollman, 1887) inhabits the northern Ridge on the border between Cross and Poinsett counties and near Jonesboro, Craighead Co. (Shelley 1982a). In 2010, CTM and HWR found *E. leachii* at three additional Ridge localities that we put on record here; specimens are deposited in the North Carolina State Museum of Natural Sciences, Raleigh (NCSM). Reexamination of the Phillips Co. sample, now at the Florida State Collection of Arthropods, Gainesville (FSCA), confirmed that it is the same form (Fig. 1). Subspecific assignment, however, is problematical. According to Hoffman (1978, fig. 7, 10-11), the terminal acropodal branches are subequal in length in *E. l. fraternus* Hoffman, 1978, and the solenomere is substantially longer in the nominate subspecies. The Crowley's Ridge form is anatomically intermediate, with the solenomere clearly longer than the opposite branch but substantially shorter than in *E. l. leachii*, perhaps representing localized variation. Hoffman (1978) acknowledged discordance in subspecific distributions, with individuals of one race occasionally occurring within the range of the other; explained this as "local recrudescence of a common ancestral character or a minor inaccuracy in genetic control"; and opted for subspecies because of anatomically intermediate forms along the Ohio River in West Virginia and Ohio, an intermediate geographic location. The Arkansas population is peripheral and probably occupied the island precursor to the Ridge when the Mississippi and Ohio rivers were located to the west. It is now allopatric, and genetic interchange with conspecific populations is precluded; we therefore assign it to just *E. leachii*. The entire "*E. leachii* complex" warrants re-examination and seems fitting for molecular investigations.

Because of their habitat specificity, euryurids are one of the few North American diplopods that collectors can deliberately seek with a realistic chance of success. Besides the Ridge itself, CTM and HWR searched to both the east and west but did not encounter *A. evides* anywhere nor euryurids in Clay, Craighead, Greene, Jackson, Lawrence, and St. Francis counties; reinvestigation of the southern Ridge extremity in Phillips Co. was likewise unproductive. From field investigations in 2010 and prior years, we believe that, in Arkansas, *Euryurus* and *E. leachii* are restricted to Crowley's Ridge, and they probably also occupy the Ridge in southeastern Missouri. Arkansas localities of *E. leachii* are reported below along with a gonopod drawing (Fig. 1) and a map of euryurid occurrences in the state (Fig. 2). Additional

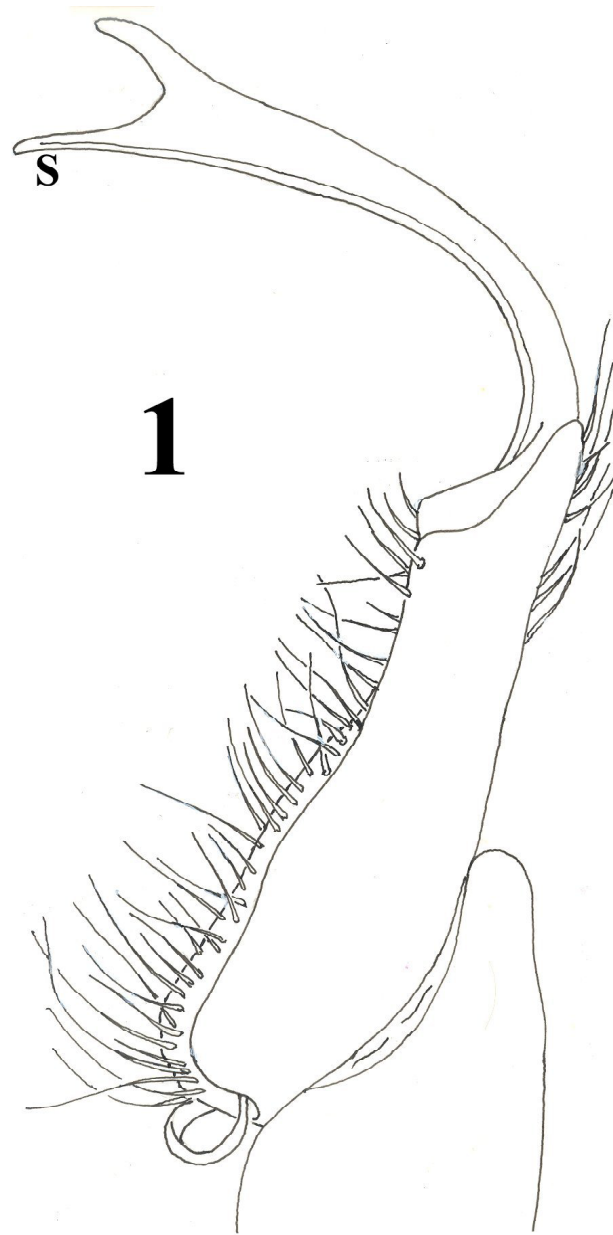


Figure 1. Left gonopod of male from Lee Co., Arkansas, subventral view. S, Solenomere.

gonopod illustrations of this species are available in Hoffman and Browning (1956, fig. 1), Hoffman (1978, fig. 7, 10-11; 1998, fig. 10), and Jorgensen (2009, fig. 1).

Published record. ARKANSAS: *Phillips Co.*, Helena, 3M, 4F, March 1954, W. Benton (FSCA) (Hoffman 1978).

New records. ARKANSAS: *Cross Co.*, Village Creek State Park, along Lake Austell Trail, (N 35° 09' 48.56", W 90° 43' 10.04"), 91.8 m (301 ft), 2M, 27 February 2010 (NCSM). *Lee Co.*, Bear Creek Recreation Area, along Bear Creek Nature Trail, (N 34° 42' 26.92", W 90° 41' 52.43"), 74.1 m (243 ft), 8M, 27 February 2010 (NCSM), and 5M, 4F, juv., 21 November 2010 (NCSM). *Poinsett Co.*, Lake Poinsett State Park, along Great Blue Heron Trail, (N 35° 31' 56.59", W 90° 41' 08.19"), 97.3 m (319 ft), 3M, juv., 26 February 2010 (NCSM).

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Literature Cited

- Dowdy, W. W. 1968.** An ecological study of some millipedes in two central Missouri communities. *Annals of the Entomological Society of America* 61: 1059-1063.
- Hoffman, R. L. 1978.** North American millipedes of the genus *Euryurus* (Polydesmida: Platyrrhacidae). *Transactions of the American Entomological Society* 104: 37-68.
- Hoffman, R. L. 1980 (1979).** Classification of the Diplopoda. *Muséum d'Histoire Naturelle, Genève, Switzerland*. 237 p.
- Hoffman, R. L. 1998.** Reassessment of the Platyrrhacidae, a family of polydesmidan millipedes. *Myriapodologica* 5(13): 125-141.
- Hoffman, R. L. 1999.** Checklist of the millipedes of North and Middle America. *Virginia Museum of Natural History Special Publication Number 8*: 1-584.
- Hoffman, R. L., and E. Browning. 1956.** The identity of *Polydesmus leachii* Gray, 1832 (Polydesmida: Euryuridae). *Entomological News*, 67(7): 186-188.
- Jorgensen, M. 2009.** A new species of *Euryurus* from southern Alabama and remarks on the status of *Illiniurus beattyi* Shear (Diplopoda: Polydesmida: Euryuridae). *Great Lakes Naturalist* 42(1&2): 80-90.
- McAllister, C. T., and H. W. Robison. 2011.** Millipedes (Arthropoda: Diplopoda) of the Ark-La-Tex. V. New distributional records for select taxa in Arkansas, Oklahoma, and Texas. *Southwestern Naturalist* 56:(in press).
- McAllister, C. T., and R. M. Shelley. 2003.** Millipedes (Arthropoda: Diplopoda) of the Ark-La-Tex. IV. Distribution records from southcentral and southeastern Oklahoma. *Proceedings of the Oklahoma Academy of Sciences* 83: 83-86.

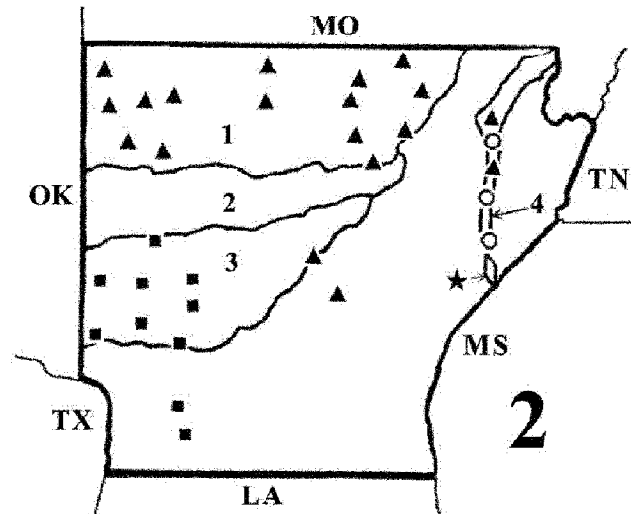


Figure 2. Distributions of euryurid species in Arkansas. Triangles, *Auturus evides*; Squares, *A. l. louisianus* (Chamberlin, 1918); Circles, new localities of *E. leachii*; Star, prior record of *E. leachii*. Numbers, referring to physiographic regions of Arkansas, are as follows: (1) Ozark Plateau; (2) Arkansas River Valley; (3) Ouachita Plateau; (4) Crowley's Ridge. LA, Louisiana; MO, Missouri; MS, Mississippi; OK, Oklahoma; TN, Tennessee.

- McAllister, C. T., and R. M. Shelley. 2005.** Discovery of the milliped, *Auturus louisianus louisianus* (Chamberlin, 1918) in Texas (Diplopoda: Polydesmida: Euryuridae). *Entomological News* 116(3): 187-188.
- McAllister, C. T., C. S. Harris, R. M. Shelley, and J. T. McAllister III. 2002a.** Millipeds (Arthropoda: Diplopoda) of the Ark-La-Tex. I. New distributional and state records for seven counties of the west Gulf Coastal Plain of Arkansas. *Journal of the Arkansas Academy of Science* 56: 91-94.
- McAllister, C. T., C. S. Harris, R. M. Shelley, and J. T. McAllister III. 2002b.** Millipeds (Arthropoda: Diplopoda) of the Ark-La-Tex. II. Distributional records for some species of western and central Arkansas and eastern and southeastern Oklahoma. *Journal of the Arkansas Academy of Science* 56: 95-98.
- McAllister, C. T., R. M. Shelley, and J. T. McAllister III. 2003.** Millipeds (Arthropoda: Diplopoda) of the Ark-La-Tex. III. Additional records from Arkansas. *Journal of the Arkansas Academy of Science* 57: 115-121.
- Shear, W. A. 1968.** A new genus and species of milliped from Illinois (Polydesmida, Euryuridae). *Proceedings of the Biological Society of Washington* 81: 479-484.
- Shelley, R. M. 1978.** Millipeds of the eastern Piedmont region of North Carolina, USA (Diplopoda). *Journal of Natural History* 12: 37-79.
- Shelley, R. M. 1982a.** Revision of the milliped genus *Auturus* (Polydesmida: Platyrrhacidae). *Canadian Journal of Zoology* 60: 3249-3267.
- Shelley, R. M. 1982b.** Confirmation of the status of *Euryurus mississippiensis* (Causey), with congeneric records from the Gulf States (Diplopoda: Polydesmida: Platyrrhacidae). *Florida Entomologist* 65: 254-263.
- Shelley, R. M. 1990.** Occurrence of the milliped *Auturus erythrogygus erythrogygus* in Virginia (Polydesmida: Platyrrhacidae). *Brimleyana* 16: 61-62.
- Shelley, R. M. 2000.** Annotated checklist of the millipeds of North Carolina (Arthropoda: Diplopoda), with remarks on the genus *Sigmoria* Chamberlin (Polydesmida: Xystodesmidae). *Journal of the Elisha Mitchell Scientific Society* 116: 177-205.
- Shelley, R. M. 2001 (2000).** Annotated checklist of the millipeds of Florida (Arthropoda: Diplopoda). *Insecta Mundi* 14: 241-251.

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