

ADDITIONS AND CORRECTIONS TO THE STONEFLIES (PLECOPTERA) OF IOWA, U.S.A.

Dennis P. Heimdal¹ and Michael W. Birmingham¹

Until recently, Iowa's stonefly fauna was poorly documented. Heimdal et al. (2004) published a comprehensive report on stonefly distributions within the state, reporting seven families and 43 species. Five species, *Allocaonia pygmaea* (Burmeister) (Capniidae), *Leuctra tenuis* (Pictet) (Leuctridae), *Amphinemura linda* (Ricker) (Nemouridae), *Nemoura trispinosa* Claassen (Nemouridae), and *Soyedina vallicularia* (Wu) (Nemouridae), were recommended for state protection because of their limited distribution within Iowa. Four species, *Amphinemura delosa* (Ricker), *Isogenoides doratus* (Frison) (Perlodidae), *I. krumholzi* (Ricker), and *I. varians* (Walsh), had limited distributions, but were not listed because their observed habitat preferences appeared common or were difficult to sample and poorly collected. From 2004 to 2006, fifteen county, state, and federal parks and preserves in east and northeast Iowa were sampled during the spring and summer in an effort to find additional locations for these nine species. The surveys yielded new distributional data for five species, including two new state records, and one species deletion, updating the total number of species recorded from Iowa to 44. A discussion for these records and corrections is presented below. Material collected from these surveys was deposited in the University of Iowa Hygienic Laboratory Collection (UHL) and the Illinois Natural History Survey Insect Collection (INHS).

***Leuctra rickeri* James (Leuctridae):** This species was first described from a small stream in Kentucky and most closely resembles *L. ferruginea* (Walker) (James 1976). Adult *L. rickeri* were recently collected in northeast Iowa from a small, cobble-laden creek that starts as two springs emerging from limestone bedrock. Currently, the nearest population of *L. rickeri* is located in the Shawnee and Ozark regions of southern Illinois where it is demonstrably secure, but restricted (DeWalt et al. 2005). Other states that have reported this species include Alabama, Florida, Indiana, Kentucky, Maryland, Mississippi, Ohio, and West Virginia (Grubbs 1997, 2004, Pescador et al. 2000, Stark and Baumann 2006).

New State Record. CLAYTON COUNTY: Mossy Glen Creek, Mossy Glen State Preserve (MGSP), 02 June 2005, 35 ♂, 19 ♀ (UHL); same but 1 ♂ (INHS); same but 26 May 2006, 5 ♂, 3 ♀ (UHL).

***Amphinemura delosa* (Ricker) (Nemouridae):** This species was described by Ricker (1952) from a creek near Spencer, Indiana. It is known from 20 states/provinces (Stark and Baumann 2006), including adjacent Illinois (DeWalt et al. 2005), Missouri (Poulton and Stewart 1991), and Wisconsin (Hilsenhoff 1975). Heimdal et al. (2004) reported this species from only one county previously. Recently, adults have been collected from four new Iowa counties along the Mississippi River. Collection sites consisted of springs and small cold-water creeks, which differs from Ricker's (1952) observations of *A. delosa* frequenting warmer, small streams.

New County Records. ALLAMAKEE COUNTY: French Creek, Churchtown, 16 September 2004, 1 ♂ (INHS); CLAYTON COUNTY: Bear Creek, Bixby State Preserve (BSP), 02 June 2005, 1 ♂, 1 ♀ (UHL); Mossy Glen Creek, MGSP, 02 June 2005, 19 ♂, 30 ♀ (UHL); same but 26 May 2006, 3 ♂, 2 ♀ (UHL); Brownfield Creek, Colesburg, 25 May 2006, 3 ♂, 5 ♀ (UHL); Cow Branch, Driftless Area National Wildlife Refuge (DANWR), 30 May 2006, 2 ♂, 6 ♀ (UHL); DELAWARE COUNTY: Little Turkey River, Hoffman Wildlife Area, 20 May

¹Department of Limnology, University of Iowa Hygienic Laboratory, Iowa City, IA 52242. (e-mail: dheimdal@uhl.uiowa.edu, mbirming@uhl.uiowa.edu).

2005, 1 ♂ (UHL); Unnamed Spring of Grimes Hollow, Colesburg, 01 May 2004, 3 ♂, 4 ♀ (UHL); DUBUQUE COUNTY: White Pine Hollow Creek, White Pine Hollow State Preserve, 01 June 2005, 20 ♂, 27 ♀ (UHL); FAYETTE COUNTY: Unnamed Creek, Dutton's Cave Park, 03 June 2005, 3 ♂, 5 ♀ (UHL).

***Nemoura trispinosa* Claassen (Nemouridae):** This species was first described from a small creek in central New York (Claassen 1923). It is known from 16 states/provinces of northern North America (Stark and Baumann 2006), including adjacent Illinois (DeWalt et al. 2005), Minnesota (Harden and Mickel 1952), and Wisconsin (Hilsenhoff 1975). In Iowa, *N. trispinosa* was restricted to springs within the northeast counties (Heimdal et al. 2004). Several additional populations have recently been discovered, most commonly in springs with cobble substrate, abundant leaf packs, and discernable flow.

New Location Records: ALLAMAKEE COUNTY: Unnamed Spring of Waterloo Creek, Dorchester, 01 June 2004, 2 ♂, 1 ♀ (UHL); CLAYTON COUNTY: Unnamed Spring of Bear Creek, BSP, 02 June 2005, 1 ♀ (UHL); same but 02 May 2006, 6 nymphs (UHL); Mossy Glen Creek, MGSP, 02 June 2005, 1 ♀ (UHL); Unnamed Spring of Pine Creek, DANWR, 25 April 2006, 2 ♂ (reared and emerged: 05 May 2006), 1 ♀ (UHL); Unnamed Spring of Steele Branch, DANWR, 25 April 2006, 1 ♂ (reared and emerged: 19 June 2006) (UHL); DUBUQUE COUNTY: Unnamed Spring of Middle Fork Little Maquoketa River, Bankston County Park, 28 April 2004, 2 ♂, 2 ♀ (reared and emerged: 03 June 2006 through 17 June 2006) (UHL); FAYETTE COUNTY: Unnamed Spring of Brush Creek, Brush Creek Canyon State Preserve, 02 June 2005, 1 ♂, 9 ♀ (UHL).

***Soyedina vallicularia* (Wu) (Nemouridae):** Wu (1923) gave the first description of this species from Ithaca, New York. Grubbs (2006) studied this species across its range and found little morphological variation. *S. vallicularia* was previously found from a single location within northeast Iowa (Heimdal et al. 2004). Adjacent Illinois (Harris and Webb 1995) and Wisconsin (Hilsenhoff 1975) have also reported this species, along with 12 other states/provinces (Stark and Baumann 2006, Grubbs 2006). Recently, two additional collection sites in northeast Iowa were found along small, hillside, wet areas with little discernable flow.

New County Record: CLAYTON COUNTY: Unnamed Spring of Cow Branch, DANWR, 25 April 2006, 2 ♂, 2 ♀, 3 nymphs (UHL); Unnamed Spring of Pine Creek, DANWR, 25 April 2006, 1 ♀ (UHL).

***Hydroperla fugitans* (Needham and Claassen) (Perlodidae):** Needham and Claassen (1925) described *H. fugitans* from Texas. Adults of this species were recently collected on two separate visits to the Cedar River in east-central Iowa. This collection site is a sixth order stream with a primarily shifting sand and gravel substrate. *H. fugitans* has been reported from seven states (Kondratieff 2004) including adjacent Illinois (Frison 1942) and Missouri (Kondratieff 2004).

New State Record: LINN COUNTY: Cedar River, Cedar Rapids, 18 April 2006, 1 ♀ (UHL); same but 19 April 2006, 1 ♂ (UHL).

***Isogenoides doratus* (Frison) (Perlodidae):** Frison (1942) described *I. doratus* (as *Hydroperla dorata*) from Michigan, and Ricker (1952) later described *I. krumholzi* also from Michigan. Heimdal et al. (2004) reported both from Iowa, including a new state record for *I. krumholzi*. Sandberg and Stewart (2005) recently synonymized *I. krumholzi* with *I. doratus*, thereby removing the former species from Iowa's state list. No additional locations for *Isogenoides* species were discovered throughout the above surveys.

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