

NEW TRICHOPTERA RECORDS FROM ARKANSAS AND MISSOURI

DAVID A. ETNIER

Department of Ecology and Evolutionary Biology, 569 Dabney Hall, University of Tennessee, Knoxville, Tennessee 37996-1610, U.S.A. (e-mail: dipnet@utk.edu)

Abstract.—Analysis of about 69,000 Trichoptera from Arkansas and Missouri resulted in identification of six species previously unknown from Arkansas (i.e., *Agraylea costello*, *Neotrichia collata*, *Orthotrichia curta*, *Oxyethira glasa*, *O. pescadori*, *Neureclipsis piersoni*) and three species previously unknown from Missouri (i.e., *Cheumatopsyche mollala*, *Hydroptila broweri*, *H. poirrieri*). Of those species, *Agraylea costello*, *Hydroptila poirrieri*, *Orthotrichia curta*, *Oxyethira pescadori*, and *Neureclipsis piersoni* represent new records for the Interior Highlands. Males possibly representing *Ceraclea enodis*, not previously recorded from the Interior Highlands, were found in both states. An undescribed species of *Neophylax* (family Uenoidae) from Saline Co., AR, is discussed. Informative distributional information is provided for an additional 61 species known from the Interior Highlands.

Key Words: biodiversity, caddisflies, Interior Highlands

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Unzicker et al. (1970) and Bowles and Mathis (1989) summarized information on the caddisfly fauna of upland areas of Arkansas; Mathis and Bowles (1992) did the same for the Ozark Mountains region of Missouri. The 1996 publication of Moulton and Stewart's treatise on Interior Highlands Trichoptera summarized information from those papers, provided a wealth of new information, and provided excellent coverage of the caddisfly fauna of both Arkansas and Missouri, including keys to identification and illustrations of male genitalia of known species. In addition to covering much of Arkansas and Missouri, the Interior Highlands (Ozark and Ouachita moun-

tains) include portions of southwestern Illinois and eastern Oklahoma. Assuming that the caddisfly fauna of an area this large and biologically diverse continued to be imperfectly known, I eagerly accepted the opportunity to examine recently obtained light trap material from both Arkansas and Missouri. Results from analysis of specimens in those samples are reported below.

MATERIALS AND METHODS

Following is a list of Trichoptera unknown or poorly known from Arkansas and Missouri, mainly from the Interior Highlands. Most of the specimens were collected from light traps deployed at five streams in Garland and Saline counties, Arkansas, 2 April–27

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October 2000–2001, collected by A. L. Sheldon and provided by M. L. Warren, Jr., as well as from Pulaski County, Missouri, 14–22 July, 1999–2001, provided by Bruce H. Bauer.

In Arkansas all 16 localities from Garland County are from the Little Glazypeau Creek system (LGZP) of the Ouachita River drainage, mostly from privately owned pine forest areas. Coordinates range from 34.6401–34.6542° N and 93.0841–93.1274° W. Saline County localities, all from the Alum Fork of the Saline River drainage in the Ouachita National Forest, include one from Alum Fork (ALF) (34.7972° N, 92.9343° W); 10 from Bread Creek (BRD) (34.7824–34.7985° N, 92.9608–93.0093° W); three from North Alum Creek (NAL) (34.8038–34.8087° N, 93.0172–93.0493° W); and eight from South Alum Creek (SAL) (34.7784–34.8002° N, 93.0068–93.0477° W). A more detailed description of those sites can be found in Sheldon and Warren (2009).

Missouri localities from Pulaski County are all from the Gasconade River system (lower Missouri River drainage) in the Mark Twain National Forest, adjacent to or within the Fort Leonard Wood Military Reservation, as follows (T = Township, R = Range, S = Section): LBP = lower Big Piney River, 37.6958° N, 92.3072° W, north side of river, across river from Base Golf Course, T35N, R10W, southwest quarter of S19; UBP = upper Big Piney River, 37.6731° N, 92.0556° W, Ross Bridge, light trap located along unnamed tributary 245 m upstream from Big Piney River, T34N, R10W, southeast quarter of northwest quarter of S8; HH = Hurd Hollow, 37.6920° N, 92.2225° W, 610 m east of where Roubidoux Creek goes underground, T34N, R12W, middle of S2; WH = Watts Hollow, 37.6897° N, 92.0308° W, 107 m west of Phelps County line,

T34N, R10W, northeast quarter of southeast half of S4; RC = Roubidoux Creek, 37.6537° N, 92.2025° W, Musgrove Hollow, T34N, R12W, northwest quarter of southeast quarter of S13, light trap located in floodplain about 300 ft west of Roubidoux Creek and 183 m southeast of Cookeville Crossing of Roubidoux Creek; GR = Gasconade River, 34.6958° N, 92.3072° W, 1220 m northeast of Laclede County line, 90 m above river along unnamed tributary, T34N, R12W, eastern edge of S1. I have not visited any of the above Arkansas and Missouri localities. A few additional records of interest from the University of Tennessee research collection of caddisflies (UT) are included from various localities in Arkansas and Missouri, with locality data included for each of those records.

Families, genera, and species within genera are in alphabetical order. The 243 samples containing caddisflies included 69,113 total specimens. Fifteen families, 48 genera, and 142 species were present. Widespread and abundant species (those listed only by watershed in Moulton and Stewart 1996) are not included, but those records are available from the author, as are the data summarized herein, including latitude and longitude coordinates, number of males collected, and results of individual samples. Species listed by precise locality in Moulton and Stewart (1996) are included in the following list, with new records indicated by the following symbols: * = new state record and ! = new Interior Highlands record. Latitude and longitude coordinates appear above for all Missouri sites from Pulaski Co. and for the single Arkansas site from Alum Fork (ALF) in Saline Co. Precise coordinates are given for new state records and new Interior Highlands records for Arkansas localities within the multiple sites sampled in BRD, LGZP, NAL, and SAL, as well as for

miscellaneous records from the UT collection.

Following each species are the counties where it was collected (Arkansas data listed first), the abbreviated river or creek systems where it was collected within each county followed by a hyphen and the number of sites (if more than one) where collected within each river or creek system (Arkansas data only), and the range of dates of capture for the Arkansas collections (nearly all Missouri collections were between 14 and 22 July and are listed as mid-July). Except for Big Piney River (two sites), collections from Missouri were from a single site within each of the streams sampled. Trichoptera specimens are stored in 50% isopropanol; except for a few small samples containing only females and males of common species that were identified and discarded, they have been cataloged at UT as either single species lots or mixed males and females from a single collection (males identified to species, females mostly identified to family or genus). All identifications are by the author, with Moulton and Stewart (1996) used as the primary reference.

RESULTS

Brachycentridae.—*Micrasema rusticum* (Hagen). AR: Garland Co., LGZP; 10 and 16 April

Dipseudopsidae.—*Phylocentropus placidus* (Banks). AR: Garland Co., LGZP-5; Saline Co., (ALF, BRD-2); 2 April–13 September

Glossosomatidae.—*Agapetus medicus* Ross. AR: Garland Co., LGZP-11; Saline Co., (ALF, BRD-6, NAL-2, SAL-2); 2 April–5 October

Hydropsychidae.—*Cheumatopsyche burksi* Ross. AR: Garland Co., LGZP-3; Saline Co., (ALF, BRD, NAL, SAL); 20 July–6 October

**C. mollala* Ross. MO: Pulaski Co.,

GR, 1 ♂, 16 July; otherwise known from ID and OR (see Discussion)

C. robisoni Moulton & Stewart. AR: Garland Co., LGZP-11, 16 April–14 September

Homoplectra doringa (Milne). AR: Saline Co., BRD, 17 April

Hydropsyche alvata Denning. AR: Independence Co., Black R. at AR Highway 17, Elgin, Independence Co., 21 May

Hydroptilidae.—!*Agraylea costello* Ross. AR: Garland Co., LGZP; 9 June and 2 July, 6 ♂♂, 34.6172° N, 93.1160° W; otherwise known from ME, ON, PQ, and WI

Dibusa angata Ross. AR: Garland Co., LGZP; Saline Co., (BRD-2); 10 April–2 May

Hydroptila amoena Ross. MO: Pulaski Co., GR, RC; mid-July–8 September

**H. broweri* Blickle. MO: Pulaski Co., UBP, 17 July, 1 ♂

H. oneili Harris. AR: Garland Co., LGZP-3; Saline Co., (ALF); 2 May–16 September

!*H. poirrieri* Holzenthal and Kelly. MO: Pulaski Co., LBP, 15 July, 1 ♂; otherwise known from coastal plain of LA and MS

H. quinola Ross. AR: Saline Co.; (ALF, BRD-3); 21 July–6 October

H. remita Blickle & Morse. AR: Saline Co. (ALF, BRD-2, SAL); 17 May–22 July

H. sandersoni Mathis & Bowles. AR: Garland Co., LGZP-3; 9 June–6 August

H. spatulata Morton. AR: Garland Co., LGZP; MO: Pulaski Co., LBP, UBP, HH, WH, RC, GR; mid-July

H. vala Ross. AR: Saline Co., (ALF, BRD-3, SAL); 2 May–6 October

Ithytrichia clavata Morton. AR: Saline Co., (ALF), 11 June

Mayatrachia ayama Mosely. AR: Garland Co., LGZP; Saline Co., (ALF); 9 June–1 August

**Neotrichia collata* Morton. AR: Garland Co., LGZP, 34.6110° N, 93.1274° W; 9 June, 1 ♂

N. riegei Ross. AR: Garland Co., LGZP-2; Saline Co., (ALF); 9 June–21 July

N. vibrans Ross. MO: Pulaski Co., GR, RC; mid-July

Ochrotrichia riesi Ross. MO: Pulaski Co., UBP, 15 July

O. robisoni Frazer & Harris. AR: Saline Co., (ALF, BRD); 20 May–11 June

O. weddleae Ross. AR: Saline Co., (BRD, NAL); 2–20 May

O. xena (Ross). AR: Garland Co., LGZP; 30 June

Orthotrichia cristata Morton. AR: Saline Co., (ALF); MO: Pulaski Co., LBP, HH, RC, GR; mid-July–15 September

!*O. curta* Kingsolver & Ross. AR: Saline Co., (ALF), 21 July, 3 ♂♂

O. instabilis Denning. AR: Garland Co., LGZP-2; 9 June

Oxyethira coercens Morton. MO: Pulaski Co., GR, 16 July

**O. glasa* (Ross). AR: Saline Co., (ALF), 15 September, 3 ♂♂

O. novasota Ross. AR: Saline Co., (ALF), 21 July

!*O. pescadori* Harris & Keth. AR: Saline Co., (ALF), 2 May and 11 June, 1 ♂ each date; otherwise known from AL, FL, SC, and TN

O. rivicola Blickle & Morse. AR: Saline Co., (ALF), 1 August

O. zeronia Ross. AR: Garland Co., LGZP-3; Saline Co., (ALF); 2 July–27 October

Paucicalcaria ozarkensis Mathis & Bowles. AR: Garland Co., LGZP; Saline Co., (BRD, NAL); 17–20 May; see Discussion

Stactobiella delira (Ross). AR: Garland Co., LGZP-2; 10 April–17 May

S. palmata (Ross). AR: Garland Co., LGZP; Saline Co., (ALF); Izard Co.,

Strawberry River at AR Highway 289; 10 April–19 May

Lepidostomatidae.—*Lepidostoma carrolli* Flint. AR: Garland Co., LGZP, 27 October

L. ozarkense Flint & Harp. AR: Garland Co., LGZP; Saline Co., (ALF, BRD); 2 April–2 May

Leptoceridae.—*Ceraclea* sp. cf. *C. enodis* Whitlock & Morse. AR: Garland Co., LGZP-2; Saline Co., (ALF, BRD-2); MO: Pulaski Co., UBP, GR; 17 May–2 July; see Discussion

Leptocerus americanus (Banks). AR: Garland Co., LGZP-5; Saline Co., (ALF, BRD-3, NAL, SAL); 17 May–24 October

Mystacides sepulchralis (Walker). AR: Saline Co., (ALF, SAL); 2 April–5 August

Setodes oxapius (Ross). MO: Pulaski Co., LBP, UBP, GR; mid-July

Triaenodes aba Milne. AR: Izard Co., Strawberry River at AR Highway 289, 19 May

T. cumberlandensis Etnier & Way. AR: Saline Co., (ALF, BRD); 10 June–1 August

T. dipsius Ross. AR: Saline Co., (ALF, BRD-3, SAL-2); 2 May–6 August

T. flavescens Banks. MO: Pulaski Co., UBP, HH, WH; mid-July

T. marginatus Sibley. AR: Garland Co., LGZP-2; MO: Pulaski Co., UBP; 2 April–14 September

T. perna Ross. AR: Garland Co., LGZP-2; 20 July–5 August

T. tardus Milne. AR: Garland Co., LGZP-7; Saline Co., (ALF, BRD-2, NAL); 17 May–25 October

Limnephilidae.—*Pycnopsyche indiana* (Ross). AR: Garland Co., LGZP-6; Saline Co., (ALF); 16 September–27 October; taken with males and females of *P. lepida* (Hagen) in both counties (5 October Garland, 25 October Saline)

Molannidae.—*Molanna ulmerina*

Navas. AR: Saline Co., (BRD); MO: Pulaski Co., LBP, UBP, HH, GR; 20 May–mid-July

Philopotamidae.—*Chimarra parascia* Lago & Harris. AR: Garland Co., LGZP; 23 July

C. socia Hagen. AR: Saline, (BRD); MO: Pulaski Co., UBP, HH, RC; 17 May–mid-July

Phryganeidae.—*Agrypnia vestita* (Walker). AR: Garland Co., LGZP-4; Saline Co., (ALF, BRD-2, SAL-2); 17 September–24 October

Phryganea sayi Milne. MO: Pulaski Co., HH, 22 July

Ptilostomis ocellifera (Walker). MO: Pulaski Co., HH, RC; mid-July

Polycentropodidae.—*Cernotina spicata* Ross. AR: Saline Co., (ALF), 1 August

Neureclipsis piersoni Frazer & Harris. AR: Desha Co., White River Mile 15, 34.0716° N, 91.1855° W, 16 October, 1 ♂; big river habitat, boat-accessible only, surrounded by lowland hardwood forest

Nyctiophylax serratus Lago & Harris. AR: Garland Co., LGZP-3; MO: Pulaski Co., GR; 9 June–2 August

Polycentropus confusus Hagen. AR: Stone Co., North Sylamore Creek at Gurner Road, off AR Highway 14, Stone Co., 20–22 May

P. crassicornis Walker. AR: Garland Co., LGZP-3; Saline Co., (BRD-2, SAL); Ten Mile Creek, US Highway 70; 10 April–18 May

P. harpi Moulton & Stewart. AR: Garland Co., LGZP-7; Saline Co., (BRD-2, SAL-2); MO: Pulaski Co., UBP; 19 May–27 October

P. stephani Bowles, Mathis, & Hamilton. AR: Saline Co., (BRD, SAL), 2 May

Psychomyiidae.—*Lype diversa* Banks. AR: Garland Co., LGZP-5; 19 May–5 October

Paduniella nearctica Flint. MO: Pulaski Co., GR, 18 July

Rhyacophilidae.—*Rhyacophila glaberrima* Ulmer. AR: Garland Co., LGZP-3; Saline Co., (ALF, BRD-2, NAL-2, SAL-2); 14 September–27 October

Rhyacophila kiamichi Ross. AR: Garland Co., LGZP-9; Saline Co., (ALS, BRD-4, NAL-2, SAL-2); MO: Pulaski, GR; 2 March–30 June

DISCUSSION

Cheumatopsyche mollala.—This species was reported from Fayetteville, Washington Co., AR, June 1963 (Unzicker et al. 1970), but Moulton and Stewart (1996, p. 25) considered it a misidentification. The specimen(s) on which this record was based has not been located.

Paucicalcaria ozarkensis.—Moulton and Stewart (1996) reported that this rare, monotypic genus was known from only 10 specimens from Franklin, Logan, and Polk counties in western Arkansas. Arkansas light trap material provided by A. L. Sheldon adds two new counties, three new localities, and 13 males as follows: Saline Co., North Alum Creek, 34.8038° N, 93.0493° W, 20 May 2001, 1 ♂, and Bread Creek, 34.7896° N, 92.9608° W, 17 May 2001, 11 ♂♂; Garland Co., Little Glazypeau Creek, 34.6386° N, 93.1006° W, 17 May 2001, 1 ♂. Mixed females from those three collections are cataloged at UT as 18.252, 18.269, and 18.287, respectively, and are likely to contain additional females.

Ceraclea sp. cf. *C. enodis*.—In Pulaski County, MO, males from UBP (N = 10) and GR (N = 1), previously identified as *C. cancellata* (Betten), were re-examined. Forewing length for 10 of the 11 specimens was 7.8–9.0 mm (mean = 8.2), and total length for the 10 was 8.7–9.9 (mean = 9.3), suggesting

that they might be *C. enodis*. One of the specimens from UBP had forewing length 9.6 and total length 10.8 mm and is presumed to represent *C. cancellata*. In Saline County, AR, both size morphs were present at ALF and BRD. At ALF, 27 males in UT 12.688, identified as "*C. enodis*," had mean forewing length 7.7 mm, range 6.9–8.1 mm; 43 males in 12.683, from the same sample and identified as *C. cancellata*, had mean forewing length 9.6 mm, range 8.5–10.7 mm. At BRD (34.7896° N, 92.9608° W), four males identified as "*C. enodis*" (UT 12.704) had mean forewing length 7.7 mm, range 7.1–8.5 mm, while five males from the same sample, identified as *C. cancellata* (UT 12.703), had mean forewing length 10.1 mm, range 9.4–10.6 mm. This seems to duplicate the situation found in *C. enodis* and *C. cancellata* where sympatric in North Carolina (Whitlock and Morse 1994), but characters other than size that they listed as being useful in separating the two species do not appear to be useful in the Interior Highlands. That two species are involved seems likely. Since only one Interior Highlands congener, *Ceraclea maccalmonti* Moulton and Stewart, is endemic to that region, and since Whitlock and Morse (1994) consider the range of *C. enodis* to extend as far west as Michigan and Illinois, it seems reasonable to assume that these small *Ceraclea* with male genitalia essentially identical to those of *C. cancellata* might represent *C. enodis*. I have encountered four similar situations in Tennessee, where forewing length appears to form a non-overlapping (or nearly so) bimodal distribution, and the range of wing length is about twice the range of wing length where it is suspected that a single species is involved. This appears to be a problem that would lend itself nicely to genetic analysis.

A single male of a new species of *Neophylax* was present in the collections. The *Neophylax* specimen consists of a male, abdomen only, from Alum Fork of Saline River, 34.7972° N, 92.9343° W; Saline Co., AR, 3 July 2001. The early July emergence date is unprecedented for eastern and central North American species of *Neophylax* (Vineyard et al. 2005) except for the Appalachian *N. ornatus* Banks and a spring-inhabiting population of *N. concinnus* McLachlan. Male genitalic characters suggest an affinity with *N. stolon* Ross of the *N. ayanus* species group.

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