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## NEW RECORDS OF STONEFLIES (PLECOPTERA) WITH AN ANNOTATED CHECKLIST OF THE SPECIES FOR PENNSYLVANIA

E.C. Masteller<sup>1</sup>

## ABSTRACT

Original collections now record 134 species in nine families and 42 genera. Seventeen new state records include, *Allocapnia wrayi*, *Alloperla caudata*, *Leuctra maria*, *Soyedina carolinensis*, *Tallaperla elisa*, *Perlesta decipiens*, *P. placida*, *Neoperla catharae*, *N. occipitalis*, *N. stewarti*, *Cultus decisus decisus*, *Isoperla francesca*, *I. frisoni*, *I. lata*, *I. nana*, *I. slossonae*, *Malirekus hastatus*. Five species are removed from the list of species for Pennsylvania.

Surdick and Kim (1976) originally recorded 90 species of stoneflies in nine families and 32 genera from Pennsylvania. Since that time, Stark et al. (1986) reported 94 species, Stewart and Stark (1988) listed 95 species, and Earle (1994) added 14 species and deleted four species as misidentifications. Grubbs (1996) reported three new state records bringing the total species for Pennsylvania to 117. One-hundred-thirty-four species of stoneflies are now confirmed for Pennsylvania (Masteller, 1996). This includes 16 species of Capniidae, 13 species of Leuctridae, 16 species of Nemouridae and 10 species of Taeniopterygidae in the Euhognatha. In the Systellognatha, the Chloroperlidae are represented by 15 species, Peltoperlidae four species, Perlidae 25 species, Perlodidae 30 species, and the Pteronarcyidae five species. The county records for all Pennsylvania stonefly species can be found on the WWW at Penn State Erie, The Behrend College's site (<http://www.pserie.psu.edu/>), biology faculty under my name.

Pennsylvania, with 67 counties (Figure 1) covers an area of 117,412 square kilometers (Guilday, 1985). The eastern border is located at approximately 74°43' W longitude and extends to 80°31' W on the western border. The southern border is located at 39° 43' latitude and approximately 42° N on the northern border. Fenneman (1938) divided the land surface of North America into 20 physiographic provinces. Berg et al. (1989) have developed a physiographic province map for Pennsylvania with seven major physiographic provinces: (1) Central Lowland (2) Atlantic Coastal Plain (3) Blue Ridge (4) New England (5) Ridge and Valley (with 2 subdivisions) (6) Piedmont Province (with 3 subdivisions) and (7) Appalachian Plateaus (with 7 subdivisions). The seven major physiographic units are dominated by the Appalachian Plateau which include glaciated and montane sections. There are over 100 water drainage subbasins in six major basins: Delaware River, Susquehanna River, Ohio River, Lake Erie, Genesee River, and Potomac River. Due to the great diversity of habitats throughout Pennsylvania, it is likely additional species will be collected in the future.

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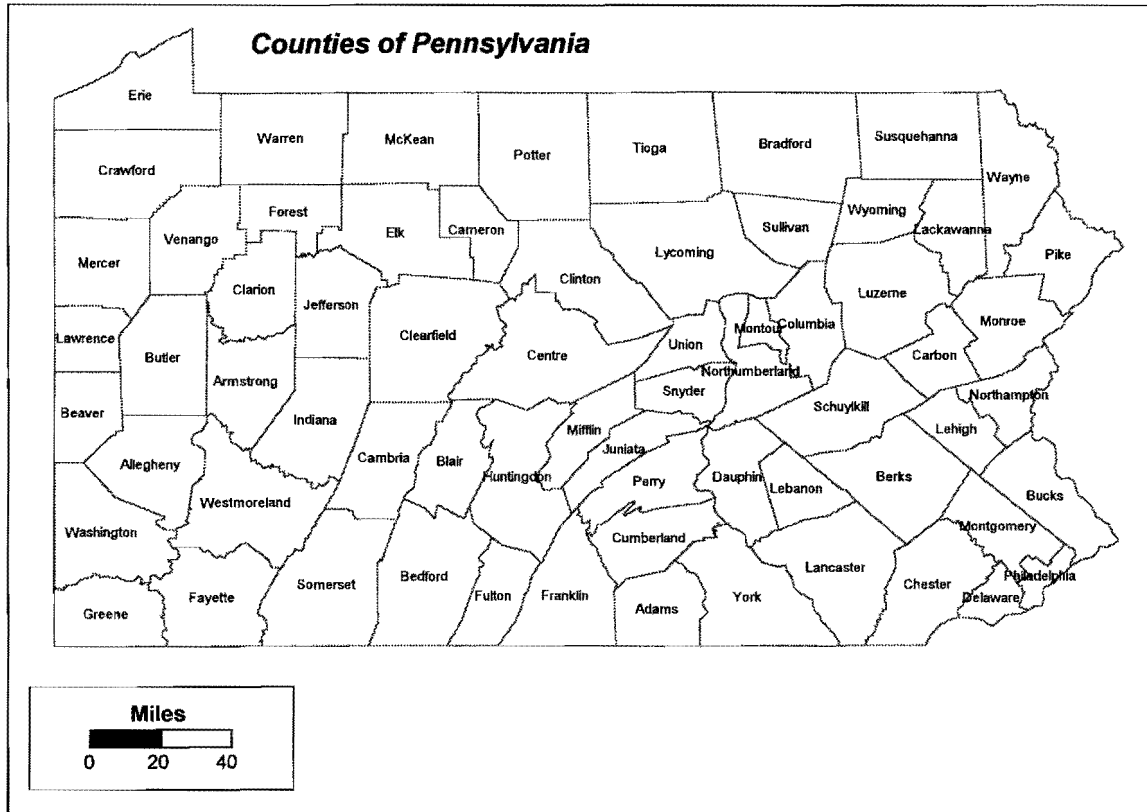


Figure 1. Map of Pennsylvania, showing the counties.

These seven physiographic provinces provide an abundant range of habitats. The mountain streams at higher elevations provided some of the most diverse populations. More than 90 species inhabit the Appalachian Mountain Section of the Ridge and Valley Province in central Pennsylvania. Three sections of the Appalachian Plateaus Province, all mountainous have the next most diverse fauna with approximately 60 species in each section- Allegheny Mountain, High Plateau, and Mountainous High Plateau. Close to 40 species were present at lower elevations in the Central Lowland Province, Pittsburgh Low Plateau, Glaciated Low Plateau, and the Piedmont Upland. Areas with rare species occurred in the north central counties and in the Pocono area of eastern Pennsylvania.

I began collecting stoneflies in the early 1960's in Erie county and continued with collections in northwest Pennsylvania (Masteller 1983, Dionisi and Masteller 1988). Additional records for Pennsylvania can be found in Bobak & Lawrence (1991), Grubbs (1996), Hitchcock (1974), Kondratieff & Nelson (1995), Kondratieff, et al. (1988) Ricker (1949), Ricker & Ross (1968), Ross (1971), Stanger & Baumann (1993), Stark (1983, 1986, 1989), Stark & Gaufin (1974, 1976), Stark & Szczytko (1988), Stark & Ray (1983), Stark, et al. (1988), Surdick (1985), and Szczytko & Stewart (1981).

The new state records and a current list of stoneflies of Pennsylvania follows.

## NEW STATE RECORDS OF STONEFLIES IN PENNSYLVANIA

### CAPNIIDAE

*Allocapnia wrayi* Ross - 3♂ CHESTER Co., East Branch White Clay Creek, 1 Mar 1980, C. F. Burgoon & C. E. Dunn. 2♂-1♀ GREENE Co., Ryerson Station St. Pk., 16 Feb. 1995, Mark A. Lethaby. 2♂ MIFFLIN Co., Station 10 U.S. Rt. 522 Atkinson Mills, 19 Feb 1956, J. F. Hanson.

### CHLOROPERLIDAE

*Alloperla caudata* Frison - 1♂ BRADFORD Co., Susquehanna River, Towanda, 8 Jun 1994, E. C. Masteller. 7♂-6♀ PIKE Co. Dingmans Ferry, 29 May 1996, B. C. Kondratieff. 6♂-2♀ PIKE Co. Dingmans Falls, 29 May 1996, B. C. Kondratieff. 6♂-1♀ TIOGA Co. U.S. Rt. 15, South of Blossburg, 14 Jun 1991, R. M. Duffield.

### LEUCTRIDAE

*Leuctra maria* Hanson - 1♂ PIKE Co., Kleinhans Creek, 28 May 1996, B. C. Kondratieff. WAYNE Co. Tanners Falls, trib. East Dyberry Creek, 30 May 1996, B. C. Kondratieff.

### NEMOURIDAE

*Soyedina carolinensis* (Claassen) - CHESTER Co. East Branch White Clay Creek, 2♂ 27 Feb-17 Mar 1978, 13♂-4♀ 21 Feb-11 Apr 1980, 1♂ 27 Feb 1981, David H. Funk. 1♂ PHILADELPHIA Co. Roxborough, 26 Apr 1910, G. M. Greene.

## PELTOPERLIDAE

***Tallaperla elisa* Stark** – 1♂ POTTER Co., Lyman Run, 28 May 1988, R. M. Duffield.

## PERLIDAE

***Perlesta decipiens* (Walsh)** – 1♀ CAMERON Co., Sinnemahoning Creek, Driftwood, 27 Jul 1989, E. C. Masteller. 7♀ CRAWFORD Co., French Creek, 22 Jun 1994, E. C. Masteller. 4♂-2♀ LAWRENCE Co. Neshannock Creek, 3 Jul 1992, Jack Williams. 1♀ MERCER Co. Neshannock Creek, 30 Jul 1994, E. C. Masteller.

***Perlesta placida* (Hagen)** – 9♂ CRAWFORD Co., French Creek, Saegertown & Venango, 29 Jun 1995. E. C. Masteller. 3♂-2♀ ERIE Co., Penn State Univ. Behrend Campus, 30 Jul 1973, 17 Jul 1977, E. C. Masteller & Karl Miller.

***Neoperla catharae* Stark & Baumann** – 1♂ PERRY Co., Juniata River, 22 Jul 1993, Andrew Shiels. 1♂ WYOMING Co. Meshoppen Creek, 10 Sep 1989, E. C. Masteller.

***Neoperla occipitalis* (Pictet)** – 1♀ BRADFORD Co., Susquehanna River, Riverside Campground, 18 Jul 1989, Mark Lethaby. 3♂-3♀ ERIE Co., West Branch, French Creek, 29 Jun 1995. E. C. Masteller.

***Neoperla stewarti* Stark & Baumann** – 1♂ ERIE Co., West Branch, French Creek, 29 Jun 1995, E. C. Masteller. 3♀ JUNIATA Co., Juniata River, 30 Jun 1990, E. C. Masteller.

## PERLODIDAE

***Cultus decisus decisus* (Walker)** – 12♂-14♀ PIKE Co., Dingmans Ferry, 29 May 1996, B. C. Kondratieff. 1♂ WAYNE Co., Beach Lake, 27 May 1994, W. C. Wheeler.

***Isoperla francesca* Harper** – 1♂ CAMERON Co., Sinnemahoning Creek, Driftwood, 27 Jul 1989, E. C. Masteller.

***Isoperla frisoni* Illies** – 1♂ HUNTINGDON Co., Colerain St. Pk. 22 Jun 1952, S. W. Frost. 1♀ MONROE Co., Kistler Run, 9 Jun 1994, E. C. Masteller.

***Isoperla lata* Frison** 1♀ POTTER Co., Kettle Creek, Oleona, 4 May 1996, E. C. Masteller.

***Isoperla nana* (Walsh)** – Fourmile Creek, Penn State Univ. Behrend Campus, 18♂-20♀ 20 May-26 Jun 1980, 4♂-4♀ 19 May-4 Jun 1981, 14♂-19♀ 17 May-6 Jun 1983, 8♂-8♀ 21 May-6 Jun 1983, 1♂-1♀ 25-29 May 1990, E. C. Masteller. 1♂ LAWRENCE Co. Slippery Rock Creek, 30 Jun 1994, E. C. Masteller. 1♂ VENANGO Co. Mill Creek, trib. French Creek, 29 Jun 1994, E. C. Masteller.

***Isoperla slossonae* (Banks)** – 1♂ CLINTON Co. Fishing Creek, Lamar National Fish Hatchery, 29 Apr 1995, S. R. Moulton.

***Malirekus hastatus* (Banks)** – 1♂ CHESTER Co. East Branch White Clay Creek, 8 May 1980, D. H. Funk.

An annotated list of the Plecoptera of Pennsylvania. The range of adult collection dates is followed by the list of counties thus far recorded for each species.

### Euholognatha CAPNIIDAE

#### Capniinae

*Allocapnia aurora* Ricker – 23 Jan - 19 Mar: Adams, Blair, Chester, Cumberland, Dauphin, Huntingdon, Perry, York

*A. curiosa* Frison – 19 Feb - 8 Apr: Blair, Cambria, Clinton, Somerset

*A. frisoni* Ross & Ricker – 15 Nov - 14 Feb: Erie, Westmoreland

*A. granulata* (Claassen) – 22 Nov - 20 Apr: Adams, Bedford, Berks, Bucks, Centre, Chester, Crawford, Cumberland, Dauphin, Erie, Forest, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lehigh, McKean, Mercer, Mifflin, Montgomery, Northumberland, Perry, Venango, Warren, York

*A. harperi* Kirchner – 29 Jan - 4 Apr: Westmoreland

*A. maria* Hanson – 4 Feb - 1 Apr: Adams, Carbon, Columbia, Cumberland, Dauphin, Fulton, Lycoming, McKean, Perry, Sullivan, Venango, Warren

*A. nivicola* (Fitch) – 29 Dec - 23 Apr: Blair, Cambria, Carbon, Chester, Clinton, Columbia, Crawford, Cumberland, Dauphin, Erie, Forest, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lycoming, McKean, Northampton, Potter, Somerset, Venango, Warren, Westmoreland

*A. pechumani* Ross & Ricker – 16 - 17 Feb: Erie, Warren

*A. pygmaea* (Burmeister) – 3 Feb - 14 Apr: Adams, Clinton, Columbia, Crawford, Cumberland, Dauphin, Erie, Forest, Franklin, Fulton, Huntingdon, Juniata, Lycoming, McKean, Mifflin, Northumberland, Perry, Pike, Potter, Somerset, Sullivan, Warren, York

*A. recta* (Claassen) – 1 Dec - 7 Mar: Berks, Chester, Columbia, Cumberland, Dauphin, Indiana, Lycoming, Mifflin, Montgomery, Schuylkill, Somerset, Venango, Warren, Westmoreland

*A. rickeri* Frison – 18 Nov - 13 Apr: Beaver, Bucks, Chester, CF, Crawford, Cumberland, Dauphin, Delaware, Fulton, Greene, Huntingdon, Juniata, Lancaster, Mifflin, Northumberland, Perry, Somerset, Union, Venango, Warren, Washington

*A. simmonsii* Kondratieff & Voshell – 8 - 24 Mar: Cumberland, Dauphin

*A. vivipara* (Claassen) – 3 Jan - 26 Apr: Armstrong, Bucks, Crawford, Erie, Greene, Venango

*A. wrayi* Ross – [NEW RECORD] 16 Feb - 1 Mar: Chester, Greene, Mifflin

*A. zola* Ricker – 27 Jan - 27 Feb: Carbon, Perry, Westmoreland

*Paracapnia angulata* Hanson – 20 Mar - 4 May: Beaver, Cameron, Carbon, Centre, Clearfield, Clinton, Cumberland, Elk, Erie, Forest, Huntingdon, McKean, Mifflin, Perry, Potter, Somerset, Susquehanna, Union, Warren, Westmoreland

### LEUCTRIDAE

#### Leuctrinae

*Leuctra alexanderi* Hanson – 30 May - 19 Jul: Forest, Warren, Wayne, Westmoreland

*L. carolinensis* Claassen – 22 May - 14 Jun: Lackawana, Tioga

***L. duplicata* Claassen** – 8 May - 15 Jul: Centre, Clearfield, Clinton, Erie, Huntingdon, Lackawana, Monroe, Pike, Potter, Somerset, Tioga, Warren, Westmoreland

***L. ferruginea* (Walker)** – 21 May - 30 Oct: Cameron, Carbon, Centre, Chester, Clinton, Cumberland, Delaware, Elk, Erie, Fayette, Forest, Franklin, Lawrence, Luzerne, McKean, Pike, Potter, Snyder, Sullivan, Tioga, Venango, Warren, Wayne, Westmoreland

***L. grandis* Banks** – 8 May - 13 Jul: Centre, Lackawana, Luzerne, Potter, Sullivan, Westmoreland

***L. maria* Hanson** – [NEW RECORD] 28 - 30 May: Pike, Wayne

***L. sibleyi* Claassen** – 2 May - 23 Jul: Cambria, Centre, Chester, Clinton, Columbia, Elk, Erie, Forest, Huntingdon, Lackawana, Luzerne, McKean, Mifflin, Pike, Potter, Sullivan, Warren, Wayne, Westmoreland

***L. tenella* Provancher** – 8 May - 12 Aug: Carbon, Chester, Fayette, Huntingdon, McKean, Potter, Susquehanna, Warren, Wayne, Westmoreland

***L. tenuis* (Pictet)** – 5 May - 15 Sep: Allegheny, Cameron, Carbon, Centre, Dauphin, Elk, Erie, Fayette, Forest, Huntingdon, Lawrence, Luzerne, McKean, Monroe, Sullivan, Susquehanna, Tioga, Venango, Warren, Westmoreland

***L. truncata* Claassen** – 16 Jun - 3 Sep: Centre, Fayette, Potter, Warren

***L. variabilis* Hanson** – 18 Aug - 10 Sep: Chester, Susquehanna, Wyoming

***Paraleuctra sara* (Claassen)** – 27 Mar - 12 May: Cambria, Cameron, Carbon, Centre, Chester, Clinton, Columbia, Fayette, Huntingdon, Jefferson, Lawrence, Luzerne, Lycoming, McKean, Perry, Potter, Sullivan, Union, Warren, Westmoreland, Wyoming

Megaleuctrinae

***Megaleuctra flinti* Baumann** – 20 Apr - 18 Jul: Cambria, Somerset, Westmoreland

NEMOURIDAE

Amphinemurinae

***Amphinemura appalachia* Baumann** – 3 May: Carbon, Monroe

***A. delosa* (Ricker)** – 14 Apr - 10 Sep: Centre, Crawford, Elk, Erie, Forest, Huntingdon, Lawrence, Luzerne, Potter, Tioga, Westmoreland, Wyoming

***A. linda* (Ricker)** – 13 Jun - 6 Jul: Columbia, Erie

***A. nigritta* (Provancher)** – 21 Apr - 25 Sep: Berks, Blair, Cambria, Cameron, Centre, Chester, Clearfield, Clinton, Columbia, Crawford, Erie, Forest, Huntingdon, Juniata, Lawrence, Lycoming, McKean, Mifflin, Perry, Pike, Potter, Somerset, Sullivan, Warren, Wayne, Westmoreland

***A. wui* (Claassen)** – 12 May - 30 Oct: Blair, Bradford, Cambria, Carbon, Centre, Chester, Clearfield, Clinton, Crawford, Cumberland, Elk, Fayette, Forest, Luzerne, McKean, Mifflin, Monroe, Philadelphia, Pike, Potter, Snyder, Somerset, Tioga, Warren, Westmoreland

Nemourinae

***Ostrocerca albidipennis* (Walker)** – 4 May - 29 Jun: Cumberland, Dauphin, Lackawana, Pike, Potter, Somerset, Warren, Westmoreland

***O. complexa* (Claassen)** – 23 May: Lackawana

***O. prolongata* (Claassen)** – 20 May: Tioga

*O. truncata* (Claassen) – 26 Apr - 20 May: Bucks, Fayette, Lycoming, Potter, Westmoreland, York

*Paranemoura perfecta* (Walker) – 22 Mar - 8 May: Centre, Forest, Huntingdon, Lebanon, Sullivan, Union, Westmoreland

*Prostia completa* (Walker) – 20 Feb - 8 Jun: Cameron, Chester, Clinton, Dauphin, Delaware, Elk, Erie, Lancaster, Lycoming, Montgomery, Potter, Tioga, Venango Warren, Wayne, Wyoming

*P. similis* (Hagen) – 9 Mar - 15 May: Cumberland, Delaware, Erie, Forest, Fulton, Huntingdon, Juniata, McKean, Perry, Potter, Snyder, Westmoreland

*Soyedina carolinensis* (Claassen) – [NEW RECORD] 24 Feb - 11 Apr: Chester, Philadelphia

*S. merritti* Baumann & Grubbs – 1 Apr - 11 May: Westmoreland

*S. vallicularia* (Wu) – 14 Mar - 13 May: Beaver, Blair, Centre, Chester, Erie, Huntingdon, McKean, Philadelphia, Sullivan, Venango, Warren, York

*S. washingtoni* (Claassen) – 28 Mar - 20 Jun: Centre, Erie, Lackawana, Lycoming, McKean, Philadelphia Warren

## TAENIOPTERYGIDAE

### Brachypteryginae

*Bolotoperla rossi* (Frison) – 3 Apr - 8 May: Dauphin, Sullivan, Union

*Oemopteryx contorta* (Needham & Claassen) – 28 Feb - 3 May: Cumberland, Mifflin, Union, Westmoreland

*Strophopteryx fasciata* (Burmeister) – 14 Feb - 8 May: Bedford, Berks, Bradford, Cameron, Centre, Chester, Clinton, Crawford, Cumberland, Dauphin, Erie, Fayette, Fulton, Huntingdon, Lancaster, Luzerne, Lycoming, McKean, Pike, Potter, Snyder, Sullivan, Susquehanna, Union, Venango, Warren, Westmoreland, Wyoming, York

*Taenionema atlanticum* Ricker & Ross – 24 Mar - 27 May: Cambria, Cameron, Centre, Clinton, Delaware, Lackawana, Luzerne, McKean, Potter, Sullivan, Susquehanna, Tioga, Union, Warren, Wayne, Wyoming

### Taeniopteryginae

*Taeniopteryx burksi* Ricker & Ross – 14 Jan - 14 Apr: Adams, Beaver, Cameron, Carbon, Chester, Clinton, Cumberland, Dauphin, Elk, Forest, Franklin, Huntingdon, Lawrence, Mercer, Montgomery, Northumberland, Perry, Pike, Potter, Somerset, Venango, Warren, Washington, Wyoming, York

*T. maura* (Pictet) – 27 Jan - 15 Apr: Bradford, Carbon, Centre, Chester, Clinton, Cumberland, Dauphin, Elk, Fayette, Forest, Huntingdon, Lycoming, Mifflin, Perry, Philadelphia, Potter, Susquehanna, Union, Washington, Westmoreland, Wyoming

*T. metequi* Ricker & Ross – Jan - 14 Mar 29: Bedford, Fulton, Snyder, Washington

*T. nivalis* (Fitch) – 28 Jan - 20 Apr: Bucks, Carbon, Chester, Crawford, Cumberland, Dauphin, Delaware, Erie, Forest, Franklin, Huntingdon, Lancaster, Mifflin, Northumberland, Snyder, Susquehanna, Tioga, Warren, Wyoming

*T. parvula* Banks – 10 Feb - 7 Mar: Cameron, Carbon, Cumberland, Dauphin, Luzerne, McKean, Mifflin, Perry, Tioga, Wyoming

*T. ugola* Ricker & Ross – 14 Feb - 7 Apr: Cambria, Cumberland



**Systellognatha**  
**CHLOROPERLIDAE**

Chloroperlinae

*Alloperla aracoma* Harper & Kirchner - 2 Jun - 11 Jul: Westmoreland

*A. atlantica* Baumann - 20 May - 4 Jul: Chester, Cumberland, Huntingdon, Monroe, Sullivan

*A. caudata* Frison - [NEW RECORD] 29 May - 14 Jun: Bradford, Pike, Tioga

*A. chloris* Frison - 18 May - 10 Jul: Crawford, Erie, Sullivan, Warren

*A. concolor* Ricker - 26 May: Luzerne, Monroe

*A. imbecilla* (Say) - 23 May - 5 Jul: Beaver, Cameron, Forest, Northampton, Wayne, Westmoreland

*A. usa* Ricker - 8 Jun - 23 Jul: Cambria, Warren, Westmoreland

*A. vostoki* Ricker - 18 Jun: Erie

*Haploperla brevis* (Banks) - 6 May - 25 Jul: Allegheny, Armstrong, Beaver, Butler, Centre, Chester, Clearfield, Crawford, Cumberland, Dauphin, Erie, Forest, Huntingdon, Lancaster, Luzerne, McKean, Monroe, Montgomery, Northampton, Warren, Westmoreland

*Rasvena terna* (Frison) - 3 Jun - 19 Jul: Lycoming

*Suwallia marginata* (Banks) - 29 May - 5 Aug: Erie, Jefferson, Luzerne, Lycoming, Somerset, Tioga, Warren, Westmoreland

*Swetlsa lateralis* (Banks) - 11 May - 22 Jul: Cambria, Cameron, Centre, Clearfield, Clinton, Elk, Erie, Fayette, Forest, Fulton, Huntingdon, Lackawana, Lebanon, Luzerne, McKean, Mifflin, Pike, Sullivan, Tioga, Union, Venango, Warren, Westmoreland

*S. naica* (Provancher) - 10 May - 26 Jun: Blair, Monroe, Potter, Warren, Westmoreland

*S. onkos* (Ricker) - 8 May - 10 Aug: Beaver, Cameron, Centre, Chester, Erie, Fayette, Huntingdon, Lackawana, Lycoming, Luzerne, McKean, Mifflin, Monroe, Northampton, Pike, Potter, Tioga, Warren, Wayne, Westmoreland, Wyoming

Paraperlinae

*Utaperla gaspesiana* Harper & Roy - 9 - 20 May: Clinton, Westmoreland

**PELTOPERLIDAE**

Peltoperlinae

*Peltoperla arcuata* Needham - 16 May - 24 Aug: Centre, Chester, Clinton, Crawford, Erie, Fayette, Forest, Lawrence, Lehigh, Lycoming, McKean, Monroe, Northampton, Schuylkill, Union, Venango, Warren, Westmoreland

*Tallaperla anna* (Needham & Smith) - 3 Jun: Luzerne

*T. elisa* Stark - [NEW RECORD] 28 May: Potter

*T. maria* (Needham & Smith) - 12 May - 15 Jun: Centre, Chester, Lackawana, Mifflin, Monroe, Pike, Potter, Sullivan, Tioga, Union, Warren, Westmoreland

## PERLIDAE

## Acroneuriinae

## Acroneuriini

*Acroneuria abnormis* (Newman) - 1 Jun - 10 Aug: Allegheny, Armstrong, Cameron, Carbon, Centre, Chester, Clearfield, Clinton, Cumberland, Dauphin, Fayette, Franklin, Huntingdon, Indiana, Juniata, Lawrence, Luzerne, Lycoming, McKean, Mercer, Monroe, Perry, Pike, Potter, Susquehanna, Tioga, Venango, Warren, Wayne, Westmoreland, Wyoming, York

*A. arenosa* (Pictet) - 3 Jun - 27 Jul: Allegheny, Centre, Cumberland, Dauphin, Montgomery, Perry, Philadelphia, Washington, York

*A. arida* (Hagen) - 6 - 11 Jun: Chester, Dauphin, Delaware, Erie, Lancaster, Philadelphia

*A. carolinensis* (Banks) - 28 May - 10 Jul: Armstrong, Centre, Clinton, Crawford, Cumberland, Erie, Fayette, Lawrence, Lycoming, Monroe, Pike, Potter, Snyder, Susquehanna, Tioga, Union, Warren, Westmoreland

*A. evoluta* Klapalek - 30 May - 6 Jul: Allegheny, Beaver, Greene, Lancaster, Lawrence, Washington

*A. filicis* Frison - 26 - 30 Jun: Dauphin, Juniata

*A. frisoni* Stark & Brown - 16 Jun - 22 Jul: Allegheny, Erie, Greene, Lawrence

*A. lycorias* (Newman) - 1 - 9 Jun: Allegheny, Chester, Clearfield, Monroe, Snyder, Sullivan, Tioga, Washington, Wayne, Wyoming

*Attaneuria ruralis* (Hagen) - 1 - 8 Jul: Chester, Cumberland, Dauphin, Fayette, Lancaster, Lebanon, Potter, Tioga, Wyoming

*Eccoptura xanthenes* (Newman) - 2 Jun - 31 Jul: Centre, Chester, Cumberland, Montgomery, Northumberland, York

*Hansonoperla appalachia* Nelson - 23 Jul: Cambria, Cameron, Monroe, Tioga

*Perlesta decipiens* (Walsh) - [NEW RECORD] 22 Jun - 30 Jul: Cameron, Crawford, Lawrence, Mercer

*P. nitida* Banks - 1 May - 30 Jun: Lawrence, Mercer, Philadelphia

*P. placida* (Hagen) - [NEW RECORD] 17 - 30 Jul: Crawford, Erie

*Perlinella drymo* (Newman) - 12 May - 9 Aug: Cumberland, Northampton

*P. ephyre* (Newman) - 6 Jun: Columbia, Cumberland

## Perlinae

## Neoperlini

*Neoperla catharae* Stark & Baumann - [NEW RECORD] 22 Jul - 10 Sep: Perry, Wyoming

*N. clymene* (Newman) - 23 - 30 Jun: Centre, Clinton, Dauphin, Erie, Fayette, Huntingdon, York

*N. occipitalis* (Pictet) - [NEW RECORD] 29 Jun - 18 Jul: Bradford, Erie

*N. stewarti* Stark & Baumann - [NEW RECORD] 29 - 30 Jun: Erie, Juniata

## Perlini

*Agnentina annulipes* (Hagen) - 4 Jun - 16 Jul: Dauphin, Juniata, Pike

*A. capitata* (Pictet) - 23 May - 30 Jul: Blair, Cameron, Clinton, Cumberland, Dauphin, Erie, Huntingdon, Sullivan, Tioga, Warren, Wayne, Wyoming

*A. flavescens* (Walsh) - 31 May - 27 Jul: Dauphin, Huntingdon, Lehigh

*Paragnetina immarginata* (Say) - 20 Jul - 28 Oct: Centre, Columbia,

Fayette, Huntingdon, Indiana, Luzerne, Lycoming, Monroe, Potter, Sullivan, Tioga, Warren, Wyoming

***P. media* (Walker)** – 19 May - 5 Jul: Bedford, Cameron, Carbon, Centre, Chester, Clinton, Crawford, Fayette, Huntingdon, Lancaster, Lycoming, Mercer, Monroe, Potter, Somerset, Sullivan, Tioga, Union, Venango, Wayne

## PERLODIDAE

### Isoperlinae

***Cliperla clio* (Newman)** – 15 Apr - 8 May: Armstrong, Beaver, Chester, Crawford, Huntingdon, Westmoreland

***Isoperla bilineata* (Say)** – 8 - 27 Jun: Allegheny, Centre, Chester, Huntingdon, Monroe, Potter

***I. dicala* Frison** – 23 May - 10 Jul: Bedford, Blair, Clinton, Cumberland, Dauphin, Erie, Huntingdon, Pike, Potter, Sullivan, Tioga

***I. francesca* Harper** – [NEW RECORD] 27 Jul: Cameron

***I. frisoni* Illies** – [NEW RECORD] 9 - 22 Jun: Huntingdon, Monroe

***I. holochlora* (Klapalek)** – 28 May - 31 Aug: Centre, Chester, Cumberland, Fayette, Monroe, Pike, Somerset, Tioga, Union, Warren, Westmoreland

***I. lata* Frison** – [NEW RECORD] 4 May: Potter

***I. marlynia* (Needham & Claassen)** – 4 - 6 Jun: Huntingdon, Sullivan

***I. montana* (Banks)** – 17 Apr - 8 Jul: Cameron, Centre, Chester, Clinton, Crawford, Fayette, Huntingdon, Lycoming, Luzerne, Mifflin, Monroe, Pike, Potter, Sullivan, Union, Warren

***I. namata* Frison** – 1 - 10 May: Centre, Potter

***I. nana* (Walsh)** – [NEW RECORD] 5 May - 30 Jun: Erie, Lawrence, Venango

***I. orata* Frison** – 8 May - 14 Jun: Armstrong, Chester, Huntingdon, Luzerne, Monroe, Sullivan

***I. richardsoni* Frison** – 7- 8 May: Centre, Dauphin

***I. signata* (Banks)** – 4 Jun: Centre, Fayette, Lancaster, Sullivan

***I. similis* (Hagen)** – 1 May - 6 Jun: Centre, Chester, Fayette, Monroe, Pike, Potter, Somerset, Venango, Westmoreland

***I. slossonae* (Banks)** – [NEW RECORD] 29 Apr: Clinton

***I. transmarina* (Newman)** – 16 May - 3 Jun: Erie, Luzerne

***I. sp. j*** – 5 Jul: Forest

***I. sp. m*** – 27 May - 4 Jun: Cameron, Clinton

***I. sp. n*** – 29 Apr: Clinton

### Perlodinae

#### Diploperlini

***Cultus decisus decisus* (Walker)** – [NEW RECORD] 23 Apr - 1 Jun: Allegheny, Chester, Fayette, Pike, Potter, Venango, Wayne

***C. verticalis* (Banks)** – 18 Mar - 23 Jun: Columbia, Lycoming, Venango, Warren, Westmoreland

***Diploperla duplicata* (Banks)** – 18 May - 2 Jun: Armstrong, Chester, Cumberland, Dauphin, Lycoming, Pike

***D. robusta* Stark & Gaufin** – 11 May - 25 Jun: Cambria, Erie, Lancaster

***Remenus bilobatus* (Needham & Claassen)** – 17 May - 19 Jul: Adams, Cambria, Centre, Chester, Fayette, Warren, Westmoreland

## Perlodini

*Helopicus subvarians* (Banks) – 28 Apr–19 May: Carbon, Dauphin, Huntingdon, Lycoming, Union

*Isogenoides hansonii* (Ricker) – 15 Apr - 10 May: Forest, Huntingdon, McKean, Monroe, Potter, Somerset, Warren

*Malirekus hastatus* (Banks) – [NEW RECORD] 8 May: Chester

*M. iroquois* Stark & Szczytko – 20 May - 16 Jun: Blair, Dauphin, Elk, Erie, Fayette, Pike, Warren, Wayne, Westmoreland

*Yugus bulbosus* (Frison) – 14 May - 11 Jun: Potter, Somerset, Westmoreland

## PTERONARCYIDAE

## Pteronarcyinae

## Pteronarcyini

*Pteronarcys biloba* Newman – 23 May - 6 Jun: Centre, Clinton, Huntingdon, Luzerne, Lycoming, McKean, Monroe, Pike, Potter, Tioga, Union, Warren, Westmoreland

*P. comstocki* Smith – nymphs only: Clinton, Huntingdon, Pike

*P. dorsata* (Say) – 12 Apr - 19 May: Allegheny, Crawford, Dauphin, Huntingdon, Philadelphia, Union, Wayne

*P. pictetii* Hagen – 20 May: Huntingdon, Philadelphia

*P. proteus* Newman – 6 May - 20 Jun: Berks, Centre, Clinton, Franklin, Lycoming, Monroe, Potter, Somerset, Sullivan, Susquehanna, Tioga, Warren, Westmoreland

Several species of *Isoperla* that have only a letter designation will be described by Stanley Szczytko. Baumann and Grubbs (1996) have recently described *Soyedina merritti* from Pennsylvania. Baumann (1996) described *Amphinemura appalachia* with the type locality in Pennsylvania.

Five species are being deleted from the Pennsylvania list. These species have been removed because they were misidentified or their known occurrence was well outside the range of Pennsylvania. These are *Paracapnia opis* (Newman) reported in Frison (1942), *Sweltsa mediana* (Banks) reported in Surdick and Kim (1976), *Amphinemura varshava* (Ricker) reported in Surdick and Kim (1976), *Isoperla mohri* Frison reported in Surdick and Kim (1976), *Pteronarcys scotti* Ricker reported in Robertson (1980) as *Allonarcys scotti*.

An additional 39 species that have been reported from the neighboring states of New York, Ohio, Maryland, West Virginia, and Ontario, Canada are listed as potentially occurring in Pennsylvania (Appendix 1).

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Voucher specimens will be deposited at the Smithsonian Institution, National Museum of Natural History, Washington, DC, and the C. P. Gillette Museum of Arthropod Diversity, Colorado State University, Fort Collins, CO.

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### Appendix 1

The following species of stoneflies are not on the Pennsylvania list. Because of their proximity of records and types of habitat, they may be found in Pennsylvania. I have included them so that future workers will be alert to their possible presence in the state.

#### CAPNIIDAE

*Allocapnia forbesi* Frison (OH, WV); *Allocapnia frumi* Kirchner (WV); *Allocapnia illinoensis* Frison (NY, OH, ON); *Allocapnia indianae* Ricker (NY, OH); *Allocapnia loshada* Ricker (WV); *Allocapnia minima* (Newport)(NY, ON); *Allocapnia mystica* Frison(OH, WV); *Allocapnia ohioensis* Ross & Ricker (NY, OH, WV); *Allocapnia smithi* Ross & Ricker (OH); *Capnia vernalis* (Newport) (OH, ON); *Capnura manitoba* Claassen (ON)

#### LEUCTRIDAE

*Leuctra biloba* Claassen (ON); *Leuctra rickeri* James (OH, WV); *Leuctra triloba* Claassen(NY); *Zealeuctra fraxina* Ricker & Ross (OH, WV)

#### NEMOURIDAE

*Nemoura trispinosa* Claassen (NY, OH, ON); *Shipsa rotunda* (Claassen) (MD, ON)

#### TAENIOPTERYGIDAE

*Oemopteryx glacialis* (Newport) (NY, ON); *Strophopteryx appalachia* Ricker & Ross (WV); *Taeniopteryx lonicera* Ricker & Ross (MD);

#### CHLOROPERLIDAE

*Alloperla banksi* Frison (NY, ON); *Alloperla ideii* (Ricker) (OH); *Alloperla nanina* Banks (NY); *Alloperla voinae* Ricker (NY) *Haploperla orpha* (Frison) (ON); *Sweltsa pocahontas* Kirchner & Kondratieff (WV)

#### PELTOPERLIDAE

*Peltoperla tarteri* Stark & Kondratieff (WV)

#### PERLIDAE

*Acroneuria internata* (Walker) (WV); *Perlesta adena* Stark (OH) (in PA but not confirmed); *Perlesta cinctipes* (Banks) (OH); *Neoperla gaufini* Stark & Baumann (OH); *Neoperla mainensis* Banks (OH, ON); *Claassenia sabulosa* (Banks) (ON)

#### PERLODIDAE

*Isogenoides frontalis* (Newman)(NY); *Isoperla burksi* Frison (OH, WV); *Isoperla cotta* Ricker (ON, WV); *Isoperla decepta* Frison (OH, ON); *Isoperla gibbsae* Harper (NY, WV); *Diploperla kanawholensis* Kirchner & Kondratieff (WV)