



UPDATES TO THE STONEFLY FAUNA OF ILLINOIS AND INDIANA

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ABSTRACT

In a first phase for reconstructing the stonefly fauna of the Midwest (Ohio, Indiana, Illinois, southern Ontario, Michigan, and Wisconsin) we present updates for the Illinois and Indiana stonefly fauna. Data presented here represent over 11,000 records from the Illinois Natural History Survey and several regional museums. We present three additions to the Illinois fauna, 13 to the Indiana fauna, remove *Amphinemura nigrita* (Provancher) from both state lists, and provide records for many other species. Illinois supports or supported at least 79 species, while the number for Indiana is 87. The two states share 70 species or 84% of the fauna between them. While Illinois has lost 20 species (25.3%), Indiana has lost 10 (11.5%), mostly from the Wabash and White River drainages. Till plain areas in northern Indiana have fared better than those in Illinois because surficial deposits are sand that promote high groundwater recharge. Areas of high diversity remaining in the two states are concentrated in the unglaciated southern landscapes.

Keywords: Plecoptera, stoneflies, Illinois, Indiana, extirpation, conservation

INTRODUCTION

Stoneflies are important indicators of water quality and landscape disturbance (Hilsenhoff 1987; Lenat 1993). They are among the first aquatic organisms to disappear when a watershed is disturbed by humans (Stewart & Stark 2002). The knowledge of which watersheds still support a native fauna is critical for government and non-governmental agencies to set conservation priorities. Knowing where species occurred historically allows water quality biologists to establish realistic expectations for a stream or river. Comparison of observed to expected values translates to a more comprehensive understanding of species losses and changing assemblage composition. This sort of information can be extracted from annotated

checklists such as presented here.

The stoneflies of the Midwest region of North America have received a great deal of attention in the 20th Century. We define the Midwest, for the purposes of this study, as the whole of Illinois, Indiana, Michigan, Ohio, and Wisconsin, plus the part of Ontario that drains to the Great Lakes. Major treatments of Illinois and regional fauna were first accomplished by Frison (1929; 1935; 1942). Ricker (1945) and Bednarik & McCafferty (1977) provided a basic understanding of the Indiana fauna. The fauna of Ohio has been only partially documented (Walker 1947; Gaufin 1956; Tkac 1979). Harper & Ricker (1994) provided a synopsis of the distribution of stoneflies in Ontario. Hilsenhoff and his students produced a foundation for the study of stoneflies in

Wisconsin (Hilsenhoff & Narf 1972; Hilsenhoff & Billmyer 1973). Because of these works, other smaller studies, and avid collecting by professionals and amateurs, large holdings of Plecoptera exist in museums of the Midwest.

We and other colleagues are currently involved in a US National Science Foundation grant to model the natural occurrence of all stonefly species in the Midwest. The resultant expectation can later be compared to contemporary collecting (observations) to produce range loss estimates for species in the region and to examine the role of species traits in predicting range loss. To this end, we have digitized all specimen data from museums in the Midwest, amounting to over 23,000 records and many times that in number of specimens. The specimens from Illinois and Indiana are in an advanced state of review, having been re-evaluated and their label data digitized.

Illinois historically supported 79 species (DeWalt et al. 2005, Grubbs 2005a, b). Species employing diapause are increasing in prevalence, while the proportion of non-diapausing species has dramatically diminished since the 1950s (DeWalt et al. 2005). Indiana streams currently supports or supported 87 species (Grubbs 2004, 2005a, b). No such study of their conservation status has yet been undertaken. The adjacency of the two states, our recent collecting efforts, and the accumulation of over 11,000 Illinois and Indiana specimen museum records argues for a last update of their fauna. Our objective here is to update the stonefly fauna of the two states and provide notes on each species distribution and conservation status.

METHODS

New sampling was conducted in regions of the two states where previous efforts were lacking, was insufficient, or where confirmation of the continued presence of species was sought. In Indiana, the northern half of the state had not been sufficiently sampled (Ricker 1945; Grubbs 2004). Efforts there concentrated in sandy streams where groundwater recharge provided clear, cool water that might still support the original fauna. In addition, visits to central Indiana state parks, including McCormick's Creek State Park, Turkey Run State Park, and Shades State Park, were made to determine if their unique

fauna was still intact. The Wabash River and the East and West Forks of the White River were visited frequently to determine if populations of several species persisted there.

In Illinois, many historic locations where large Perlidae were once abundant were revisited frequently. These included the main stem Kankakee, Rock, Mississippi and Wabash Rivers. The Driftless Area of northwestern Illinois was revisited to determine if *Allocapnia rickeri* Frison was indeed extirpated from there as suggested by Webb (2002). Additional sampling trips were made into the Illinoisan aged, glaciated landscapes of both states to improve our understanding of that poorly sampled area.

The majority of the several thousand Midwest specimens in regional museums had not been thoroughly examined in light of new revisions, species descriptions, and clarification of species boundaries that have taken place over the last 50 years. We borrowed material from 14 museums holding Midwest specimens. In addition, we re-examined all INHS specimens whose identity were in doubt and used data from the collection of the second author at Western Kentucky University (Table 1). Specimen records were entered in the Midwest Plecoptera Database, using DeWalt et al. (2010) as a source for nomenclature. Each vial or pin received a unique identifier to relate specimen data to specimens. A large number of pinned specimens were examined, some dating from prior to 1900. These were relaxed in a bell jar and care was taken to preserve eggs from females prior to clearing of terminalia in hot or cold 10% KOH. After clearing, specimens were rinsed in dilute acetic acid, then in water before examination. Terminalia were pinned under the specimen in genitalia vials with glycerin. Clearing of alcohol preserved material was conducted in the same manner, with the terminalia stored in a genitalia capsule in 80% EtOH in the main vial. Most specimen vials from regional museums received new stoppers and alcohol.

Due to the sheer number of records, we did not provide a complete accounting of all specimens examined. However, we have provided at least one new record for each state and county where a species had not been previously reported. Additional specimen data are provided for species where

Table 1. Specimen origin, institutional coden, number of specimen records, and number of specimens examined.

Institution	Coden	#Records	Specimens
Brigham Young University	BYU	24	94
Canadian National Collection	CNC	376	2,002
Cincinnati Museum of Natural History	CINC	1	25
Eastern Illinois University	EIU	8	52
Field Museum Natural History, Chicago	FMNH	39	99
Illinois Natural History Survey	INHS	7839	55,225
Michigan State University	MSUC	18	62
Notre Dame University	UND	29	120
Ohio Biological Survey	OBS	10	72
Ohio State University	OSUC	11	76
Purdue University	PERC	1558	10,672
Royal Ontario Museum	ROM	2	2
Southern Illinois University Carbondale	SIUC	248	1554
University of Guelph	DEBU	1	3
University of Michigan	UMC	3	4
Western Kentucky University	WKU	1198	3399
Total		11,365	73,461

presence was confirmed when it was in doubt. Locality data presented are interpreted from label data, often with value added through georeferencing. Inferred data are contained in brackets. All specimen data are presented with the coden of the institution from which it came (Table 1). Readers may request additional specimen data from the authors.

RESULTS AND DISCUSSION

The total number of specimen records investigated for the two states was 11,365, amounting to 73,461 individual specimens (Table 1). The INHS provided 7,839 specimen records, while regional museums and the WKU collection combined contributed 3,526 records. These data present a tremendous resource for future analyses of distributions and species range changes.

A total of 98 species combined are now known from the two states (Table 2). Illinois now has 79

species, while Indiana has 87. In Indiana, 13 species are either new records or have been confirmed from museum material for the first time. Three new Illinois state records are presented and *Amphinemura nigritta* (Provancher) has been removed from the list for both states. Illinois and Indiana share 70 species, leading to a Sørensen coefficient of similarity of 84%.

There is ample evidence for the Illinois assemblage that 18 species have been extirpated and two endemics extinguished (25.3% loss; DeWalt et al. 2005). Much of this loss occurred in the till plain, a region that was nearly completely converted to agriculture. The channelizing of streams, removal of native riparian vegetation, and tiling of fields have extensively modified the habitat, hydrology, and hydraulics of streams in the region. The patterns of extirpation and range loss in Indiana, however, are somewhat different from that which occurred in Illinois. First, the severity of loss is much diminished

with only 10 species being extirpated (11.5% loss; Table 2). Most of these species were lost from the south-central unglaciated region or from nearby Illinoisan age glacial till plain in the largest river system draining interior Indiana, the White and lower Wabash River.

Table 2. Plecoptera of Illinois and Indiana with notes on distribution, habitat, and conservation status.

Capniidae	Illinois	Indiana
<i>Allocapnia forbesi</i> Frison	unglaciated south	unglaciated south
<i>Allocapnia granulata</i> (Claassen)	statewide except, southern third	statewide
<i>Allocapnia illinoensis</i> Frison	SE, extirpated	SW & NE
<i>Allocapnia indianae</i> Ricker		unglaciated south
<i>Allocapnia mystica</i> Frison	unglaciated south	unglaciated south
<i>Allocapnia nivicola</i> (Fitch)	east-central	unglaciated south
<i>Allocapnia ohioensis</i> Ross & Ricker		unglaciated south
<i>Allocapnia recta</i> (Claassen)	glaciated east-central	absent northern 1/3
<i>Allocapnia rickeri</i> Frison	unglaciated south	unglaciated south
<i>Allocapnia smithi</i> Ross & Ricker	unglaciated south, extirpated	unglaciated south
<i>Allocapnia vivipara</i> (Claassen)	statewide	statewide
<i>Nemocapnia carolina</i> Banks	Wabash R, extirpated	Wabash and White R, extirpated
<i>Paracapnia angulata</i> Hanson	N disjunct pop., extirpated	
Leuctridae		
<i>Leuctra alta</i> James	unglaciated south	unglaciated south
<i>Leuctra rickeri</i> James	unglaciated south	unglaciated south
<i>Leuctra sibleyi</i> Claassen	unglaciated south	unglaciated south
<i>Leuctra tenuis</i> (Pictet)	glaciated east-central	glaciated central, unglaciated south
<i>Paraleuctra sara</i> (Claassen)		glaciated central, unglaciated south
<i>Zealeuctra claasseni</i> (Frison)	unglaciated south	glaciated central, unglaciated south
<i>Zealeuctra fraxina</i> Ricker & Ross	unglaciated south	unglaciated south
<i>Zealeuctra narfi</i> Ricker & Ross	unglaciated south	
Nemouridae		
<i>Amphinemura delosa</i> (Ricker)	statewide	statewide
<i>Amphinemura varshava</i> (Ricker)	statewide	statewide
<i>Nemoura trispinosa</i> Claassen	N, NW Driftless Area	
<i>Ostrocerca truncata</i> (Walker)		unglaciated south
<i>Prostoia completa</i> (Walker)	SW, single populations, IL threatened	statewide, scattered
<i>Prostoia similis</i> (Hagen)	SE, Lusk Cr., Pope Co.	statewide, scattered
<i>Shipsa rotunda</i> (Claassen)	NW Driftless, Apple R.	
<i>Soyedina vallicularia</i> (Wu)	glaciated east-central	glaciated central, unglaciated south
Taeniopterygidae		
<i>Strophopteryx fasciata</i> (Burmeister)	Shawnee Hills, east-central, N	statewide

<i>Taeniopteryx burksi</i> Ricker & Ross	statewide	statewide
<i>Taeniopteryx lita</i> Frison	unglaciaded south, large rivers	unglaciaded south in large rivers
<i>Taeniopteryx maura</i> (Pictet)		extreme south
<i>Taeniopteryx metequi</i> Ricker & Ross	unglaciaded south	unglaciaded south
<i>Taeniopteryx nivalis</i> (Fitch)	N	N
<i>Taeniopteryx parvula</i> Banks	N, extirpated	unglaciaded south, extirpated?
Chloroperlidae		
<i>Alloperla caudata</i> Frison	unglaciaded south	unglaciaded south
<i>Alloperla hamata</i> Surdick		extreme south
<i>Alloperla roberti</i> Surdick	NW, extinct	
<i>Haploperla brevis</i> (Banks)	glaciaded east-central, unglaciaded south	glaciaded central, unglaciaded south
<i>Sweltsa hoffmani</i> Kondratieff & Kirchner		glaciaded central, unglaciaded south
Perlidae (Acroneurinae)		
<i>Acroneuria abnormis</i> (Newman)	N	N, central
<i>Acroneuria covelli</i> Grubbs & Stark		extreme south
<i>Acroneuria evoluta</i> Klapalek	southern 2/3 in large rivers	southern 2/3 in large rivers
<i>Acroneuria filicis</i> Frison	glaciaded east-central, Shawnee Hills	central and unglaciaded south, extirpated?
<i>Acroneuria frisoni</i> Stark & Baumann	glaciaded east-central, unglaciaded south	central and unglaciaded south
<i>Acroneuria hitchcocki</i> Kondratieff & Kirchner		SW, single location
<i>Acroneuria internata</i> (Walker)	glaciaded east-central, extirpated	N and extreme south
<i>Acroneuria perplexa</i> Frison	unglaciaded south, large rivers, extirpated	unglaciaded south, large rivers
<i>Attaneuria ruralis</i> (Hagen)	statewide, larger streams, extirpated	central, larger streams, extirpated
<i>Perlesta adena</i> Stark		unglaciaded south
<i>Perlesta cinctipes</i> (Banks)	W, single location	unglaciaded south
<i>Perlesta decipiens</i> (Walsh)	statewide	statewide
<i>Perlesta golconda</i> DeWalt & Stark	statewide, mature rivers	statewide, mature rivers
<i>Perlesta lagoi</i> Stark/P. nitida Banks	statewide	statewide
<i>Perlesta ouabache</i> Grubbs & DeWalt		glaciaded central, unglaciaded south
<i>Perlesta shawnee</i> Grubbs & Stark	unglaciaded south	unglaciaded south
<i>Perlesta shubuta</i> Stark	statewide, often sand rivers	statewide, often sand rivers
<i>Perlesta teaysia</i> Kondratieff & Kirchner	glaciaded east-central, single location	glaciaded central, unglaciaded south
<i>Perlesta xube</i> Stark & Rhodes	Statewide	
<i>Perlinella drymo</i> (Newman)	statewide	statewide
<i>Perlinella ephyre</i> (Newman)	statewide	statewide
Perlidae (Perlinae)		
<i>Agnentina annulipes</i> (Hagen)		extreme south
<i>Agnentina capitata</i> (Pictet)	glaciaded east-central, N	glaciaded N, extirpated?
<i>Agnentina flavescens</i> (Walsh)	glaciaded east-central, N, extirpated	glaciaded N, unglaciaded south
<i>Neoperla catharae</i> Stark & Baumann	glaciaded east-central, unglaciaded south	glaciaded central, unglaciaded south
<i>Neoperla clymene</i> (Newman)	statewide, larger streams	glaciaded central, unglaciaded south
<i>Neoperla coosa</i> Stark & Smith		extreme south

<i>Neoperla gaufini</i> Stark & Baumann		glaciated south
<i>Neoperla harpi</i> Ernst & Stewart	Shawnee Hills	
<i>Neoperla mainensis</i> Banks	glaciated east-central, extirpated	
<i>Neoperla occipitalis</i> (Pictet)	glaciated east-central, extirpated	glaciated west-central, extirpated
<i>Neoperla osage</i> Stark & Lentz		unglaciated south
<i>Neoperla robisoni</i> Poulton & Stewart	glaciated east-central, extirpated	glaciated west-central, unglaciated south, extirpated
<i>Neoperla stewarti</i> Stark & Baumann	glaciated east-central, extirpated	glaciated west-central, unglaciated south
<i>Paragnetina kansensis</i> (Banks)	unglaciated south, larger rivers, extirpated	unglaciated SW, White River, extirpated
<i>Paragnetina media</i> (Walker)	NW, extirpated	N
Perlodidae (Isoperlinae)		
<i>Clioperla clio</i> (Newman)	statewide, small streams	glaciated central, unglaciated south
<i>Isoperla bilineata</i> (Say)	statewide	statewide
<i>Isoperla burksi</i> Frison	Shawnee Hills	unglaciated south
<i>Isoperla conspicua</i> Frison	NW, extinct	
<i>Isoperla decepta</i> Frison	unglaciated south	unglaciated south
<i>Isoperla dicala</i> Frison		N
<i>Isoperla frisoni</i> Illies		N
<i>Isoperla longiseta</i> Banks	W, SW, extirpated	
<i>Isoperla marlynia</i> (Needham & Claassen)	NW	unglaciated south, large rivers, extirpated
<i>Isoperla mohri</i> Frison	unglaciated south	
<i>Isoperla montana</i> (Banks)		glaciated central
<i>Isoperla nana</i> (Walsh)	statewide	statewide
<i>Isoperla namata</i> Frison	far W	unglaciated south
<i>Isoperla richardsoni</i> Frison	N, extirpated	unglaciated south, large rivers, extirpated
Perlodidae (Perlodinae)		
<i>Diploperla robusta</i> Stark & Gaufin	glaciated east-central, single location, state threatened	unglaciated south
<i>Helopicus nalatus</i> (Frison)	Shawnee Hills	extreme south
<i>Hydroperla crosbyi</i> (Needham & Claassen)	glaciated central and unglaciated south	glaciated central and unglaciated south
<i>Hydroperla fugitans</i> (Needham & Claassen)	glaciated central and unglaciated south	glaciated central and unglaciated south
<i>Isogenoides varians</i> (Walsh)	extreme south, largest rivers, extirpated	Wabash and White R
Pteronarcyidae		
<i>Pteronarcys pictetii</i> Hagen	statewide	statewide
<i>Pteronarcys dorsata</i> (Say)		N
Total	79	87
Extirpated(%)	18(25.3)	10(11.5)
Extinct	2	0
State Threatened	2	0
Remaining	59	77

Almost identical to the Illinois situation was the loss of species with particular life history traits, namely those with long life cycles (nymphal growth of 11 or 23 mos.) that lack diapause. Species lost in Indiana with these traits included several large bodied perlids and perlodids: *Acroneuria filicis* Frison, *Attaneuria ruralis* (Hagen), *Agnatina capitata* (Pictet), *Neoperla occipitalis* (Pictet), *Neoperla robisoni* Poulton & Stewart, *Paragnetina kansensis* (Banks), *Isoperla marlynia* (Needham & Claassen), and *Isoperla richardsoni* Frison. In addition, two euholognathan stoneflies whose life histories are unknown (Stewart & Stark 2002) have also been lost: *Nemocapnia carolina* Banks and *Taeniopteryx parvula* Banks. Both have been extirpated from the Wabash and White River main stems and the latter's East and West Forks.

There have been a number of range reductions in Indiana, with species being lost mainly from the upper Wabash River drainage. The Wabash River around Lafayette supported at least eight species of long-lived perlids until the 1950's. There were probably continuous populations of these species far downstream of Lafayette—all appear to have been lost to as far downstream as New Harmony, Indiana. Some of these species may still exist in the East Fork of the White River to the south or in the Kankakee, Tippecanoe, St. Joseph, or Pigeon Rivers to the north. These two regions have high groundwater recharge due to a karst landscape or sand surficial deposits, respectively. One extraordinary area in northeastern Indiana, where till, lake, and drift plain landforms meet, still support populations of *Allocaupnia illinoensis* Frison and *Acroneuria frisoni* Stark & Brown, both disjunct from other populations by at least 200 km. Other extraordinarily rich areas are the East Fork of the White River near Shoals and the Blue River near White Cloud, both in the unglaciated south.

Two medium-sized rivers appear to have provided dispersal corridors from unglaciated southern Indiana westward into till plain habitat. Sugar Creek and Big Walnut Creek both drain west near Crawfordsville. Both systems have carved deep ravines along which are found relict eastern hemlock and white pine stands. Upland, headwater streams dissecting the ravines hold several Appalachian stonefly relicts, namely *A. illinoensis*, *Paraleuctra sara* (Claassen), *Leuctra tenuis* (Pictet), *Soyedina vallicularia* (Wu), *Sweltsa hoffmani* Kondratieff & Kirchner,

Perlesta teaysia Kirchner & Kondratieff, *Isoperla montana* (Banks), and *Diploperla robusta* Stark & Gaufin. These and *Ostrocerca truncata* (Claassen), found further south and east in the state, likely represent remnant populations that were much more widely distributed before the region became warmer and drier during the hypsithermal interval (Pielou 1992).

There are few areas of either state that require additional work to document the fauna. Additional discoveries may be made from streams along the Illinois/Wisconsin border where some long-lived, large bodied perlids and perlodids may be rediscovered. In Indiana and Illinois, adults or nymphs of *Isogenoides varians* (Walsh) might be collected from the Mississippi or upper Wabash Rivers. Additional species might be recovered from the Blue River in southern Indiana. Streams along the Indiana/Michigan border might yield a few larger species as well.

Updates for Illinois and Indiana species are presented below as significant records.

Significant records

Family CAPNIIDAE

Allocaupnia illinoensis Frison. Frison (1935) described this species from a disjunct population in Clark County in southeastern Illinois. Otherwise, the bulk of its distribution occurs in the upper Great Lakes region, eastern Canada, and from scattered locations in the Appalachian Mountains (Ross & Ricker 1971, DeWalt et al. 2010). Despite numerous attempts to recollect the species from and near the type locality, no new specimens have been found. Consequently, Webb (2002) and DeWalt et al. (2005) have listed it as extirpated from Illinois. Grubbs (2004) stated that although Finni (1973), Bednarik & McCafferty (1977), and Stewart & Stark (2002) each listed *A. illinoensis* from Indiana, no specific literature records or museum specimens had been found. We present one population from northeastern Indiana and a second from central Indiana ca. 90 km northeast of the type locality. **IN, Putnam Co.**, Tributary Big Walnut Creek, Hall Woods Nature Preserve, 4 km E Bainbridge, 39.7608, -86.7837, 4/20/2008, R.E. DeWalt, S.K. Ferguson, ♀ (INHS); **Steuben Co.**, Tributary Lake Lonidaw, 10 km NNW Angola, Potawatomi

State Park, Potawatomi Nature Preserve, 41.7091, -85.0150, 3/10/2006, R.E. DeWalt, 6♂, 4♀ (INHS); same location, 3/9/2008, R.E. DeWalt, D.W. Webb, 5♂, 2♀ (INHS).

Allocaupnia rickeri Frison. This species is distributed throughout much of eastern North America and west into the Ozark Mountains (Ross & Ricker 1971; Poulton & Stewart 1991). A paratype locality is in the Apple River drainage in the unglaciated Driftless Area of northwestern Illinois (Frison 1929). Webb (2002) was unable to recollect this species from the Apple River drainage in his reassessment of the winter stoneflies of Illinois. We present two new localities for the region. **IL, Jo Daviess Co.**, Apple River, 7 km SW Millville at E Townsend Rd., 42.40481, -90.11692, 3/20/2009, R.E. DeWalt, 10♂, 5♀ (INHS); 2.5 km W Elizabeth at US-20, 42.31888, -90.25408, 3/20/2009, R.E. DeWalt, 8♂, 3♀ (INHS).

Nemocapnia carolina Banks. This species exhibits a coastal distribution in eastern North America, recorded mainly from Arkansas and Mississippi east to Florida and then north to Virginia and Quebec (Frison 1935; DeWalt et al. 2010). The INHS collection has five historical records, one from Illinois on the Wabash River at Grayville (opposite Indiana) and four Indiana records from the East Fork White River at Rogers and Shoals. Numerous attempts by Webb (2002), Grubbs (2004), and recently by the authors have not resulted in new specimens. DeWalt et al. (2005) list this species as extirpated from Illinois, which is a similarly-likely scenario for Indiana.

Family LEUCTRIDAE

Leuctra tenuis (Pictet). This species is widely distributed across eastern North America (DeWalt et al. 2010) and has been reported from ravine streams in eastern Illinois (DeWalt 2002) and Trout Park near Elgin, in Kane County of northern Illinois (Frison 1935). It has since been extirpated from the latter location (DeWalt et al. 2005). Grubbs (2004) reported this species from southern Indiana near the Ohio River in Harrison County, Indiana. We have recently collected this species from several ravine streams in central Indiana. The range of this species in Indiana is probably broader, but its late summer to autumn emergence has likely precluded a more

comprehensive understanding of its statewide distribution. **IN, Montgomery Co.**, Mill Creek, 8 km N Waveland, Pine Hills Nature Preserve, 39.9421, -87.0503, 8/5/2006, R.E. DeWalt, 3♂, 4♀ (reared) (INHS); Tributary Sugar Creek, 6 km SSE Alamo, Pearl Ravine on Trail 2, Shades State Park, 39.945, -87.0912, 8/5/2006, R.E. DeWalt, 6♂, 4♀ (reared) (INHS); **Parke Co.**, Tributary Sugar Creek, 5 km NNW Marshall, Newby Gulch, Turkey Run State Park, 39.8882, -87.1998, 8/5/2006, R.E. DeWalt, ♂, ♀ (reared) (INHS).

Paraleuctra sara (Claassen). This Appalachian species is widely distributed in coolwater streams from Nova Scotia south to Alabama and westward to Indiana and Kentucky (DeWalt et al. 2010), but it has not been recorded from Illinois. Frison (1942) first recorded it in Indiana from Newby Gulch of Turkey Run State Park, Parke County, and later Grubbs (2004) presented a new record from Crawford County. We present an additional record for central Indiana. **IN, Montgomery Co.**, tributary to Sugar Creek, N of Shades State Park, along IN 234, 39.9484, -87.0583, 5/4/2008, R.E. DeWalt, ♂, ♀ (INHS).

Family NEMOURIDAE

Amphinemura nigritta (Provancher). This widespread eastern Nearctic species was considered extirpated from the Shawnee Hills region of southern Illinois (DeWalt et al. 2005). The sole record of *A. nigritta* from Illinois was collected in 1932 from Massac County (Ricker 1952). These specimens have been missing from the INHS collection for decades, but were located in the Canadian National Collection as part of the W. E. Ricker collection. Many other INHS vials were found there as well. We have re-evaluated these specimens and find them to be *A. varshava* (Ricker). Although several papers report this species from Indiana (e.g. Grubbs 2004), extensive collecting across the state and examination of all important museum holdings (Table 1) has failed to produce either recent or historical material. Removal of this species from both state's lists seems justified.

Prostoia completa (Walker). The distribution of this species encompasses the Ozark Mountains eastward to the Atlantic Coast and north to the Canadian Maritime Provinces (DeWalt et al. 2010). Previously,

it was known from only single location in southwestern Illinois (Webb 2002). DeWalt et al. (2005) suggested this species was imperiled in Illinois and it was recently listed as “endangered” in the state (Illinois Endangered Species Protection Board 2009). A new Illinois record and several new locations for Indiana are provided. **IL, Union Co.**, Hutchins Creek, 4 km NE Wolf Lake, 37.51135, -89.37743, 3/23/2002, R.E. DeWalt, S.K. Ferguson, 5♂, 3♀, N (INHS); **IN, Crawford Co.**, Mitchell Creek, 3.5 km SW Eckerty, 38.3006, -86.6599, 3/23/2006, R.E. DeWalt, S.A. Grubbs, ♂ (INHS); **Elkhart Co.**, Little Elkhart River, Bristol at canoe livery, 41.7231, -85.8109, 3/9/2006, R.E. DeWalt, ♀, N (INHS); **Franklin Co.**, West Fork Whitewater River, W of Metamora at US-52 Bridge, 39.45058, -85.14954, 3/7/2007, R.E. DeWalt, ♀ (INHS); **Lawrence Co.**, Leatherwood Creek, 5.5 km NE Bedford, 38.8992, -86.4133, 2/23/2006, R.E. DeWalt, 15♂ (INHS); **Orange Co.**, Patoka River, 1 km NE Valeene. 38.4448, -86.3870, 3/24/2006, R.E. DeWalt, S.A. Grubbs, ♂ (INHS); **Pulaski Co.**, Tippecanoe River, Winamac, Winamac City Park, 41.0555, -86.5994, 3/8/2006, R.E. DeWalt, ♂ (INHS).

Prostoia similis (Hagen). This species is known from all states adjacent to Illinois except Iowa (Heimdal et al. 2004; DeWalt et al. 2010), but had never been recorded from Illinois. Examination of INHS material revealed the first Illinois record for this species. **IL, Pope Co.**, Lusk Creek, 5.5 km WSW Herod, 37.56775, -88.49938, 4/19/1994, D.W. Webb, 15♀ (INHS).

Family CHLOROPERLIDAE

Sweltsa hoffmani Kondratieff & Kirchner. Grubbs (2004) reported a single population of *Sweltsa onkos* (Ricker) from Yellow Birch Ravine Nature Preserve in Crawford County, Indiana. Several populations of *Sweltsa* have since been found in ravine streams extending westward to within ca. 60 km of the Illinois border. Kondratieff & Kirchner (2009) recently described a new species, *S. hoffmani*, whose distribution is mainly in unglaciated landscapes to the south and west of *S. onkos*. Although most of our Indiana *Sweltsa* specimens are nymphs and females, several males have been identified as *S. hoffmani* and we feel confident that *S. onkos* does not occur in

Indiana. **IN, Monroe Co.**, Tributary Clear Creek, Cedar Bluff Nature Preserve, 39.0364, -86.5636, 3/24/2006, R.E. DeWalt, S.A. Grubbs, ♀ (reared), N (INHS); **Morgan Co.**, Stream at jct. IN-39 & 142, 5 mi. S. Monrovia, 39.50719, -86.45596, 4/11/1975, A.V. Provonsha, L. Dersch, 2N (PERC); **Parke Co.**, Rocky Hollow Creek, 6 km NNW Marshall, Turkey Run State Park, Rocky Hollow Falls Canyon Nature Preserve, 39.8952, -87.1990, 4/9/2006, R.E. DeWalt, 3N (INHS); same but 5/7/2006, 2♀ (reared), 3 exuviae (INHS); **Putnam Co.**, Tributary to Big Walnut Creek, 3 km ESE Bainbridge, Hall Woods Nature Preserve, 4/30/2007, R.E. DeWalt, ♂ (reared) (INHS); same location, 4/20/2008, R.E. DeWalt, S.K. Ferguson, 4N (INHS); **Ripley Co.**, Tributary Laughery Creek, 2 km E Versailles, U.S. 50/Rte. 129, 5/11/2003, S.A. Grubbs, 2♀ (WKU).

Family PERLIDAE (Subfamily ACRONEURIINAE)

Acroneuria frisoni Stark & Brown. This is the most frequently collected *Acroneuria* in the southern Midwest. It is known from the western Ozark Mountains through Maryland, north to Ontario and south to North Carolina (Chabot 2010). Although this species once inhabited streams in the till plain of north central Indiana and Illinois (Grubbs 2004, DeWalt et al. 2005), there are no recent records from this region. We have since located one population in northeastern Indiana at the till plain/drift plain boundary. **IN, Steuben Co.**, Fish Creek, 3.7 km E Hamilton along CR 775S, Douglas Woods Nature Preserve, 41.5327, -84.8688, 6/23/2006, R.E. DeWalt, 3♂, ♀ (INHS).

Acroneuria hitchcocki Kondratieff & Kirchner. This species is presently known only from the Outer Bluegrass region of eastern Kentucky (Kondratieff & Kirchner 1988). The identity of three adults from southeastern Indiana was confirmed by B.C. Kondratieff. **IN, Fayette Co.**, [West Fork Whitewater River], 2 mi W Everton at Boys Club Camp, [39.54717, -85.17018], 6/8/1987, D. E. Bowles, UV-light, 2♂, ♀ (BYU).

Acroneuria internata (Walker). This species is known from Oklahoma east to Virginia and north to the Great Lakes Region (DeWalt et al. 2010). Frison (1935) reported it from several locations in Illinois,

ranging from small to large rivers. DeWalt et al. (2005) has since been listed as extirpated from Illinois. Grubbs (2004) reported it from central and southern Indiana. Recently, we have collected and viewed museum specimens from several locations in northern Indiana. **IN, Elkhart Co.**, Elkhart River, Bainter Town, River Preserve County Park, 41.4176, -85.8133, 3/9/2006, R.E. DeWalt, 3N (INHS); St. Joseph River, Bristol at Congdon Park, 41.7230, -85.8167, 5/31/2006, R.E. DeWalt, S.K. Ferguson, ♂ (reared) (INHS); **LaGrange Co.**, Pigeon River, at Ontario, Co. Rd. 225E, 41.7070, -85.3835, 7/10/2005, R.E. DeWalt, 12 exuviae (INHS); **Owen Co.**, McCormick's Creek near Spencer, Indiana, 5/15/1949, W.E. Ricker, 2N (CNC).

Acroneuria perplexa Frison. This species has been reported from Oklahoma east to West Virginia (Stark 2004). Most historical records from Illinois, with the exception of one collection from the Sangamon River, are from the Ohio River. DeWalt et al. (2005) listed it as extirpated from the state. Grubbs (2004) presented records from several counties in Indiana, represented only by specimens collected prior to 1950. Examination of museum and new material indicate a broader distribution and confirm its continued presence in Indiana. **IL, Wabash Co.**, Mt. Carmel, 6/17/1947, B.D. Burks, M.W. Sanderson, ♂, ♀ (CNC); **IN, Brown Co.**, Yellowwood Lake, [39.18118, -86.35254], 6/26-30/1946, E. Mockford, 4♂ (CNC); **Dubois Co.**, [16 km NNE Birdseye], SIPAC (Southern Indiana-Purdue Agricultural Center), [38.45634, -86.68852], 6/12/2005, light trap, ♂, ♀ (PERC); **Lawrence Co.**, FPAC (Felden Purdue Agricultural Center), [2.2 km NNE Eureka], [38.89544, -86.55705], 6/26/2005, light trap, ♂ (PERC); **Martin Co.**, East Fork White River, 0.5 km SSW Shoals, 38.659, -86.8023, 6/20/2006, R.E. DeWalt, 49♂, ♀ (INHS); [East Fork] White River at Hindostan Falls Public Fishing Site, [38.62196, -86.8479], 6/20-21/1974, A.V. Provonsha, L. Dersch, 5♂ (PERC); **Shelby Co.**, Shelbyville, 6/22/1962, Freeman, Lewis, ♂ (CNC).

Perlesta cinctipes (Banks). Stark (2004) presented the distribution of this species as from Nebraska and Kansas east to West Virginia. DeWalt et al. (2001) reported a single female from western Illinois having the distinctive egg chorion reported in Stark (1989),

Recently, Stark (2004) reported specimens from southern Ohio. Grubbs (2004) lists this species as extralimital to Indiana, suggesting that it could eventually be collected from the state. We are not convinced that Stark's (2004) records for Ohio are correct. There appears to be at least one additional species from the region resembling *P. cinctipes* that possesses similar dark coloration and paraprocts. We have yet to collect females with the unique egg chorion of *P. cinctipes* and Stark (2004) did not report females in his Ohio series. All the females collected in association with our specimens have the subgenital plate and egg chorion similar to *P. adena*. We present several records of a second dark winged, dark bodied species found in Indiana. **IL, Jackson Co.** 6/1/1955, ♂ (SIUC); **IN, Harrison Co.**, Big Blue River, White Cloud, [38.23464, -86.22716], 5/25/1949, W.E. Ricker, ♂ (CNC); **Jackson Co.**, Little Salt Creek, Houston, Hoosier National Forest, 39.0342, -86.16788, 6/22/2008, R.E. DeWalt, ♂ (INHS).

Perlesta decipiens (Walsh). This variable species is common in larger, warmwater streams from Colorado and Wyoming east to Pennsylvania (Stark 2004). It is widely distributed and often abundant in Illinois streams (DeWalt et al. 2001). Only a few specimens have been reported for Indiana (Grubbs 2004). We present several records that indicate this species is similarly broadly-distributed in Indiana. **IN, Allen Co.**, Fort Wayne, [41.131, -85.129], 6/21/1921, ♂ (PERC); **Benton Co.**, Sugar Creek, 7 mi E Milford, 7/5-12/1961, C. Moye, ♂ (INHS); **Carroll Co.**, 6/1946, ♂, ♀ (PERC); **Cass Co.**, Eel River, 1 km NE Adamsboro, 40.7971, -86.2571, 5/24/2006, R.E. DeWalt, 8♂ (INHS); **Dubois Co.**, Southern Indiana-Purdue Agricultural Center, [38.45634, -86.68852], light trap, 6/27/2005, 2♂, ♀ (PERC); **Elkhart Co.**, St. Joseph River, Bristol, Congdon Park, 41.723, -85.8167, 5/24/2006, R.E. DeWalt, 9♂ (INHS); **Franklin Co.**, West Fork Whitewater River, 1.4 km W Metamora at US-52, 39.44972, -85.13944, 6/22/2006, R.E. DeWalt, 2♂, 6♀ (INHS); **Johnson Co.**, Big Blue River, Edinburg at IN-252 and Thompson Mill, 39.3555, -85.9772, 6/21/2006, R.E. DeWalt, 4♂, 12♀ (INHS); **Lawrence Co.**, Leatherwood Creek, 5.5 km NE Bedford, 38.8992, -86.4133, 06/20/2010, R.E. DeWalt, M. Pessino, ♂ (INHS); **Martin Co.**, East Fork White River, 0.5 km SSW Shoals, 38.6590, -86.8023,

6/20/2006, R.E. DeWalt, 5♂, 12♀ (INHS); **Parke Co.**, Sugar Creek, 10 km NE Marshall at High Bridge Rd, 39.9307, -87.1261, 6/21/2005, R.E. DeWalt, 23♂, 15♀ (INHS); **Pulaski Co.**, Tippecanoe River, 8 km NNE Winamac, Tippecanoe State Park, 41.1316, -86.5881, 7/8/2006, R.E. DeWalt, 16♂, 5♀ (INHS); **Randolph Co.**, Davis Purdue Agricultural Center Forest, light trap, [40.25209, -85.14797], 6/24/2005, 2♂, ♀ (PERC); **Starke Co.**, Kankakee River, 0.25 km N English Lake, Yellow and Kankakee Rivers FWMA, 41.2721, -86.8246, 6/27/2006, R.E. DeWalt, ♂ (INHS); **Tippecanoe Co.**, [Wabash River], Lafayette, [40.42016, -86.89705], UV light 7/8/1993, N.D. Downie, 2♂, ♀ (PERC).

Perlesta golconda DeWalt & Stark. This riverine species was described from the southern tip of Illinois and is found statewide (DeWalt et al. 1998, 2001), and has since been reported from neighboring Iowa (Heimdal et al. 2004), Missouri (Stark 2004), and Nebraska (DeWalt et al. 2001). Grubbs (2004) discussed this species as a possible addition to the Indiana fauna. We present three historical records for Indiana. **IN, Elkhart Co.**, St. Joseph River, near Bristol, [41.7219, -85.8176], 7/4/1947, E. Mockford, ♂ (CNC); **Greene Co.**, 7/11/1901, ♂ (PERC); **Lawrence Co.**, Bedford, [38.861, -86.487], 7/6/1928, L.F. Steiner, ♂ (PERC).

Perlesta lagoi Stark/ *P. nitida* Banks. The descriptions and illustrations provided by Stark (1989) and Grubbs & Stark (2001) appear identical, suggesting there is one widespread species ranging from Mississippi northeast to Connecticut. Settling this taxonomic question will require specimens from several locations throughout this region and from the type localities of each species. We are currently examining the species boundaries of all *Perlesta* in the Midwest using both morphological and molecular characters. DeWalt et al. (2001), using the name *P. lagoi*, found this species to be widespread across Illinois. Grubbs & Stark (2001) presented a record for Ohio using *P. nitida* and Grubbs (2004) reported *P. nitida* from three Indiana counties. We present several new records that are identified as either *P. lagoi* or *P. nitida*. **IL, Cook Co.**, Chicago, [41.8500, -87.6500], 7/1903, W.J. Gerhard, ♂ (FMNH); [DesPlaines River], River Grove (a.k.a. Glendon

Park), [41.92925, -87.84516], 6/21/1903, W.J. Gerhard, ♂ (FMNH); **IN, Brown Co.**, Yellowwood Lake, [39.18118, -86.35254], 6/25/1946, E. Mockford, 2♂, ♀ (CNC); **Dearborn Co.**, West Fork Tanner Creek, 4 km W Guilford, 6/6/2009, S.A. Grubbs, 4♂, 4♀ (WKU); **Decatur Co.**, Clifty Creek, CR 100N, Milford, 6/6/2009, S.A. Grubbs, 3♂, 1♀ (WKU); **Dubois Co.**, Southern Indiana-Purdue Agricultural Center, [38.45634, -86.68852], 6/11/1959, ♂ (PERC); **LaPorte Co.**, Trail Creek, Michigan City, [41.7237, -86.8719], 6/21/1957, J. Lowe, ♂ (CNC); **Lawrence Co.**, 6/19/1937, ♂ (PERC); Bedford, [38.8611, -86.487722], 7/6/1928, L.F. Steiner, ♂, ♀ (PERC); **Martin Co.**, East Fork White River, Shoals, [38.6673, -86.7926], 7/2/1974, A.V. Provonsha, L. Dersch, M. Lick, 2♂ (PERC); **Monroe Co.**, Bloomington, [39.16528, -86.52639], 6/20/1944, Naugle, ♂ (CNC); **Montgomery Co.**, Waveland, [39.88092, -87.04536], 6/10/1959, N. Wilson, R. Mumford, ♂ (PERC); **Newton Co.**, Conrad Savanna, [0.8 km NE Conrad], [41.1073, -87.4373], 7/8/1998, E. Metzler, Black Light, 10♂, 14♀ (OBS); **Owen Co.**, Raccoon Creek, 3 km NW Freeman, Green's Bluff Nature Preserve, 6/8-11/2006, S.A. Grubbs, 2♂, 3♀, 8N (reared) (WKU); **Pulaski Co.**, 7/16/1947, ♀ (PERC); **Tippecanoe Co.**, Wildcat Creek nr Lafayette, [40.45403, -86.85168], at light, 7/21/1976, M. Minno, ♀ (PERC); **Washington Co.**, Middle Fork Blue River, 4 mi S. Salem at Hwy 135, 6/21/1972, W.P. McCafferty, A.V. Provonsha, E. Levine, M. Minno, ♂ (PERC).

Perlesta ouabache Grubbs & DeWalt. This large river species was recently described from Indiana from the Kankakee, Tippecanoe, and White River drainages (Grubbs & DeWalt 2010). We present another White River record. **IN, Pike Co.**, White River, Petersburg, [38.5124, -87.289], 6/3/1936, C.O. Mohr, B.D. Burks, ♂, ♀ (INHS).

Perlesta shubuta Stark. This species has been reported from Mississippi north to Illinois and Iowa (Stark 1989; Poulton & Stewart 1991; DeWalt et al. 2001; Heimdal et al. 2004). Grubbs (2004) suggested that it might be found in Indiana. We suspect that the Midwestern *P. shubuta* may represent an undescribed species. Comparison with one of Stark's paratypes males strongly suggests this, but more comparative material from the type locality and elsewhere is

needed. Nymphs of the Midwestern species have a head mask composed of small freckles. Nymphs of other regional *Perlesta* have a solid head mask. We present several Indiana records of this species. **IN, Fulton Co.**, Mud Creek at Hwy 14, 5 mi W Rochester, [41.05521, -86.32524], 5/23/1973, A.V. Provonsha, K. Black, N (PERC); **Kosciusko Co.**, Cherry Creek, town of Winona Lake, [41.277, -85.822], 6/30/1947, sweepnet, E. Mockford, ♂, ♀ (CNC); **LaGrange Co.**, [Pigeon Creek], Pigeon River Fish and Wildlife Area, [41.6728, -85.21492], 7/30/1977, at light, M. Minno, 8♀ (PERC); Curtis Creek, Trout Rearing Station, [41.69583, -85.34613], 7/9/1958, at light, N. Wilson, ♂ (PERC); **Monroe Co.**, Bloomington, [39.16528, -86.52639], 7/9/1938, Sherrill, ♀ (CNC); **Morgan Co.**, 6/18/1933, Musgrave, ♀ (PERC); **Newton Co.**, Conrad Savanna, 0.8 km NE Conrad, 41.1072, -87.4375, 7/8/1998, E. Metzler, ♀ (OBS); **Starke Co.**, Wanatah, [41.42947, -86.90113], 7/2/1996, ♀ (PERC); **Tippecanoe Co.**, [Wabash River], Lafayette, [40.42016, -86.89705], 7/16/1923, G.M. Sterrett, ♂ (CNC); [Wabash River], West Lafayette, [40.42016, -86.89705], 6/9/1959, ♂, 2♀ (PERC).

Perlesta teaysia Kirchner & Kondratieff. DeWalt (2002) described *P. napacola* from eastern Illinois. In all respects it resembled *P. teaysia* with the exception of the egg, which lacked an erect egg collar, a structure clearly present in a scanning electron micrograph in the original description (Kirchner & Kondratieff 1997). Grubbs & DeWalt (2008) demonstrated that an erect collar was not characteristic of *P. teaysia* eggs, but were identical with those studied by DeWalt (2002) for *P. napacola*. Consequently, Grubbs & DeWalt (2008) synonymized *P. napacola* with *P. teaysia*. No additional populations of the species have been found in Illinois. Grubbs (2004) presented records for Harrison and Jackson Counties in Indiana. We present several additional records. **IN, Brown Co.**, Bear Creek, 0.7 km NNE Waycross, 39.312, -86.3363, 6/21/2006, R.E. DeWalt, ♂ (reared) (INHS); **Clark Co.**, Clark State Forest, [38.5475, -85.9333], 7/5/1937, ♂ (PERC); **Floyd Co.**, 6/19/1965, ♂ (PERC); **Jefferson Co.**, Clifty Falls State Park Camp Ground, [38.77003, -85.43831], 7/18/1972, A.V. Provonsha, E. Levine, ♂, 4♀ (PERC); **Lawrence Co.**, 5.5 km NE Bedford, Leatherwood Creek, 38.8992, -86.4133, 06/20/2010, R.E. DeWalt, M. Pessino, ♂, 5♀

(INHS); **Orange Co.**, Patoka River, 11 km SE Paoli, Hoosier National Forest, 6/15-19/2006, S.A. Grubbs, 3♂, 2♀, 9N (reared) (WKU); **Owen Co.**, Litten Branch, 3.5 km NE Spencer, McCormick's Creek State Park, Wolf Cave Nature Preserve, 39.3058, -86.7193, 6/20/2006, R.E. DeWalt, ♀, 8N (INHS).

Family PERLIDAE (Subfamily PERLINAE)

Agnentina capitata (Pictet). This species is distributed from the Ozarks east to the Appalachian Mountains and north to eastern Canada (Stark 2004; DeWalt et al. 2010). It tends to inhabit cooler waters than its close relative *A. flavescens* (Walsh), with which it has often been confused, especially in the nymphal stage (Frison 1935). It appears that this species may still persist in northern Illinois only in the Pecatonica River. Grubbs (2004) tentatively listed this species from Indiana and suggested that it might be present in northern tier counties in the state. We present several unpublished records documenting the species in northeastern Illinois and in Indiana, two of which are relatively recent records. **IL, Cook Co.**, DesPlaines River, Glendon Park (a.k.a. River Grove), [41.92925, -87.84516], 6/21/1903, W.J. Gerhard, ♀ (FMNH); **Kankakee Co.**, Momence, [41.1601, -87.66306], 10/20/1939, C.O. Mohr, B.D. Burks, 7N (INHS); **LaSalle Co.**, Illinois River, Ottawa, [41.34195, -88.8431], 7/21/1901, C. A. Hart, 2 exuviae (INHS); **Stephenson Co.**, Pecatonica River, at Brewster public boat ramp, 1.2 mi E Winslow, [42.495, -89.768], 9/5/1976, R. Singer, L. Johnson-Singer, 2N (INHS); **IN, Elkhart Co.**, St. Joseph River, near Bristol, 41.7219, -85.8176, 7/5/1947, W.E. Ricker, ♀ (CNC); **Newton Co.**, Willow Slough State Fish and Wildlife Area, 40.9834, -87.49477, 10/21/1978, D. Bongsten, N (PERC).

Agnentina flavescens (Walsh). This species has a distribution similar to *A. capitata*, but is generally more southern in distribution or found in streams without significant groundwater input. It has been extirpated from Illinois (DeWalt et al. 2005). All INHS specimens were re-examined and from these records we know that this species often co-occurred with *A. capitata* in the Salt Fork of the Vermilion River in eastern Illinois and in the Kankakee and Rock Rivers of northern Illinois. Grubbs (2004) lists the species from three widely separated counties in

Indiana. The species once inhabited larger rivers throughout the state, but is now relegated to smaller, permanent streams in unglaciated southern Indiana. This pattern of range loss is similar to that exhibited by *A. frisoni*. **IL, Hardin Co.**, Big Creek at school, 3 mi S Karbers Ridge, [37.5332, -883268], 2/2/1935, N (INHS); **LaSalle Co.**, Illinois River, Ottawa, [41.3199, -88.90996], 6/12/1901, C.A. Hart, ♂ (INHS), **Rock Island Co.**, Rock River, Rock Island, [41.459, -90.579], 6/7/1939, B.D. Burks, G.T. Riegel, 2♂ (INHS); **Will Co.**, Kankakee River, Wilmington, [41.3061, -88.1511], 4/28/1931, T.H. Frison, 6N (INHS); **IN, Crawford Co.**, Little Blue River, 3 km N Sulfur along IN-37. 38.2574, -86.4790, 3/23/2006, R.E. DeWalt, S.A. Grubbs, N (INHS); **Lawrence Co.**, Indian Creek, 38.86779, -86.66761, 3/7/2009, E.T. Chabot, 5N (INHS); **Parke Co.**, Sugar Creek, Turkey Run State Park, [39.8893, -87.1999], 5/7/1939, G.T. Riegel, 16N (INHS); **Pike Co.**, East Fork White River, Rogers, [38.5447, -87.2432], 6/3/1936, C.O. Mohr, B.D. Burks, 2N (INHS); White River, Petersburg, [38.5124, -87.289], 6/3/1936, C.O. Mohr, B.D. Burks, 2N (INHS); **Tippecanoe Co.**, [Wabash River], Lafayette, [40.42016, -86.89705], 5/11/1941, ♂ (PERC); **Washington Co.**, Blue River, Fredricksburg, US-150. 38.4340, -86.1918, 3/24/2006, R.E. DeWalt, S.A. Grubbs, 5N (INHS).

Neoperla catharae Stark & Baumann. This species is distributed from the Ozark Mountain region east to North Carolina, and then north to Pennsylvania (DeWalt et al. 2010). In Illinois, it is known from the Shawnee Hills and from the Vermilion River drainage of eastern Illinois (DeWalt et al. 2002). Grubbs (2004) provided a single southern Indiana location in Harrison County. We provide several records that extend the range of this species into north-central Indiana. **IN, Johnson Co.**, Sugar Creek at Atterbury St. Fish and Wildlife Area, [39.38245, -85.99823], 8/21/1975, A.V. Provonsha, W. Pask, ♀ (PERC); **Monroe Co.**, Bloomington, [39.16528, -86.52639], 8/10/1942, C. Gullett, ♀ (PERC); **Tippecanoe Co.**, Lafayette, [40.42016, -86.89705], 7/2/1923, ♂ (PERC); **White Co.**, Shafer Lake, Monticello, [40.80125, -86.7777], 7/2/1948, E. Mockford, ♂ (CNC).

Neoperla clymene (Newman). This species is distributed across much of eastern North America

from Texas and Oklahoma north to Illinois and east to North Carolina, Virginia and Pennsylvania (Stark 2004). Historically, with the exception of the northeastern corner, its distribution in Illinois was statewide (DeWalt et al. 2002). It has experienced great range loss and is currently known only from larger rivers at the periphery of Illinois (DeWalt et al. 2005). Grubbs (2004) listed it from three southern Indiana counties. We present several additional records. **IN, Clark Co.**, 7/1998, T. Vawryk, ♀ (PERC); **Dubois Co.**, SIPAC (Southern Indiana-Purdue Agricultural Center), [38.45634, -86.68852], light trap, 6/24/1994, ♂, ♀ (PERC); **Knox Co.**, [Wabash River], Vincennes, [38.68069, -87.53563], 6/17/1931, ♂ (PERC); **Martin Co.**, East Fork White River, 0.5 km SSW Shoals. 38.6590, -86.8023, 6/20/2006, R.E. DeWalt ♂, 9♀ (INHS); **Monroe Co.**, Bloomington, [39.16528, -86.52639], 7/2/1938, Mancock, ♀ (CNC); **Tippecanoe Co.**, [Wabash River], Lafayette, [40.42016, -86.89705], 7/8/1993, N.M. Downie, UV light, ♀ (PERC).

Neoperla coosa Smith & Stark. This species was described from central Alabama and has subsequently been collected from Tennessee (DeWalt & Heinold 2005) and North Carolina (Lenat et al. 2009). We present a single record from southern Indiana. **IN, Harrison Co.**, Blue River, 1 mi E White Cloud, [38.229, -86.226], 8/23/1973, A.V. Provonsha, K. Black, 5♀ (BYU).

Neoperla gaufini Stark & Baumann. This species has a very limited distribution in Indiana, Kentucky, and Ohio (Stark & Baumann 1978; Stark 2004). Grubbs (2004) listed it from four southern Indiana counties. We present three new records. **IN, Brown Co.**, Yellowwood Lake, Yellowwood State Forest, [39.18118, -86.35254], 6/20/1946, E. Mockford, 2♀ (CNC); **Perry Co.** Poison Creek, 5 mi NW Derby, [38.04836, -86.60128], 8/1/1975, A.V. Provonsha, M. Minno, ♀ (PERC); **Switzerland Co.**, Indian Creek, 2 mi W Mt. Sterling, [38.79751, -85.09323], 7/18/1972, A.V. Provonsha, E. Levine, ♂ (PERC).

Neoperla occipitalis (Pictet). The distribution of this species is generally east of the Mississippi River across to Maine and south to South Carolina (Stark 2004). DeWalt et al. (2002) first recorded the species from Illinois from a single female from Vermilion

River drainage of eastern Illinois. Grubbs (2004) tentatively listed the species from Indiana, but Stark (2004) provided a historical record from Petersburg. We present a second historical Indiana record. **IN, Warren Co.**, 6/30/1935, D.W. LaHue, ♂ (PERC).

Neoperla robisoni Poulton & Stewart. This species is distributed from the Ozarks (Poulton & Stewart 1991) east to Maryland and Pennsylvania and north to the unglaciated southwestern portion of Wisconsin (Stark 2004). Illinois specimens were reported by DeWalt et al. (2002) from the Wabash River and the Vermilion River basin. Grubbs (2004) lists this species as extralimital in Indiana. We present new records for two locations in Indiana. **IN, Harrison Co.**, Blue River, 1 mi E White Cloud [38.23464, -86.22716], 8/29/1971, W.P. McCafferty, ♀ (PERC); **White Co.**, Tippecanoe River at Hwy. 18, [40.49411, -86.77087], 7/25/1978, K. Black, ♀ (PERC).

Neoperla stewarti Stark & Baumann. This species is found in larger streams from Alabama north to Minnesota and eastward to Maine (Stark 2004). In Illinois, it is confined to the Wabash River drainage (DeWalt et al. 2002). Grubbs (2004) provided a single location in Harrison County, Indiana. We present data from three additional Indiana locations. **IN, Clark Co.**, Clark State Forest, [38.5475, -85.9333], 6/26/1938, Brackman, ♂ (PERC); **Lawrence Co.**, [East Fork White River], Bedford, [38.86111, -86.48722], 7/6/1928, L.F. Steiner, ♀ (PERC); **Tippecanoe Co.**, [Wabash River], West Lafayette, [40.42016, -86.89705], 6/9/1959, ♂ (PERC).

Paragnetina media (Walker). With the exception of the southernmost U.S. states, this coolwater species is distributed throughout much of eastern North America (Stark & Szczytko 1981; Stark 2004). It is known historically from Illinois only as a single nymph collected from the Mississippi River in Carroll County in 1932 (Frison 1935). DeWalt et al. (2005) listed it as extirpated from Illinois. Grubbs (2004) reported that no specimens or literature references were found for this species in Indiana, but stated that populations may be found in the northern tier counties of the state. We present two records from northern Indiana. **IN, Elkhart Co.**, Little Elkhart River, 4 mi E Bristol, Bonneyville Mill County

Preserve, 41.7188, -85.7649, 6/27/2006, R.E. DeWalt, ♂, N, 7 exuviae (INHS); **LaGrange Co.**, Pigeon River, below dam S. of Mongo [41.68445, -85.28057], 9/4/1976, N (PERC).

Family **PERLODIDAE** (Subfamily **ISOPERLINAE**)
Isoperla burksi Frison. This species occurs in unglaciated areas from the Ozark Mountains (Poulton & Stewart 1991) north to Illinois and east to New Jersey (Earle 2009), Maryland (Duffield & Nelson 1990), and the Carolinas (Kondratieff & Kirchner 1995). In Illinois, it is known only from streams in the uplifted Shawnee Hills (DeWalt et al. 2005) and in Indiana only from Monroe County (Grubbs 2004). We present several additional locations in unglaciated Indiana. **IN, Crawford Co.**, Little Blue River, 3 km N Sulfur along IN 37, 38.2568, -86.47826, 3/23/2006, R.E. DeWalt, S.A. Grubbs, 7N (INHS); **Orange Co.**, Patoka River, 1 km NE Valeene, 38.3448, -86.3870, 3/24/2006, R.E. DeWalt, S.A. Grubbs, N (INHS); **Owen Co.**, East Fork Fish Creek, 7.5 km WNW Spencer at Rt. 46, 39.3113, -86.8478, 4/18/2010, M. Pessino, ♀ (reared) (INHS).

Isoperla dicala Frison. The distribution of this species encompasses most of eastern North America (Hilsenhoff & Billmyer 1973; Poulton & Stewart 1991; DeWalt et al. 2010). This species has never been reported from Illinois, but could still be found in the Kankakee or Rock River drainages. In Indiana, it has been reported from two northern counties and the Ohio River at Floyd County (Grubbs 2004). We present several additional northern Indiana records. **IN, Elkhart Co.**, Little Elkhart River, Bristol at canoe livery, 41.7231, -85.8109, 3/19/2006, R.E. DeWalt, 21N (INHS); St. Joseph River, Bristol at Congdon Park, 41.7230, -85.8167, 3/9/2006, R.E. DeWalt, 4N (INHS); Elkhart River, Bainter Town, River Preserve County Park, 41.5176, -85.8133, 5/25/2006, R.E. DeWalt, ♂, ♀ (INHS); **Fulton Co.**, Tippecanoe River, Talma opposite IN-25 at IDNR boat ramp, 41.15336, -86.13932, 5/24/2006, R.E. DeWalt, ♂ (INHS); **LaGrange Co.**, Pigeon River, at Scott Mill, Park S of Scott, 41.74013, -85.55702, 4/3/2004, M.J.M., 6N (UND); Pigeon River, 4.5 km W Howe at IN-120, 41.7185, -85.4766, 6/27/2006, R.E. DeWalt, ♂ (INHS); Pulaski Co., Tippecanoe River, 8 km NNE Winamac, Tippecanoe State Park, 41.1316, -86.588, 6/28/2006,

R.E. DeWalt, exuvium (INHS); **Starke Co.**, Yellow River, near Knox, [41.30289, -86.62127], 4/24/1997, G. Bright, 2 N (PERC); Kankakee River, 0.25 km N English Lake, Yellow and Kankakee Rivers FWMA, 41.2720, -86.8246, 4/30/2006, R.E. DeWalt, S.K. Ferguson, 7N (INHS), **Steuben Co.**, Fish Creek, 3.7 km E Hamilton along CR 775S, Douglas Woods Nature Preserve, TNC, 41.5327, -84.8688, 6/23/2006, R.E. DeWalt, ♀ (INHS).

Isoperla frisoni Illies. This species is known from Indiana north through the upper Great Lakes region and from North Carolina north through eastern Canada (DeWalt et al. 2010). Frison (1937) originally described it as *Isoperla truncata* (a homonym) with a paratype from the Yellow River, a sand-bottomed stream in northern Indiana. This species has never been collected from Illinois, but could be present in the Kankakee and Rock River drainages. We present a few new locations in Indiana, including one recent record. **IN, LaGrange Co.**, Pigeon Creek at [CR] 1100 E, E Pigeon River Fish-Game Area, 41.6728, -85.21492, 5/20/1972, ♀ (PERC); **LaPorte Co.**, Trail Creek, Michigan City, [41.7237, -86.8719], 6/21/1957, J. Lowe, 3♂ (CNC); same location, 4/22/2007, R.E. DeWalt, 6N (INHS).

Isoperla marlynia (Needham & Claassen). This riverine species is known from the Great Plains east to New Jersey and north to the Canadian Maritime Provinces (DeWalt et al. 2010). The only records from Indiana pertain to historical collections from the lower White River between 1936 and 1940. In Illinois, this species is known only from the Rock River at Rock Island, taken between 1928 and 1932. A single exuvium was recently collected from the Pecatonica River near the Wisconsin border, confirming its continued presence in Illinois. **IL, Stephenson Co.**, Pecatonica River, Winslow at Winslow Rd., 42.49302, -89.78979, 6/23/2010, R.E. DeWalt, E.W. Hernandez, M.M. Brown, exuvium (INHS).

Isoperla mohri Frison. This species was described from southern Illinois from low-gradient streams and is found in similar habitats in Kansas and Missouri southward to Louisiana (Poulton & Stewart 1991), but has never been reported from Indiana (Grubbs 2004). We present several new records for Illinois

that expand its range within the state. **IL, Clay Co.**, Raccoon Creek, 5.5 km SW Flora, dwnstr. CR 900E, 38.6594, -88.5276 W, 4/11/2001, R.E. DeWalt, 45N (INHS); **Coles Co.**, [Tributary Embarras River], Fox Ridge State Park, [39.403, -88.159], 4/12/1941, C.O. Mohr, 2N (INHS); **Jefferson Co.**, Horse Creek, 13 km E Dix, 38.4386, -88.7731, 4/10/2003, R.E. DeWalt, 11 N (INHS); Rayse Creek, Dix, Pleasant Rd. 38.44299, -88.9331, 4/25/2007, R.E. DeWalt, ♂, ♀ (reared) (INHS); **Lawrence Co.**, Tributary Bonpas Creek, 6 km S Sumner, 38.6554, -87.8628, 4/6/1999, R.E. DeWalt, 23N (INHS); **Wabash Co.**, Bonpas Creek, CR 1900N, 5.0 km E West Salem, 38.5267, -87.9429, 4/3/2003, R.E. DeWalt, 2N (INHS).

Isoperla montana (Banks). This species exhibits mainly a central and northern Appalachian distribution (DeWalt et al. 2010). Males have one spur at the base of the aedeagus, compared to two on *I. namata* Frison. Nymphs of the two species are currently indistinguishable. We present specimen data from an Indiana ravine stream. The senior author tentatively identified them as *I. namata*, but they were later identified as *I. montana* by B.C. Kondratieff. This constitutes a new state record for Indiana and large range extension into the Midwest. The presence of this species calls into question the identification of nymphs in the region as *I. namata*. Further investigations are ongoing. **IN, Montgomery Co.**, Tributary Sugar Creek along IN-234 at pull-off, 39.9484, -87.0583, 5/4/2008, R.E. DeWalt, ♂, 2♀, (INHS).

Isoperla namata Frison. States bordering Illinois, except Iowa and Wisconsin, support populations of *I. namata* (Frison 1942; Poulton & Stewart 1991; DeWalt et al. 2010). As noted above, there is some doubt about the taxonomic boundary and distribution of this species. A single Illinois female in the INHS collection has been tentatively identified as *I. namata* by S. W. Szczytko. A male paratype from Indiana was re-examined and the aedeagus everted revealing two basal spurs and confirming the existence of this species in the state. **IL, Adams Co.**, Quincy, [39.935, -91.416], 6/3/1950, J.P. Nielsen, ♀ (INHS); **IN, Owen Co.**, McCormick's Creek, McCormick's Creek State Park, [39.2906, -86.7174], 4/16/1938, T.H. Frison, ♂ (reared) (INHS).

Isoperla nana (Walsh). This species has been reported from Illinois north to Wisconsin and east to Ontario and Quebec (DeWalt et al. 2010). Grubbs (2004) listed it from three northern Indiana counties. We present several more localities. **IN**, **Elkhart Co.**, Elkhart, [41.68144, -85.95673], 5/22/1950, H.H. Ross & L. Stannard, sweeping near swamp, 6♂, 8♀ (CNC); **Fulton Co.**, Tippecanoe River, Talma opposite IN-25 at IDNR boat ramp, 41.15336, -86.13932, 5/24/2006, R.E. DeWalt, 3♂, 6♀ (INHS); **Knox Co.**, 6/4/1958, ♀ (PERC); **LaGrange Co.**, Pigeon Cr. at 1100 E, E Pigeon R. Fish-Game Area, [41.6728, -85.21492], 5/20/1972, CM-37, ♂ (PERC); **Noble Co.**, Thumma Ditch, Chain O'Lakes, [41.34653, -85.32836], 5/6/1999, G. Bright, 11N (PERC); **Owen Co.**, McCormick's Creek, 3 km E Spencer, McCormick's Creek State Park, 39.2906, -86.7174, 4/14/2006, R.E. DeWalt, 2N (INHS); **Putnam Co.**, Big Walnut Creek, Hall Woods Nature Preserve, 4/30/2007, R.E. DeWalt, N (INHS); **Ripley Co.**, [Laughery Creek], Friendship, [38.97179, -85.15293], 5/28/1959, L. Chandler, 3♂, ♀ (PERC); **Warren Co.**, Little Pine Creek at High Bridge, [40.38094, -87.12418], 5/9/1974, A.V. Provonsha, L. Dersch, N (PERC); **Whitley Co.**, Blue River at Riley Rd., [41.20646, -85.42716], 6/1/1994, G.R. Bright, 3N (PERC).

Isoperla richardsoni Frison. This species is known from Iowa east to Connecticut (DeWalt et al. 2010). Described initially from Illinois (Frison 1935), it has since been extirpated from the state (DeWalt et al. 2005). It has not been reported from Indiana, but was listed as a likely species to find with more collecting in the northern portion of the state (Grubbs 2004). We have located specimens collected in Indiana, representing a new state record, but we have yet contemporaneous material. **IN**, **Monroe Co.** Bloomington, [39.16528, -86.52639], 5/3/1938, Tinsley, ♀ (CNC); **Pike Co.**, East Fork White River, Rogers, [38.5391, -87.2233], 4/16/1936, H.H. Ross, C.O. Mohr, 5 N (INHS); same but T.H. Frison, 4/21/1936, C.O. Mohr, ♂ (CNC); same but C.O. Mohr, B.D. Burks, 6/2/1936, ♀ (CNC).

Family PERLODIDAE (Subfamily PERLODINAE)

Diploperla robusta Stark & Gaufin. This species is known from Illinois east to Connecticut and south to Alabama (Stark & Gaufin 1974; DeWalt et al. 2010). It

was recently reported from Illinois (DeWalt et al. 2005) and was listed by that state as "endangered" due to it inhabiting only a single springbrook system in east-central Illinois (Illinois Endangered Species Protection Board 2009). This location appears to be its westernmost extent. Grubbs (2004) listed it from several counties in southern and central Indiana. We present several additional locations for Indiana. **IN**, **Crawford Co.**, Tributary Little Blue River, 1 mi N English at IN-37, [38.3502, -86.46758], 4/25/1976, A.V. Provonsha, M. Minno, 2N (PERC); Tributary Otter Creek, Yellow Birch Ravine Nature Preserve, 5 km W English off CR-139. 38.3271, -86.5488, 3/23/2006, R.E. DeWalt, S.A. Grubbs, N (INHS); **Franklin Co.**, Pipe Creek at St Marie, 28 km SW Brookville, 39.3522, -85.1095, 3/12/2007, R.E. DeWalt, 3N (INHS); **Lawrence Co.**, Leatherwood Creek, 5.5 km NE Bedford, 38.8992, -86.4133, 2/23/2006, R.E. DeWalt, 2N (INHS); **Martin Co.**, small stream 7 mi SE Shoals at US-150, [38.60151, -86.68809], 4/24/1976, A.V. Provonsha, M. Minno, N (PERC); **Monroe Co.**, Tributary Clear Creek, Cedar Bluff Nature Preserve, 39.0364, -86.5636, 3/24/2006, R.E. DeWalt, S.A. Grubbs, N (INHS); **Morgan Co.**, Stream at jct. IN-39 and 142, 5 mi S Monrovia, [39.50719, -86.45596], 4/11/1975, A.V. Provonsha, L. Dersch, N (PERC); **Owen Co.**, Tributary Litten Branch, McCormick's Creek State Park, Wolf Cave Nature Preserve, 39.3018, -86.7211, 4/14/2006, R.E. DeWalt, 2N (INHS); **Perry Co.**, Tributary Deer Creek, at IN-66, 8 mi N of bridge on Deer Creek (indeterminate location), 5/17/1973, W.P. McCafferty, K. Black, A.V. Provonsha, 4N (PERC).

Helopicus nalatus (Frison). This species occurs in all states along the southern border of Illinois (DeWalt et al. 2010), but has never been reported from the state. Grubbs (2004) stated that he was unable to find definitive specimen records in the literature or museum specimens to substantiate the claims of Bednarik & McCafferty (1977), Stark et al. (1986), or Stewart & Stark (2002) that this species resides in Indiana. We present the first record for Illinois and confirmation of its presence in Indiana. **IL**, **Jackson Co.**, Mississippi River, Grand Tower, [37.62552, -89.50713], 3/1/1981, M. Klutho, N (SIUC); **IN**, **Harrison Co.**, Big Blue River, 3 mi. E Wyandotte Cave, [38.22362, -86.2955], 2/17/1947, S.D. Gerking, N

(CNC); Big Blue River, White Cloud, [38.229, -86.226], 4/21/1949, W. E. Ricker, exuvium (CNC).

Hydroperla crosbyi (Needham & Claassen). This species has been reported from Texas and Arkansas, and north through southern Indiana (Frison 1935; Ricker 1945; Bednarik & McCafferty 1977; Poulton & Stewart 1991; DeWalt et al. 2005). We present several records that expand the known range in both states. **IL, Adams Co.**, Bear Creek, 2.75 km W Marcelline, 40.1205, -91.3978, 5/5/2005, R.E. DeWalt, ♂ (INHS); **Alexander Co.**, Ohio River, Fort Defiance State Park, 36.98787, -89.14087, 4/26/2005, D.W. Webb, ♀ (INHS); **Jasper Co.**, Embarras River, 4.3 km W Hidalgo, 39.1559, -88.2071, 4/8/1999, R.E. DeWalt, ♂, N, 3 exuviae (INHS); North Fork Embarras River, 4.5 km SE Willow Hill, 38.9774, -87.9598, 4/7/1999, R.E. DeWalt, 2 exuviae (INHS); **Mason Co.**, Quiver Creek, 8 km NE Havana, 40.3345, -89.979, 4/14/1999, R.E. DeWalt, 2 exuviae (INHS); Salt Creek, 7 km SW New Holland, 40.1394, -89.6211, 4/28/2005, R.E. DeWalt, 7 exuviae (INHS); **Piatt Co.**, Sangamon River, 3 km N Monticello, 40.0502, -88.5791, 4/29/2005, R.E. DeWalt, 2 exuviae (INHS); **Rock Island Co.**, Rock River, Rock Island, [41.459, -90.579], 4/18/1931, T.H. Frison, ♀ (reared) (INHS); **Vermilion Co.**, Middle Fork Vermilion River at Johnson Hill Bridge, 3 km SW Newtown, 40.1603, -87.704, 4/16/2005, R.E. DeWalt, 5 exuviae (INHS); **Wabash Co.**, Wabash River at Grand Rapids, 3 km NE Mt. Carmel, 38.4361, -87.7441, 4/13/2005, R.E. DeWalt, K. Moss, 5 exuviae (INHS); **IN, Fountain Co.**, Wabash River, Attica at Potawatomie Park, 40.2942, -87.2546, 4/22/2010, R.E. DeWalt, M. Pessino, exuvium (INHS); **Greene Co.**, West Fork White River, Worthington at boat ramp, 39.1117, -86.9621, 3/25/2006, R.E. DeWalt, S.A. Grubbs, 2♂ (INHS); **Marion Co.**, Tremont, [39.76449, -86.31044], 5/9/1939, H. Dybas, ♀ (FMNH); **Montgomery Co.**, Sugar Creek, Crawfordsville, 200 m upstream US-136, 40.05029, -86.92166, 3/6/2007, R.E. DeWalt, N (INHS).

Hydroperla fugitans (Needham & Claassen). This species ranges from Texas and Arkansas north to Illinois and Indiana (Poulton & Stewart 1991; DeWalt et al. 2010). In Illinois, Frison (1935) reported it as *H. harti* Frison in the Mississippi River from Rock Island to Chester. Ricker (1945, as *H. harti*) reported it from

Lafayette, Indiana and Grubbs (2004) reported it from the Wabash River at New Harmony, Indiana. We present several new records that expand the known distribution in the two states. **IL, Clark Co.**, Wabash River, Darwin at Ferry, 39.28316, -87.61046, 5/1/2007, R.E. DeWalt, 7♂ (INHS); **Pope Co.**, Ohio River, Golconda, 37.36222, -88.37839, 4/18/1993, D.W. Webb, M.A. Harris, ♂, ♀ (INHS); **Wabash Co.**, Wabash River at Grand Rapids, 3 km NE Mt. Carmel, 38.4361, -87.7441, 4/13/2005, R.E. DeWalt, K. Moss, 30 exuviae (INHS); **IN, Fountain Co.**, Wabash River, Attica at Potawatomie Park, 40.2942, -87.2546, 4/22/2010, R.E. DeWalt, M. Pessino, ♀ (INHS); **Greene Co.**, West Fork White River, Worthington at boat ramp, 39.1117, -86.9621, 3/25/2006, R.E. DeWalt, S.A. Grubbs, ♂, ♀ (INHS); **Knox Co.**, White River, Rte. 61, 2 km N Petersburg, 3/25/2006, S.A. Grubbs, ♀ (WKU); **Martin Co.**, East Fork White River, Shoals at public access, 38.6697, -86.7892, 4/29/2007, R.E. DeWalt, 2N (INHS).

Isogenoides varians (Walsh). This is a warmwater, riverine species known from Minnesota, south to Kansas and Mississippi and east to the Carolinas and Virginia (Sandberg & Stewart 2005). In Illinois, Frison (1935) presented two records, one male for Rock Island on the Mississippi River and another male from Golconda on the Ohio River. Sandberg & Stewart (2005) presented several additional records for the Wabash River at Mt. Carmel. In Indiana, there are a number of historical records from the East Fork and main stem White Rivers in southern Indiana (Frison 1937). Sandberg & Stewart (2005) presented additional PERC records for the species from the Wabash River at Tippecanoe. The only recent record in the entire Midwest appeared to be from Iowa's Cedar River (Heimdal et al. 2004). We thought it was extirpated from the Midwest (Grubbs 2004; DeWalt et al. 2005) until finding several exuviae along the Wabash River in Indiana. **IN, Fountain Co.**; Wabash River, Attica at Potawatomie Park, 40.2942, -87.2942, 4/22-24/2010, R.E. DeWalt, M. Pessino, 11 exuviae (INHS).

Family PTERONARCYIDAE

Pteronarcys dorsata (Say). This species has one of the widest ranges for stoneflies in North America (Nelson 2000) and typically occupies cooler waters

than *P. pictetii* Hagen. Both *P. dorsata* and *P. pictetii* has been found in the same stream reach within the Midwest as the record shows here for Elkhart and Lafayette, Indiana. This species has never been found in Illinois (Frison 1935, 1937; DeWalt et al. 2005), but was reported from Elkhart, Indiana by Nelson (1971). We have found the Elkhart specimens in the CNC collection and provide one additional record. **IN, Elkhart Co.**, [St. Joseph or Elkhart River], Elkhart, 6/18/1902, ♂, ♀ (CNC); **Tippecanoe Co.**, Lafayette, 4/20/1915, ♀ (PERC).

Pteronarcys pictetii Hagen. This species is widespread in midwestern North America and extends westward to Colorado, South Dakota, and Manitoba (Nelson 1971). Frison (1935) listed this species as *P. nobilis* (Hagen). Frison (1937) later found the type of *P. nobilis* actually represented *P. dorsata* and that all adult Illinois specimens known at that time belonged to *P. pictetii*. DeWalt et al. (2005) accepted that this is still the only *Pteronarcys* species in Illinois. Grubbs (2004) named six counties where the species had been found in Indiana, mostly in the White and Wabash River drainages. We present several additional adult records for Illinois and Indiana. **IL, Mason Co.**, Sangamon River, 3 km NW Oakford at IL-97, 3/31/1999, J.E. Petzing, M.J. Dreslik, ♂ (INHS); **Vermilion Co.**, Middle Fork Vermilion River, Kickapoo State Park, 40.137042, -87.745741, 4/25/2009, R.E. DeWalt, S.K. Ferguson, M. Pessino, ♂, ♀ (INHS); **IN, Elkhart Co.**, 6/1986, R.M. Martin, ♀ (PERC); **Jasper Co.**, 5/11/1971, ♀ (PERC); **Pulaski Co.**, Tippecanoe River, Winamac, 41.0555, -86.5994, 4/29/2006, R.E. DeWalt, S.K. Ferguson, ♀ (reared) (INHS); **IN, Tippecanoe Co.**, [Wabash River], West Lafayette, 4/16/1967, J.D. Hacker, blacklight, ♂ (BYU).

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