

PHOTOGRAPHIC ATLAS OF THE EASTERN NEARCTIC ISOPERLINAE (PLECOPTERA: PERLODIDAE) SPECIES

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ABSTRACT

Color photographs of one *Clioperla* and 58 eastern Nearctic *Isoperla* species (Plecoptera: Isoperlinae), are provided to enhance their diagnosis. Images detail the male dorsal head pattern, posterior sterna and terga, paraprocts, aedeagus, and the female subgenital plate. Photographs were not available for the poorly known *I. citronella* (Newport) and *I. maxana* Harden and Mickel. This publication is intended to serve as a companion guide to the taxonomic revision of the eastern North American Isoperlinae by Szczytko and Kondratieff (2015).

Keywords: Plecoptera, Isoperlinae, *Clioperla*, *Isoperla*, eastern Nearctic



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INTRODUCTION

Szczytko and Kondratieff (2015) recently provided a detailed revision of the 61 species of eastern Nearctic Isoperlinae species including the genera *Clioperla* and *Isoperla*. They described 22 new species and assigned 53 *Isoperla* species to twelve species groups. Seven species remain unassociated. The current paper is intended as a supportive color photographic companion to their revision. Hopefully this resource will facilitate identification of this taxonomically difficult group of stoneflies by providing photographs of important morphological features for direct comparisons. This atlas is best used by referencing the citation provided with each species, back to the

page in Szczytko and Kondratieff (2015) where the species was introduced.

METHODS AND MATERIALS

The male aedeagus was everted from live specimens using a stereo dissecting microscope to ensure that complete eversion was achieved. Detailed color prints were made using a Leica microscope MZ 12-5 stereo dissecting microscope equipped with a JVC TK-107OU color video camera and a Sony Mavigraph UP-2300 thermal color video printer. Prints were scanned and converted to digital images using an Epson Perfection V500 Photo scanner and enhanced. Color plates were composed using Adobe Photoshop and Illustrator CS6[®].

SPECIES TREATMENTS

(Photographs not available for the poorly known *Isoperla citronella* and *I. maxana*)

Clioperla clio (Newman)

Clio Stripetail

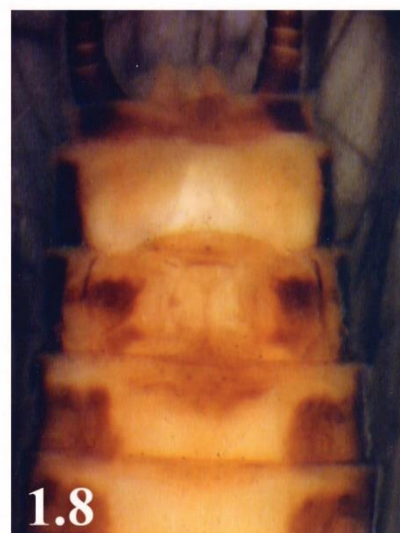
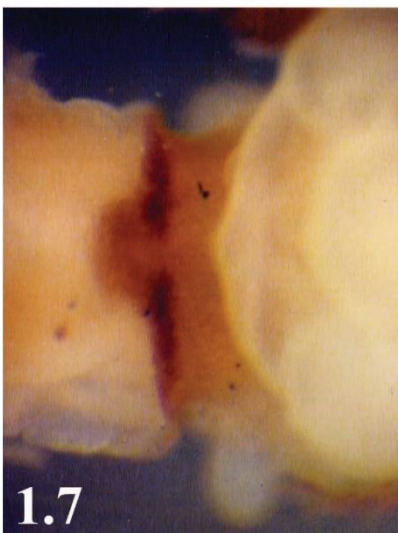
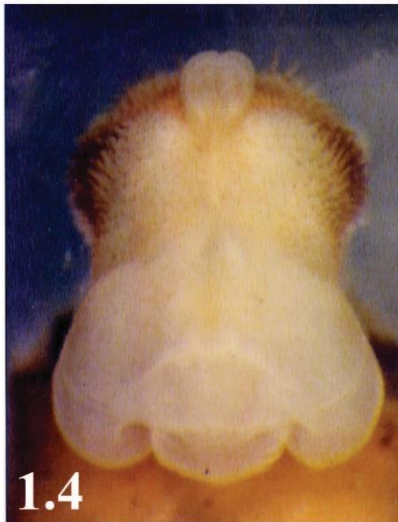
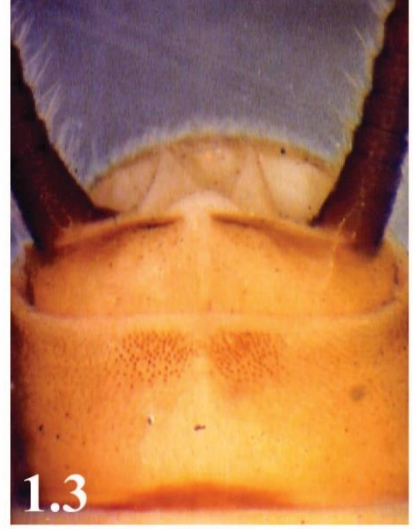
Figs. 1.1-1.9.

Clioperla clio, Szczytko and Kondratieff, 2015: 37.

Confirmed Distribution: CANADA – ON; USA – AL, AR, CT, DE, FL, IA, IN, IL, GA, KY, MA, MD, MI, MO, MS, NC, OH, OK, PA, SC, VA, TN, WI, WV.

Clioperla clio Figure Captions

- Fig. 1.1 – *Clioperla clio* – adult male head pattern; TN: Maury Co., Sugar Creek.
Fig. 1.2 – *Clioperla clio* – posterior, male sterna; MO: Randolph Co. Tributary to Eleven Point River.
Fig. 1.3 – *Clioperla clio* – posterior, male terga; AR: Washington Co., Cave Creek.
Fig. 1.4 – *Clioperla clio* – male aedeagus, oblique posterodorsal view; IL: Pope Co., Herod, Gibbons Creek.
Fig. 1.5 – *Clioperla clio* – male aedeagus, lateral view; MO: Randolph Co., Tributary to Eleven Point River.
Fig. 1.6 – *Clioperla clio* – male aedeagus, posteroventral view; IL: Pope Co., Herod, Gibbons Creek.
Fig. 1.7 – *Clioperla clio* – male aedeagus, dorsobasal spine plates; IL: Pope Co., Herod, Gibbons Creek.
Fig. 1.8 – *Clioperla clio* – female subgenital plate, ventral view; TN: Maury Co. Sugar Creek.
Fig. 1.9 – *Clioperla clio* – male meso- and metanotum; AR: Washington Co. Cave Creek.



Isoperla bellona Banks
Smokies Stripetail
Figs. 2.1-2.8.

Isoperla bellona, Szczytko and Kondratieff 2015: 45.

Confirmed Distribution: USA – NC, SC.

Isoperla bellona Figure Captions

Fig. 2.1 – *Isoperla bellona* – adult male head pattern; SC: Pickens Co., Wildcat Creek.

Fig. 2.2 – *Isoperla bellona* – posterior, male sterna; SC: Pickens Co., Wildcat Creek.

Fig. 2.3 – *Isoperla bellona* – posterior, male terga; SC: Pickens Co., Wildcat Creek.

Fig. 2.4 – *Isoperla bellona* – posterior male terga, lateral view; SC: Pickens Co., Wildcat Creek.

Fig. 2.5 – *Isoperla bellona* – male meso- and metanota; SC: Pickens Co., Wildcat Creek.

Fig. 2.6 – *Isoperla bellona* – male paraproct, lateral view SC: Pickens Co., Wildcat Creek.

Fig. 2.7 – *Isoperla bellona* – dorsobasal aedeagal spine plates; SC: Pickens Co., Wildcat Creek.

Fig. 2.8 – *Isoperla bellona* – female subgenital plate, ventral view; SC: Pickens Co., Wildcat Creek.



Isoperla bilineata (Say)

Two-lined Stripetail

Figs. 3.1-3.6.

Isoperla bilineata, Szczytko and Kondratieff 2015: 48.

Confirmed Distribution. CANADA – MB, SK ; USA – IA, IL, IN, KS, MI, MN, MO, MS, ND, OH, WI.

Isoperla bilineata Figure Captions

Fig. 3.1 – *Isoperla bilineata* – adult male head pattern; NE: Knox Co., Missouri River.

Fig. 3.2 – *Isoperla bilineata* – terminal male sterna; WI: Shawano Co., Wolf River.

Fig. 3.3 – *Isoperla bilineata* – terminal male terga; WI: Eau Claire Co., Chippewa River.

Fig. 3.4 – *Isoperla bilineata* – male aedeagus, lateral view; NE: Knox Co., Missouri River.

Fig. 3.5 – *Isoperla bilineata* – female subgenital plate, ventral view; WI: Eau Claire Co., Chippewa River.

Fig. 3.6 – *Isoperla bilineata* – male femur and tibia; WI: Eau Claire Co., Chippewa River.



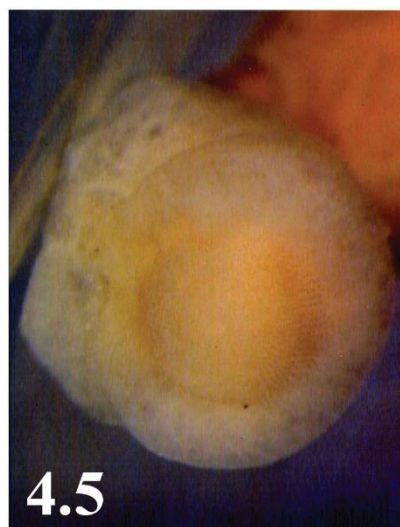
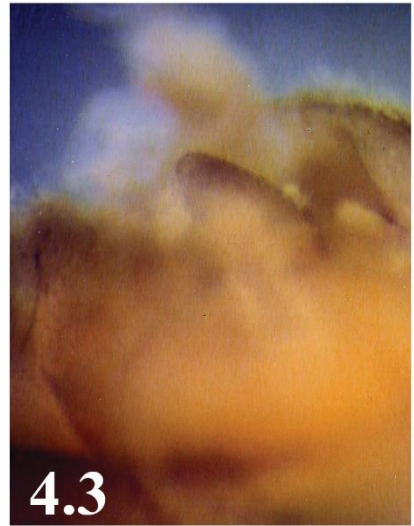
Isoperla burksi Frison
Banded Stripetail
Figs. 4.1-4.7.

Isoperla burksi, Szczytko and Kondratieff 2015: 52.

Confirmed Distribution: USA – AL, AR, IL, IN, KY, MD, MO, OH, OK, SC, VA, WV.

Isoperla burksi Figure Captions

- Fig. 4.1 – *Isoperla burksi* – adult male head pattern; KY: Rowan Co., Triplett Creek.
Fig. 4.2 – *Isoperla burksi* – terminal, male sterna; KY: Rowan Co., Triplett Creek.
Fig. 4.3 – *Isoperla burksi* – male paraproct; KY: Rowan Co., Triplett Creek.
Fig. 4.4 – *Isoperla burksi* – male aedeagus, lateral view; KY: Rowan Co., Triplett Creek.
Fig. 4.5 – *Isoperla burksi* – male aedeagus, posterior view; KY: Rowan Co., Triplett Creek.
Fig. 4.6 – *Isoperla burksi* – female subgenital plate, ventral view; KY: Rowan Co., Triplett Creek.
Fig. 4.7 – *Isoperla burksi* – female subgenital plate, lateral view; KY: Rowan Co., Triplett Creek.



Isoperla catawba Szczytko and Kondratieff
Catawba Stripetail
Figs. 5.1-5.5.

Isoperla catawba, Szczytko and Kondratieff 2015: 56.

Confirmed Distribution: USA – SC.

Isoperla catawba Figure Captions

Fig. 5.1 – *Isoperla catawba* – adult male head pattern; SC: Aiken Co., Upper Three Runs Creek.

Fig. 5.2 – *Isoperla catawba* – terminal, male sterna; SC: Aiken Co., Upper Three Runs Creek.

Fig. 5.3 – *Isoperla catawba* – terminal, male terga; SC: Aiken Co., Upper Three Runs Creek.

Fig. 5.4 – *Isoperla catawba* – female subgenital plate, ventral view; SC: Aiken Co., Upper Three Runs Creek.

Fig. 5.5 – *Isoperla catawba* – male aedeagus, lateral view; SC: Aiken Co., Upper Three Runs Creek.



Isoperla cherokee Szczytko and Kondratieff
Hooked-spine Stripetail
Figs. 6.1-6.9.

Isoperla cherokee, Szczytko and Kondratieff 2015: 58.

Confirmed Distribution: USA – NC, TN.

Isoperla cherokee Figure Captions

- Fig. 6.1 – *Isoperla cherokee* – adult male head pattern; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.2 – *Isoperla cherokee* – terminal male sterna; NC: Macon Co., Wayah Bald, Rattlesnake Springs.
- Fig. 6.3 – *Isoperla cherokee* – terminal male terga, dorsal view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.4 – *Isoperla cherokee* – terminal male terga, lateral view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.5 – *Isoperla cherokee* – male paraprocts, lateral view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.6 – *Isoperla cherokee* – male aedeagus, lateral view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.7 – *Isoperla cherokee* – male aedeagus, dorsobasal view; NC: Macon Co., Wayah Bald, Rattlesnake Springs.
- Fig. 6.8 – *Isoperla cherokee* – male aedeagus, dorsobasal spine plates; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 6.9 – *Isoperla cherokee* – female subgenital plate, ventral view; NC: Macon Co., Wayah Bald, Robin Branch.



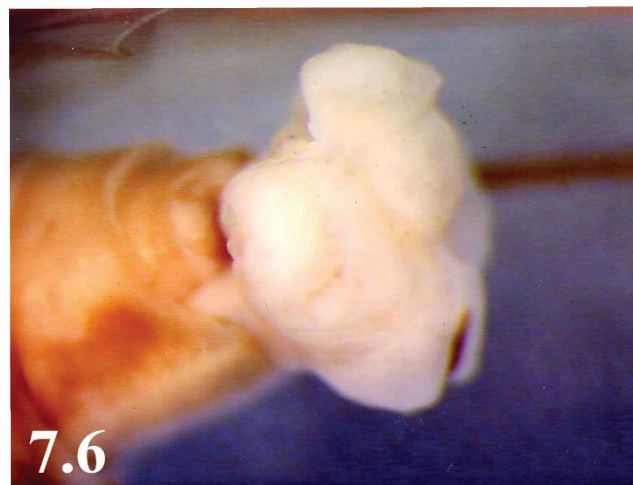
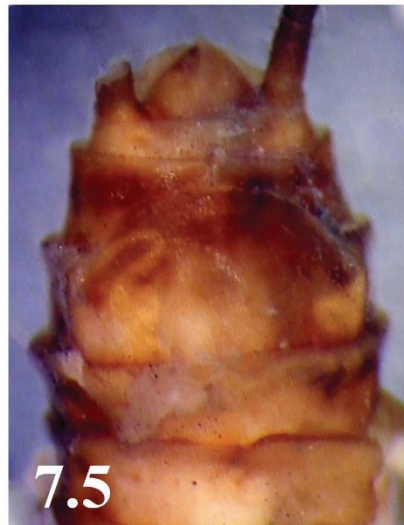
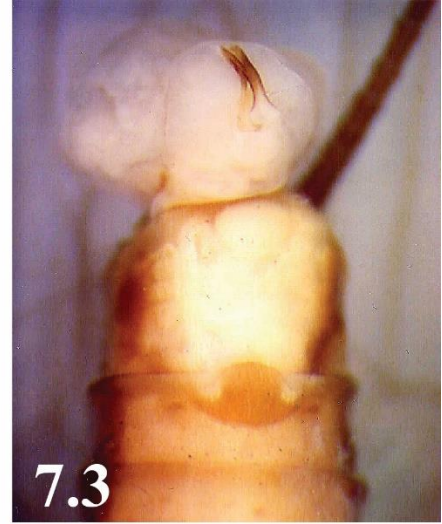
Isoperla chickamauga Szczytko and Kondratieff
Cloudland Stripetail
Figs. 7.1-7.6.

Isoperla chickamauga, Szczytko and Kondratieff 2015: 64.

Confirmed Distribution: USA – GA.

Isoperla chickamauga Figure Captions

- Fig. 7.1 – *Isoperla chickamauga* – holotype adult male head pattern; GA: Dade Co., small seep West Entrance Cloudland State Park.
- Fig. 7.2 – *Isoperla chickamauga* – holotype terminal male sterna; GA: Dade Co., small seep West Entrance Cloudland State Park.
- Fig. 7.3 – *Isoperla chickamauga* – holotype terminal male terga, dorsal view; GA: Dade Co., small seep West Entrance Cloudland State Park.
- Fig. 7.4 – *Isoperla chickamauga* – holotype sclerotized posteroventral aedeagal rod, oblique posterior view, GA: Dade Co., small seep West Entrance Cloudland State Park.
- Fig. 7.5 – *Isoperla chickamauga* – female subgenital plate, ventral view; GA: Dade Co., small seep West Entrance Cloudland State Park.
- Fig. 7.6 – *Isoperla chickamauga* – holotype aedeagus, oblique lateral view; NC: GA: Dade Co., small seep West Entrance Cloudland State Park.



Isoperla conspicua Frison
Rare Stripetail
Figs. 8.1-8.3.

Isoperla conspicua, Szczytko and Kondratieff 2015: 68.

Confirmed Distribution: USA – IL.

Isoperla conspicua Figure Captions

Fig. 8.1 – *Isoperla conspicua* – holotype female head pattern; IL: Rock Island Co., Rock Island.

Fig. 8.2 – *Isoperla conspicua* – holotype female subgenital plate, ventral view; IL: Rock Island Co., Rock Island.

Fig. 8.3 – *Isoperla conspicua* – holotype female meso- and metanota; IL: Rock Island Co., Rock Island.



Isoperla cotta Ricker
Ontario Stripetail
Figs. 9.1-9.8.

Isoperla cotta, Szczytko and Kondratieff 2015: 68.

Confirmed Distribution: CANADA – NB, NS, ON, PQ; USA – ME, MI, NH, NY, WI, WV.

Isoperla cotta Figure Captions

Fig. 9.1 – *Isoperla cotta* – adult male head pattern (dark form); NY: Delaware Co., Delaware River.

Fig. 9.2 – *Isoperla cotta* – adult male head pattern (light form); NY: Delaware Co., Delaware River.

Fig. 9.3 – *Isoperla cotta* – terminal male sterna; NY: Delaware Co., Delaware River.

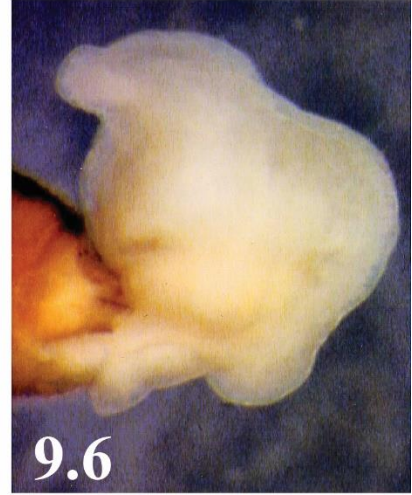
Fig. 9.4 – *Isoperla cotta* – terminal male terga; WI: Marquette Co., East Branch Chocolay River.

Fig. 9.5 – *Isoperla cotta* – male paraproct; WI: Lincoln Co., Ripley Creek.

Fig. 9.6 – *Isoperla cotta* – male aedeagus, lateral view; WI: Lincoln Co., Ripley Creek.

Fig. 9.7 – *Isoperla cotta* – male aedeagus, ventral view; WI: Lincoln Co., Ripley Creek.

Fig. 9.8 – *Isoperla cotta* – female subgenital plate, ventral view; WI: Bayfield Co., Sioux River.



Isoperla davis James
Alabama Stripetail
Figs. 10.1-10.6.

Isoperla davis, Szczytko and Kondratieff 2015: 73.

Confirmed Distribution: USA – AL, AR, DE, FL, LA, MO, MS, NC, OK, SC, TX, VA.

Isoperla davis Figure Captions

Fig. 10.1 – *Isoperla davis* – adult male head pattern; AR: Greene Co., Locust Creek.

Fig. 10.2 – *Isoperla davis* – terminal male sterna; NC: Edgecombe Co., Swift Creek.

Fig. 10.3 – *Isoperla davis* – terminal male terga; NC: Edgecombe Co., Swift Creek.

Fig. 10.4 – *Isoperla davis* – male paraproct; NC: Edgecombe Co., Swift Creek.

Fig. 10.5 – *Isoperla davis* – male aedeagus, lateral view; NC: Edgecombe Co., Fishing Creek.

Fig. 10.6 – *Isoperla davis* – female subgenital plate, ventral view; NC: Cumberland/Harnett Co. line, Little River.



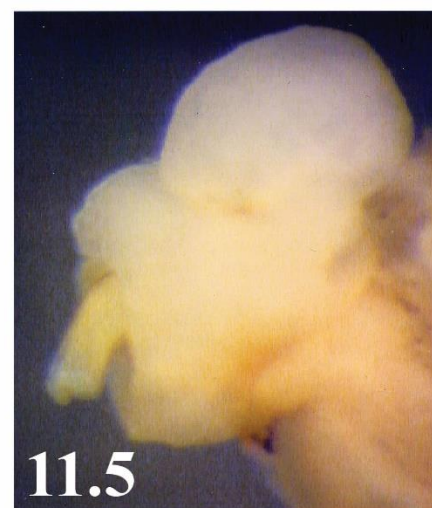
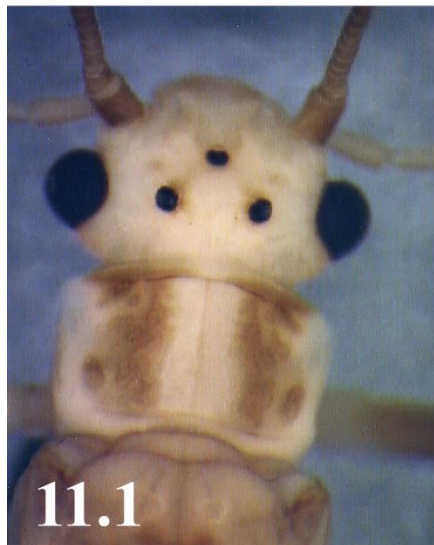
Isoperla decepta Frison
Yellow Stripetail
Figs. 11.1-11.7.

Isoperla decepta, Szczytko and Kondratieff 2015: 80.

Confirmed Distribution: CANADA – ON; USA – AL, IL, IN, KY, MI, MO, OH.

Isoperla decepta Figure Captions

- Fig. 11.1 – *Isoperla decepta* – adult male head pattern; TN: Trousdale Co., Tributary to Second Creek.
- Fig. 11.2 – *Isoperla decepta* – terminal male sterna; TN: Trousdale Co., Tributary to Second Creek.
- Fig. 11.3 – *Isoperla decepta* – terminal male terga and dorsal view of aedeagus; TN: Trousdale Co., Tributary to Second Creek.
- Fig. 11.4 – *Isoperla decepta* – male aedeagus and paraprocts, lateral view; NC: TN: Trousdale Co., Tributary to Second Creek.
- Fig. 11.5 – *Isoperla decepta* – detail of male aedeagal sclerotized structure, lateral view; OH: Ross Co., Ralston River.
- Fig. 11.6 – *Isoperla decepta* – female subgenital plate, ventral view; TN: Trousdale Co., Tributary to Second Creek.
- Fig. 11.7 – *Isoperla decepta* – sclerotized male aedeagal structure, posterodorsal view; OH: Ross Co., Ralston River.



Isoperla decolorata (Walker)

Bearlake Stripetail

Figs. 12.1-12.5.

Isoperla decolorata, Szczytko and Kondratieff 2015: 83.

Eastern Confirmed Distribution – CANADA – MB, ON.

Isoperla decolorata Figure Captions

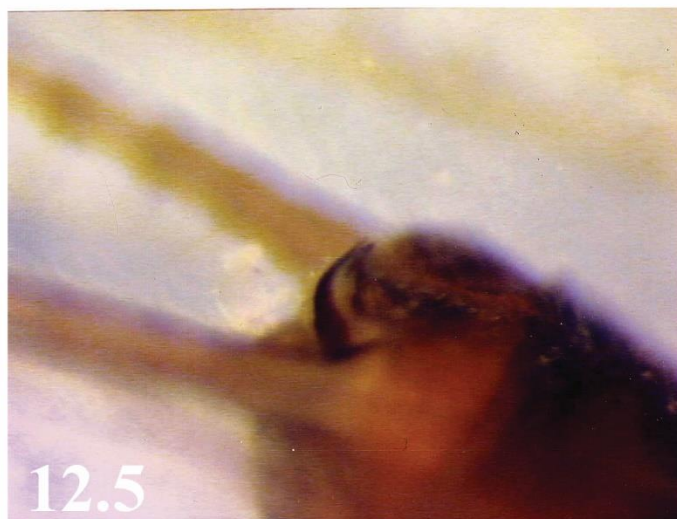
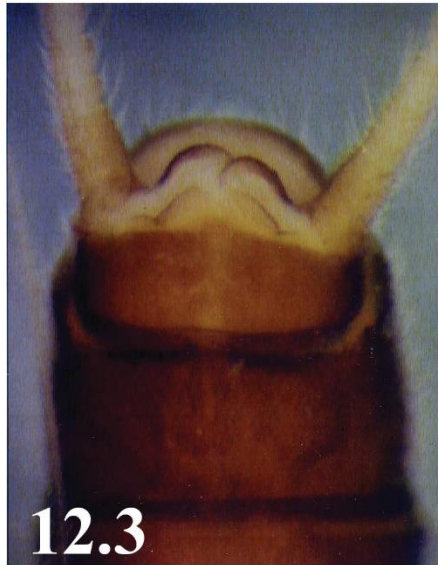
Fig. 12.1 – *Isoperla decolorata* – adult male head pattern; Canada: Northwest Territories, Mackenzie River.

Fig. 12.2 – *Isoperla decolorata* – terminal male sterna; Canada: Northwest Territories, Mackenzie River.

Fig. 12.3 – *Isoperla decolorata* – terminal male terga; Canada: Northwest Territories, Mackenzie River.

Fig. 12.4 – *Isoperla decolorata* – female subgenital plate, ventral view; Canada: Northwest Territories, Mackenzie River.

Fig. 12.5 – *Isoperla decolorata* – male paraproct, lateral view; Canada: Northwest Territories, Mackenzie River.



Isoperla dicala Frison
Sable Stripetail
Figs. 13.1-13.7.

Isoperla dicala, Szczytko and Kondratieff 2015: 86.

Confirmed Distribution: CANADA – MB, NB, ON, PQ; USA – AL, CT, FL, GA, IA, IN, KY, MA, ME, MI, MN, MO, MS, NC, NY, OH, PA, SC, TN, WI, WV.

Isoperla dicala Figure Captions

Fig. 13.1 – *Isoperla dicala* – adult male head pattern; WI: Price Co., South Fork Flambeau River.

Fig. 13.2 – *Isoperla dicala* – terminal male sterna; WI: Price Co., South Fork Flambeau River.

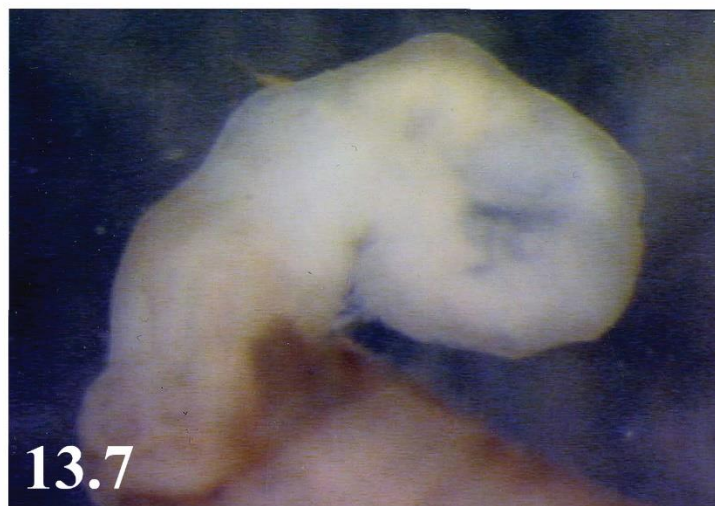
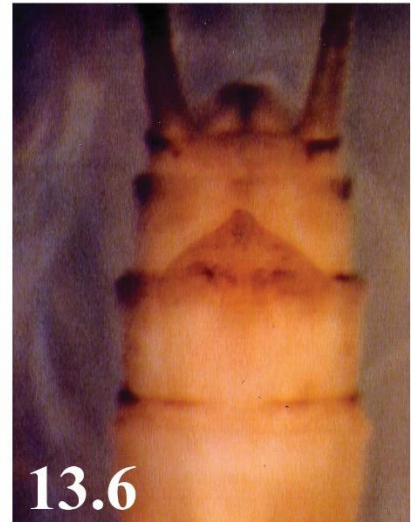
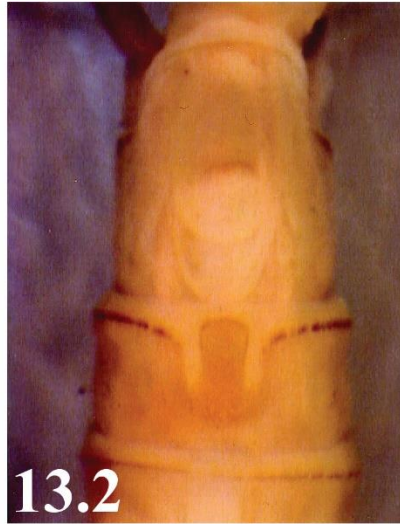
Fig. 13.3 – *Isoperla dicala* – terminal male terga; WI: Price Co., South Fork Flambeau River.

Fig. 13.4 – *Isoperla dicala* – male paraproct, lateral view; WI: Price Co., South Fork Flambeau River.

Fig. 13.5 – *Isoperla dicala* – male aedeagus with sclerotized spine, posterior view; WI: Price Co., South Fork Flambeau River.

Fig. 13.6 – *Isoperla dicala* – female subgenital plate, ventral view; WI: Price Co., South Fork Flambeau River.

Fig. 13.7 – *Isoperla dicala* – male aedeagus, lateral view; WI: Price Co., South Fork Flambeau River.



Isoperla distincta Nelson
Twisted Stripetail
Figs. 14.1-14.9.

Isoperla distincta, Szczytko and Kondratieff 2015: 90.

Confirmed Distribution: USA – TN.

Isoperla distincta Figure Captions

- Fig. 14.1 – *Isoperla distincta* – holotype adult male head pattern; TN: Polk Co., Goforth Creek.
- Fig. 14.2 – *Isoperla distincta* – holotype male terminal sterna; TN: Polk Co., Goforth Creek.
- Fig. 14.3 – *Isoperla distincta* – holotype male terminal terga; TN: Polk Co., Goforth Creek.
- Fig. 14.4 – *Isoperla distincta* – paratype male paraproct, oblique lateral view; TN: Polk Co., Goforth Creek.
- Fig. 14.5 – *Isoperla distincta* – holotype male abdominal segments, lateral view showing lobes on 5th and 6th segments; TN: Polk Co., Goforth Creek.
- Fig. 14.6 – *Isoperla distincta* – holotype male abdominal segments, dorsal view showing lobes on 5th and 6th segments; TN: Polk Co., Goforth Creek.
- Fig. 14.7 – *Isoperla distincta* – holotype male abdominal segments, ventral view showing lobes on 5th segment; TN: Polk Co., Goforth Creek.
- Fig. 14.8 – *Isoperla distincta* – allotype female subgenital plate, ventral view showing lobes on 5th segment; TN: Polk Co., Goforth Creek.
- Fig. 14.9 – *Isoperla distincta* – paratype male femur and tibia; TN: Polk Co., Goforth Creek.



Isoperla emarginata Harden and Mickel
Crescent Stripetail
15.1-15.2.

Isoperla emarginata, Szczytko and Kondratieff 2015: 92.

Confirmed Distribution: USA – MN.

Isoperla emarginata Figure Captions

Fig. 15.1 – *Isoperla emarginata* – holotype adult female head pattern; MN: Cook Co, Grand Marais.

Fig. 15.2 – *Isoperla emarginata* – holotype female subgenital plate; MN: Cook Co, Grand Marais.



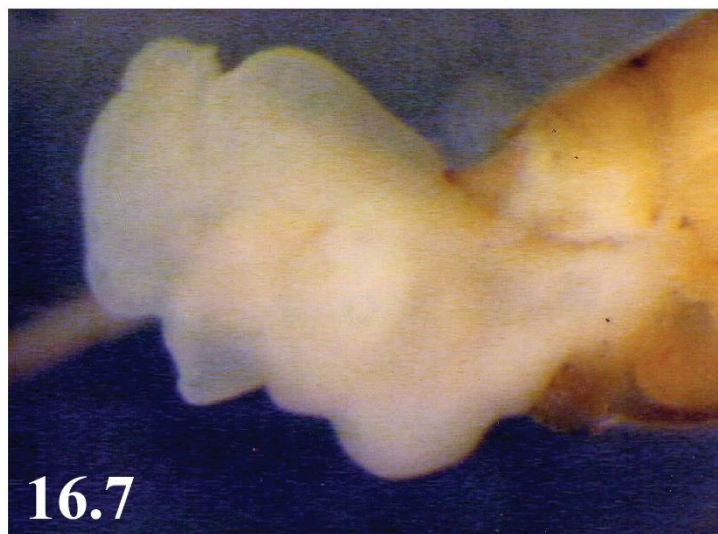
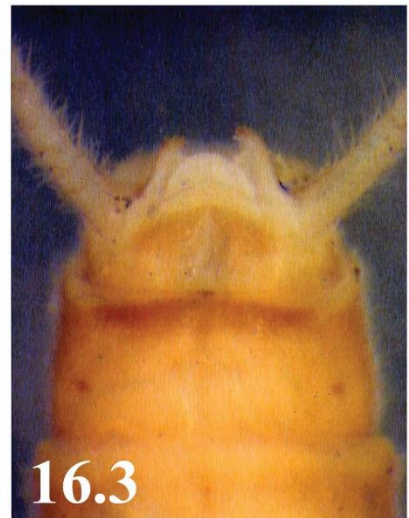
Isoperla fauschi Szczytko and Kondratieff
Lumber Stripetail
Figs. 16.1-16.7.

Isoperla fauschi, Szczytko and Kondratieff 2015: 93.

Confirmed Distribution: USA – NC.

Isoperla fauschi Figure Captions

- Fig. 16.1 – *Isoperla fauschi* – adult male head pattern; NC: Roberson Co., Lumber River.
Fig. 16.2 – *Isoperla fauschi* – male terminal sterna; NC: Roberson Co., Lumber River.
Fig. 16.3 – *Isoperla fauschi* – male terminal terga; NC: Roberson Co., Lumber River.
Fig. 16.4 – *Isoperla fauschi* – male paraproct, oblique lateral view; NC: Roberson Co.,
Lumber River.
Fig. 16.5 – *Isoperla fauschi* – male meso- and metanota; NC: Roberson Co., Lumber River.
Fig. 16.6 – *Isoperla fauschi* – female subgenital plate, ventral view; NC: Roberson Co.,
Lumber River.
Fig. 16.7 – *Isoperla fauschi* – male aedeagus, lateral view; NC: Roberson Co., Lumber
River.



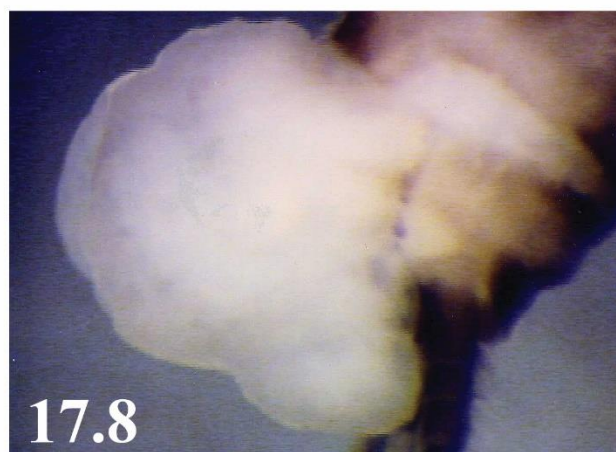
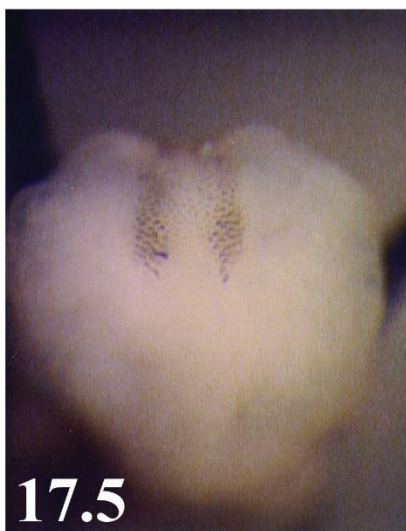
Isoperla francesca Harper
Northeastern Stripetail
Figs. 17.1-17.8.

Isoperla francesca, Szczytko and Kondratieff 2015: 98.

Confirmed Distribution: CANADA – NB, NS, PQ; USA – ME, NY.

Isoperla francesca Figure Captions

- Fig. 17.1 – *Isoperla francesca* – paratype male head pattern; CANADA: Quebec, St.-Hippolyte.
- Fig. 17.2 – *Isoperla francesca* – paratype male terminal sterna; CANADA: Quebec, St.-Hippolyte.
- Fig. 17.3 – *Isoperla francesca* – paratype male terminal terga; CANADA: Quebec, St.-Hippolyte.
- Fig. 17.4 – *Isoperla francesca* – male paraproct, oblique lateral view; NY: Hamilton Co., Beaver Meadow Brook.
- Fig. 17.5 – *Isoperla francesca* – male aedeagus, posterodorsal view; NY: Hamilton Co., Beaver Meadow Brook.
- Fig. 17.6 – *Isoperla francesca* – paratype female subgenital plate, ventral view; CANADA: Quebec, St.-Hippolyte.
- Fig. 17.7 – *Isoperla francesca* – paratype female subgenital plate, lateral view; CANADA: Quebec, St.-Hippolyte.
- Fig. 17.8 – *Isoperla francesca* – male aedeagus, lateral view; NY: Hamilton Co., Beaver Meadow Brook.



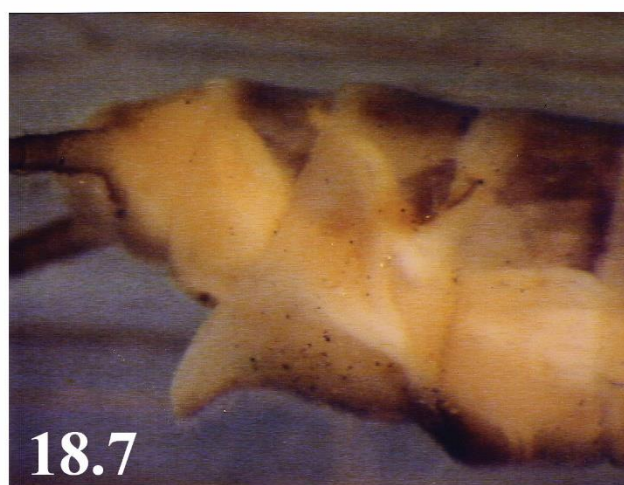
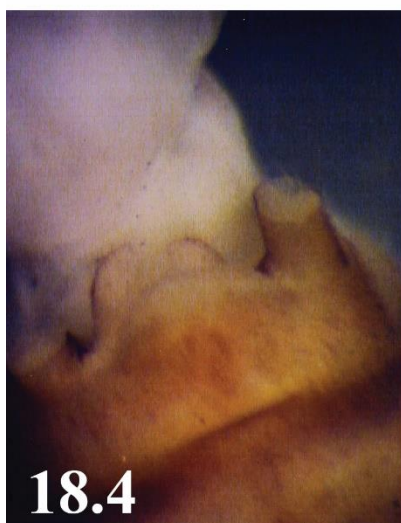
Isoperla frisoni Illies
Wisconsin Stripetail
Figs. 18.1-18.7.

Isoperla frisoni, Szczytko and Kondratieff 2015: 103.

Confirmed Distribution: CANADA – MB, NB, NS, ON, PE, PQ; USA – CT, DE, GA, IN, ME, MI, MN, NC, NY, PA, SC, TN, VA, WI.

Isoperla frisoni Figure Captions

- Fig. 18.1 – *Isoperla frisoni* – male head pattern; WI: Oneida Co., Bearskin River.
Fig. 18.2 – *Isoperla frisoni* – male terminal sterna; WI: Oneida Co., Bearskin River.
Fig. 18.3 – *Isoperla frisoni* – male terminal terga; MI: Lake Co., Pere Marquette River.
Fig. 18.4 – *Isoperla frisoni* – male paraproct, oblique lateral view; MI: Mackinac Co., Carp River.
Fig. 18.5 – *Isoperla frisoni* – male aedeagus, lateral view; ME: Somerset Co., Moose River.
Fig. 18.6 – *Isoperla frisoni* - female subgenital plate, ventral view; WI: Oneida Co., Bearskin River.
Fig. 18.7 – *Isoperla frisoni* – female subgenital plate, lateral view; MI: Lake Co., Pere Marquette River.



Isoperla gibbsae Harper
Quebec Stripetail
Figs. 19.1-19.6.

Isoperla gibbsae, Szczytko and Kondratieff 2015: 107.

Confirmed Distribution: CANADA – PQ; USA – CT, MA, NY.

Isoperla gibbsae Figure Captions

Fig. 19.1 – *Isoperla gibbsae* – male head pattern; CT: New London Co., Experimental Lab.

Fig. 19.2 – *Isoperla gibbsae* – male terminal sterna; CT: Fairfield Co., Easton, Morehouse Brook.

Fig. 19.3 – *Isoperla gibbsae* – male terminal terga; CT: New London Co., Experimental Lab.

Fig. 19.4 – *Isoperla gibbsae* – male paraproct, lateral view; CT: Fairfield Co., Easton, Morehouse Brook.

Fig. 19.5 – *Isoperla gibbsae* – female subgenital plate, ventral view; CT: New London Co., Experimental Lab.

Fig. 19.6 – *Isoperla gibbsae* – female subgenital plate, lateral view; CT: Fairfield Co., Easton, Morehouse Brook.



Isoperla holochlora (Klapálek)

Pale Stripetail

Figs. 20.1-20.8.

Isoperla holochlora, Szczytko and Kondratieff 2015: 109.

Confirmed Distribution: CANADA – NS, PQ; USA – AL, DE, KY, MD, ME, NC, NY, OH, PA, SC, TN, VA, WV.

Isoperla holochlora Figure Captions

Fig. 20.1 – *Isoperla holochlora* – male head pattern; NC: Yancey Co., Tributary to Rock Creek.

Fig. 20.2 – *Isoperla holochlora* – male terminal sterna; SC: Anderson Co., Broadway Creek.

Fig. 20.3 – *Isoperla holochlora* – male terminal terga; NC: Swain Co., Nantahala River.

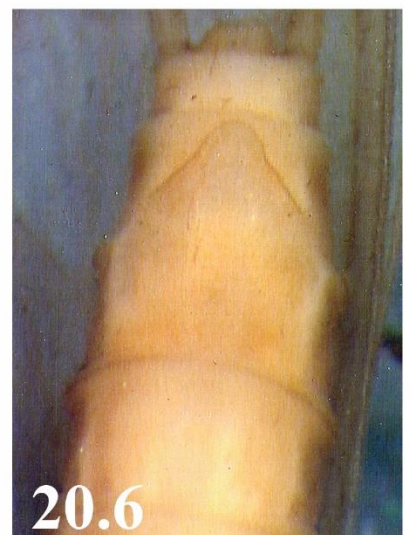
Fig. 20.4 – *Isoperla holochlora* – male aedeagus, posterodorsal view; NC: Yancey Co., Tributary Rock Creek.

Fig. 20.5 – *Isoperla holochlora* – female subgenital plate, ventral view; NC: Smoky Mountain National Park, Oconaluftee River.

Fig. 20.6 – *Isoperla holochlora* – female subgenital plate, ventral view; SC: Anderson Co., Broadway Creek.

Fig. 20.7 – *Isoperla holochlora* – male aedeagus, lateral view; NC: Yancey Co., Tributary Rock Creek.

Fig. 20.8 – *Isoperla holochlora* – female subgenital plate, lateral view; PA: Chester Co., Wet Lab at Stroud Research Center.



Isoperla irregularis (Klapálek)

Texas Stripetail

Figs. 21.1-21.9.

Isoperla irregularis, Szczytko and Kondratieff 2015: 114.

Confirmed Distribution: USA – AR, IL, KS, LA, MO, OK, TX.

Isoperla irregularis Figure Captions

Fig. 21.1 – *Isoperla irregularis* – male head pattern; AR: Izard Co., Worthington Creek.

Fig. 21.2 – *Isoperla irregularis* – male terminal sterna; AR: Izard Co., Worthington Creek.

Fig. 21.3 – *Isoperla irregularis* – male terminal terga; AR: Izard Co., Worthington Creek.

Fig. 21.4 – *Isoperla irregularis* – male paraproct, lateral view; AR: Izard Co., Worthington Creek.

Fig. 21.5 – *Isoperla irregularis* – male aedeagus, lateral view; AR: Izard Co., Worthington Creek.

Fig. 21.6 – *Isoperla irregularis* – male aedeagus, dorsoposterior view; AR: Izard Co., Worthington Creek.

Fig. 21.7 – *Isoperla irregularis* – male aedeagus, ventroposterior view; AR: Izard Co., Worthington Creek.

Fig. 21.8 – *Isoperla irregularis* – detail of aedeagal sclerotized structure, posterior view; AR: Izard Co., Worthington Creek.

Fig. 21.9 – *Isoperla irregularis* – female subgenital plate, ventral view; AR: Izard Co., Worthington Creek.



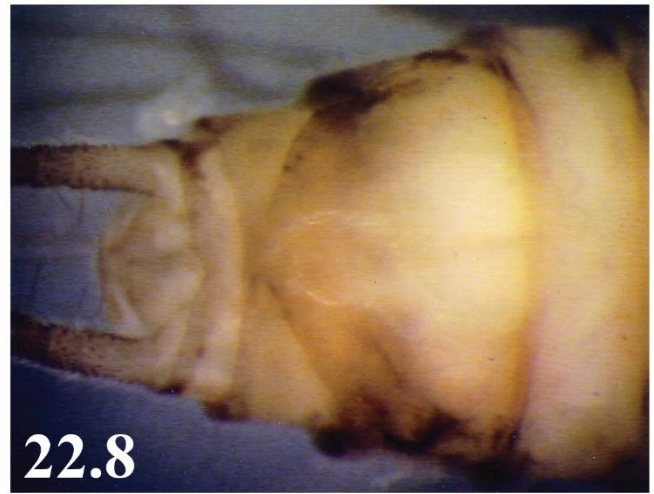
Isoperla jamesae Grubbs & Szczytko
Natchez Trace Stripetail
Figs. 22.1-22.8.

Isoperla jamesae, Szczytko and Kondratieff 2015: 118.

Confirmed Distribution: USA- AL, MS.

Isoperla jamesae Figure Captions

- Fig. 22.1 – *Isoperla jamesae* – male head pattern; AL: Lauderdale Co., Colbert Creek.
Fig. 22.2 – *Isoperla jamesae* – male terminal sterna; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.3 – *Isoperla jamesae* – male terminal terga; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.4 – *Isoperla jamesae* – male metafemora and tibia; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.5 – *Isoperla jamesae* – male aedeagus, lateral view; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.6 – *Isoperla jamesae* – male aedeagus, dorsoposterior view; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.7 – *Isoperla jamesae* – male paraprocts, dorsal view; AL: Lauderdale Co., North Fork Cypress Creek.
Fig. 22.8 – *Isoperla jamesae* – female subgenital plate, ventral view; AL: Lauderdale Co., Colbert Creek.



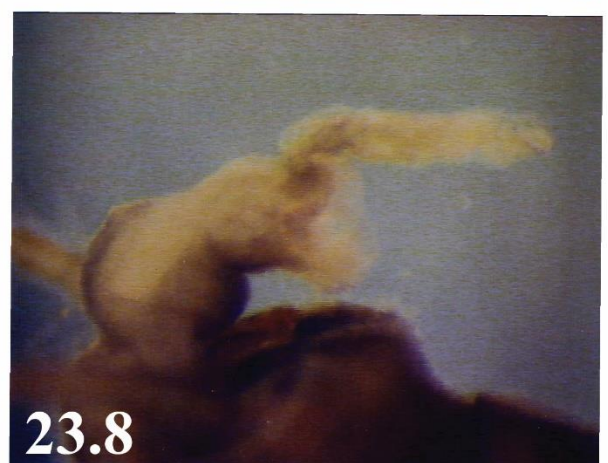
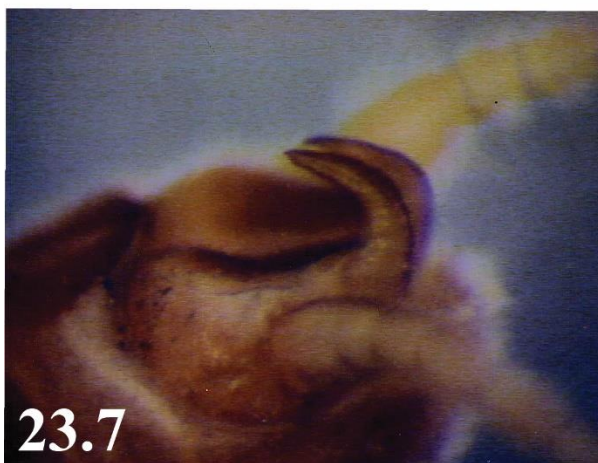
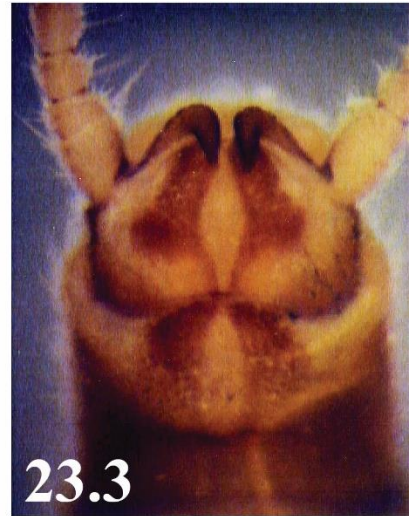
Isoperla jewetti Szczytko and Stewart
Grande Stripetail
Figs. 23.1-23.8.

Isoperla jewetti, Szczytko and Kondratieff 2015: 123.

Confirmed Distribution: USA – CO, TX.

Isoperla jewetti Figure Captions

- Fig. 23.1 – *Isoperla jewetti* – male head pattern; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.2 – *Isoperla jewetti* – male terminal sterna; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.3 – *Isoperla jewetti* – male terminal terga, dorsal view; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.4 – *Isoperla jewetti* – male terminal terga, lateral view; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.5 – *Isoperla jewetti* – female subgenital plate, ventral view; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.6 – *Isoperla jewetti* – male abdomen, lateral view; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.7 – *Isoperla jewetti* – male paraprocts, lateral view; TX: El Paso Co., Road to Marathon, irrigation ditch.
- Fig. 23.8 – *Isoperla jewetti* – male aedeagus, lateral view; TX: El Paso Co., Road to Marathon, irrigation ditch.



Isoperla kirchneri Szczytko and Kondratieff
Two-spine Stripetail
Figs. 24.1-24.8.

Isoperla kirchneri, Szczytko and Kondratieff 2015: 126.

Confirmed Distribution. USA – NC, NY, PA, TN, VA, WV.

Isoperla kirchneri Figure Captions

Fig. 24.1 – *Isoperla kirchneri* – male head pattern; VA: Grayson Co., Opossum Creek.

Fig. 24.2 – *Isoperla kirchneri* – male terminal sterna; TN: Sevier Co., Little River.

Fig. 24.3 – *Isoperla kirchneri* – male terminal terga, dorsal view; VA: Grayson Co., Opossum Creek.

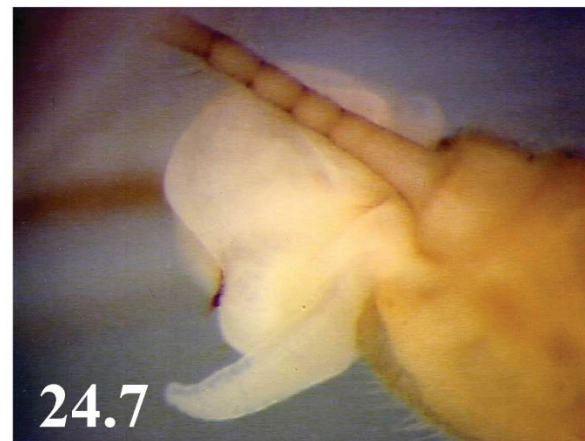
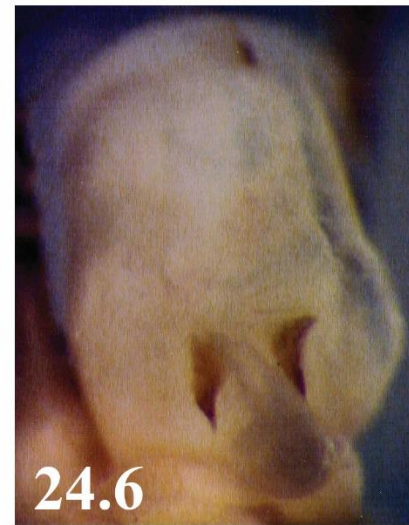
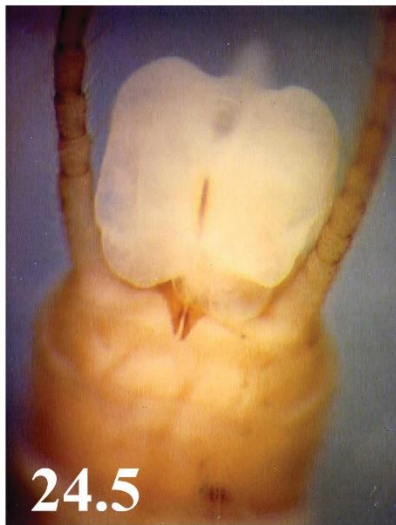
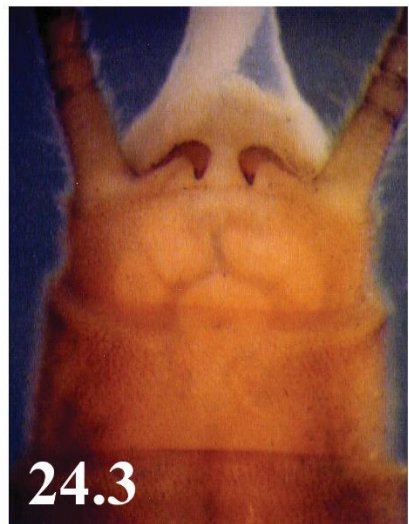
Fig. 24.4 – *Isoperla kirchneri* – male paraprocts, lateral view; VA: Grayson Co., Opossum Creek.

Fig. 24.5 – *Isoperla kirchneri* – male aedeagus, dorsal view; TN: Sevier Co., Little River.

Fig. 24.6 – *Isoperla kirchneri* – male posterior aedeagal spine plates; TN: Sevier Co., Little River.

Fig. 24.7 – *Isoperla kirchneri* – male aedeagus, lateral view; TN: Sevier Co., Little River.

Fig. 24.8 – *Isoperla kirchneri* – female subgenital plate, ventral view; VA: Grayson Co., Opossum Creek.



Isoperla lata Frison
Dark Stripetail
Figs. 25.1-25.7.

Isoperla lata, Szczytko and Kondratieff 2015: 133.

Confirmed Distribution: CANADA – LB, NB, NS, ON, PQ; USA – ME, MI, MN, NC, TN, WI, WV.

Isoperla lata Figure Captions

Fig. 25.1 – *Isoperla lata* – male head pattern; WI: Lincoln Co., Ripley Creek.

Fig. 25.2 – *Isoperla lata* – male terminal sterna; WI: Lincoln Co., Ripley Creek.

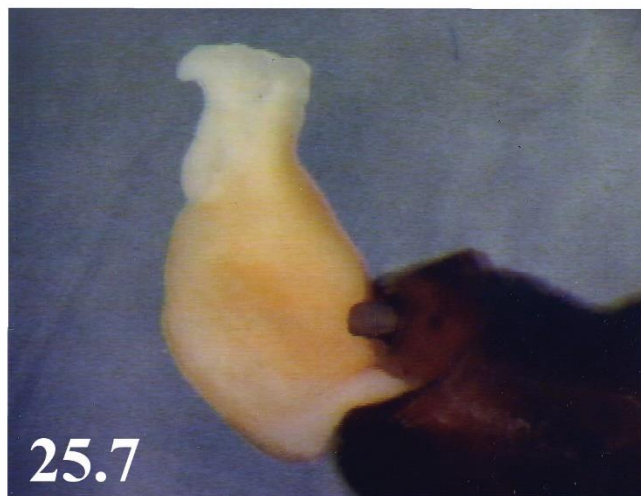
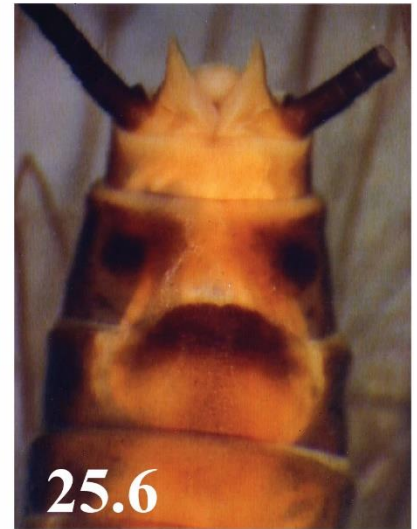
Fig. 25.3 – *Isoperla lata* – male terminal terga, dorsal view; WI: Shawano Co., Comet Creek.

Fig. 25.4 – *Isoperla lata* – male paraproct, lateral view; WI: Lincoln Co., Ripley Creek.

Fig. 25.5 – *Isoperla lata* – male aedeagus, posteroventral view; WI: Shawano Co., Comet Creek.

Fig. 25.6 – *Isoperla lata* – female subgenital plate, ventral view; WI: Shawano Co., Comet Creek.

Fig. 25.7 – *Isoperla lata* – male aedeagus, lateral view; WI: Shawano Co., Comet Creek.



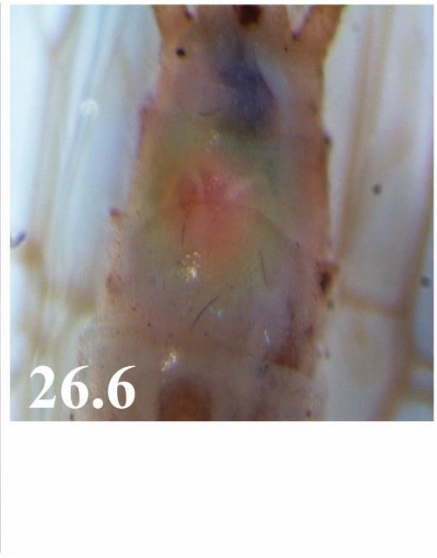
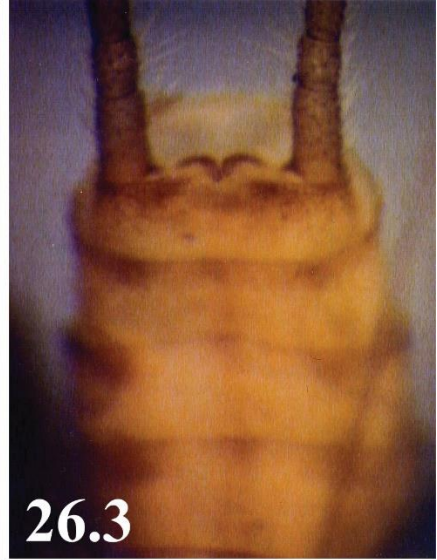
Isoperla lenati Szczytko and Kondratieff
Little Stripetail
Figs. 26.1-26.7.

Isoperla lenati, Szczytko and Kondratieff 2015: 138.

Confirmed Distribution: USA –GA, FL, NC, SC.

Isoperla lenati Figure Captions

- Fig. 26.1 – *Isoperla lenati* – male head pattern; NC: Moore Co., Little Cane Creek.
Fig. 26.2 – *Isoperla lenati* – male terminal sterna; NC: Moore Co., Nicks Creek.
Fig. 26.3 – *Isoperla lenati* – male terminal terga, dorsal view; NC: Hoke Co., Rockfish Creek.
Fig. 26.4 – *Isoperla lenati* – male abdomen, lateral view; NC: Moore Co., Nicks Creek.
Fig. 26.5 – *Isoperla lenati* – male aedeagus, lateral view; NC: Hoke Co., Rockfish Creek.
Fig. 26.6 – *Isoperla lenati* – female subgenital plate, ventral view; NC: Hoke/Moore Co. line, Little River Morrison Bridge Road, East of Southern Pines, Little River.



Isoperla longiseta Banks

Plains Stripetail

Figs. 27.1-27.8.

Isoperla longiseta, Szczytko and Kondratieff 2015: 141.

Eastern Confirmed Distribution: CANADA – ON, PQ, SK; USA – IA, IL, KS, MN, MO, ND, SD.

Isoperla longiseta Figure Captions

Fig. 27.1 – *Isoperla longiseta* – male head pattern; CO: Mesa Co., Dolores River.

Fig. 27.2 – *Isoperla longiseta* – male terminal sterna; IA: Story Co., Ames.

Fig. 27.3 – *Isoperla longiseta* – male terminal terga, dorsal view; IA: Story Co., Ames.

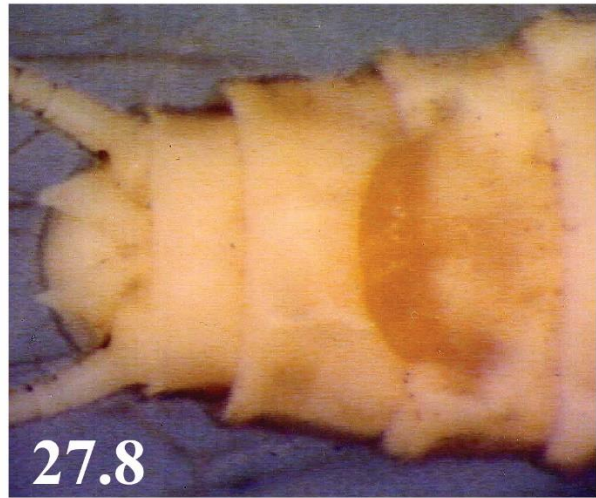
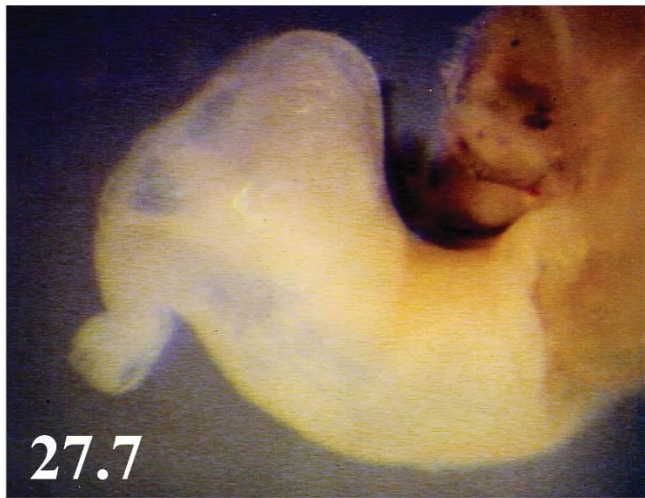
Fig. 27.4 – *Isoperla longiseta* – male paraprocts, lateral view; CO: Mesa Co., Dolores River.

Fig. 27.5 – *Isoperla longiseta* – male meso- and metanota; CO: Mesa Co., Dolores River.

Fig. 27.6 – *Isoperla longiseta* – male aedeagus, anterior view; IA: Story Co., Ames.

Fig. 27.7 – *Isoperla longiseta* – male aedeagus, lateral view; CO: Mesa Co., Dolores River.

Fig. 27.8 – *Isoperla longiseta* – female subgenital plate, ventral view; IA: Story Co., Ames.



Isoperla major Nelson and Kondratieff
Big Stripetail
Figs. 28.1-28.5.

Isoperla major, Szczytko and Kondratieff 2015: 145.

Confirmed Distribution: USA – VA.

Isoperla major Figure Captions

- Fig. 28.1 – *Isoperla major* – allotype female head pattern; VA: Tazewell Co., Station Springs Creek.
- Fig. 28.2 – *Isoperla major* – holotype male terminal sterna; VA: Tazewell Co., Station Springs Creek.
- Fig. 28.3 – *Isoperla major* – holotype male terminal terga, dorsal view; VA: Tazewell Co., Burks Garden.
- Fig. 28.4 – *Isoperla major* – paratype male paraprocts, lateral view; VA: Tazewell Co., Station Springs Creek.
- Fig. 28.5 – *Isoperla major* – allotype female subgenital plate, ventral view; VA: Tazewell Co., Station Springs Creek.



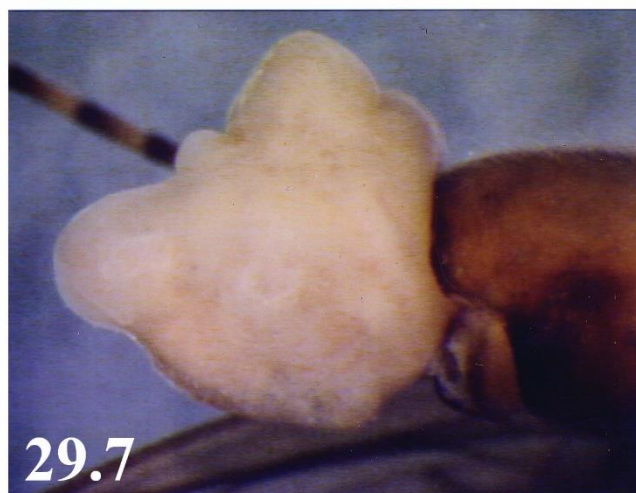
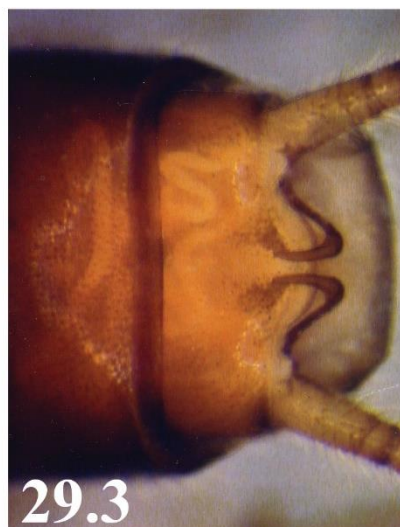
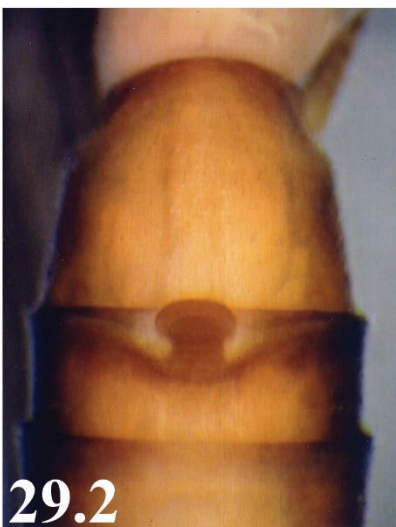
Isoperla marlynia Needham and Claassen
Midwestern Stripetail
Figs. 29.1-29.7.

Isoperla marlynia, Szczytko and Kondratieff 2015: 149.

Confirmed Distribution: CANADA – MB, NB, NS, ON, PQ; USA – CO, IA, IL, IN, KY, ME, MI, MN, NE, NJ, NY, PA, VA, WV, WI.

Isoperla marlynia Figure Captions

- Fig. 29.1 – *Isoperla marlynia* – male head pattern; WI: Shawano Co., Comet Creek.
Fig. 29.2 – *Isoperla marlynia* – terminal sterna; WI; Florence Co., Pine River.
Fig. 29.3 – *Isoperla marlynia* – male terminal terga, dorsal view; WI; Florence Co., Pine River.
Fig. 29.4 – *Isoperla marlynia* – male paraprocts, lateral view; WI; Florence Co., Pine River.
Fig. 29.5 – *Isoperla marlynia* – female subgenital plate, ventral view; WI: Shawano Co., Comet Creek.
Fig. 29.6 – *Isoperla marlynia* – female subgenital plate, ventral view; NE: Scotts Bluff Co., North Platte River.
Fig. 29.7 – *Isoperla marlynia* – male aedeagus, lateral view; WI; Florence Co., Pine River.



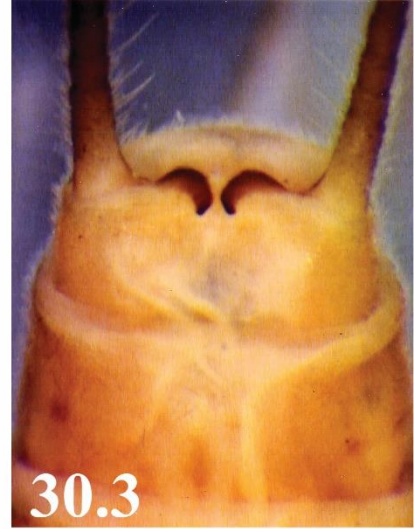
Isoperla montana Banks
Montane Stripetail
Figs. 30.1-30.9.

Isoperla montana, Szczytko and Kondratieff 2015: 155.

Confirmed Distribution: CANADA – ON, NS, PQ; USA – CT, DE, IN, KY, MD, ME, MN, NC, NH, NJ, NY, OH, PA, SC, VA, WV.

Isoperla montana Figure Captions

- Fig. 30.1 – *Isoperla montana* – male head pattern; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.2 – *Isoperla montana* – male terminal sterna; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.3 – *Isoperla montana* – male terminal terga, dorsal view; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.4 – *Isoperla montana* – male paraprocts, lateral view; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.5 – *Isoperla montana* – male abdominal terga; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.6 – *Isoperla montana* – male aedeagus, lateral view; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.7 – *Isoperla montana* – male aedeagus, posterior view; VA: Tazewell Co., Station Springs Creek.
- Fig. 30.8 – *Isoperla montana* – female subgenital plate, ventral view; VA: Smyth Co., North Fork Holston River.
- Fig. 30.9 – *Isoperla montana* – female subgenital plate, ventral view; WV: Webster Co., Elk River.



Isoperla myersi Szczytko and Kondratieff
Paddle Stripetail
Figs. 31.1-31.5.

Isoperla myersi, Szczytko and Kondratieff 2015: 162.

Confirmed Distribution. USA – NY.

Isoperla myersi Figure Captions

Fig. 31.1 – *Isoperla myersi* – male head pattern; NY: Ulster Co., Big Indian Hollow.

Fig. 31.2 – *Isoperla myersi* – male paraprocts, dorsal view; NY: Ulster Co., Big Indian Hollow.

Fig. 31.3 – *Isoperla myersi* – male aedeagus, posterior view; NY: Ulster Co., Big Indian Hollow.



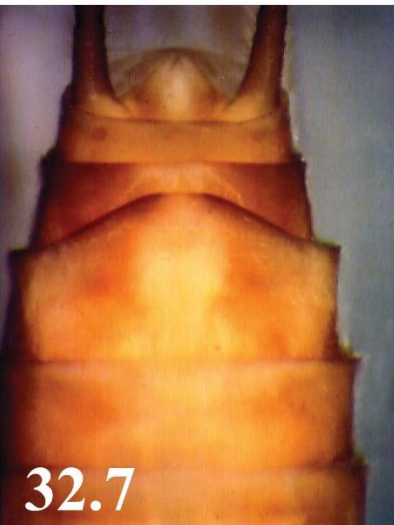
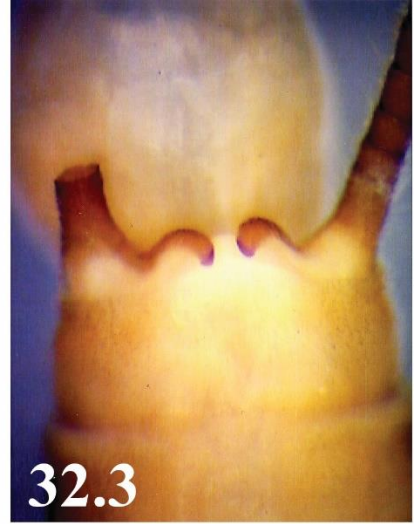
Isoperla namata Frison
Ozark Stripetail
Figs. 32.1-32.8.

Isoperla namata, Szczytko and Kondratieff 2015: 164.

Confirmed Distribution: USA – AR, IL, IN, MO, OH, OK.

Plate 32. *Isoperla namata* Figure Captions

- Fig. 32.1 – *Isoperla namata* – male head pattern; AR: Stone Co., Rocky Bayou.
Fig. 32.2 – *Isoperla namata* – male terminal sterna; AR: Stone Co., Rocky Bayou.
Fig. 32.3 – *Isoperla namata* – male terminal terga; MO: Oregon Co., Eleven Point River.
Fig. 32.4 – *Isoperla namata* – male paraprocts, lateral view; AR: Stone Co., Rocky Bayou.
Fig. 32.5 – *Isoperla namata* – male aedeagus, lateral view; AR: Pike Co., Wolf Creek.
Fig. 32.6 – *Isoperla namata* – male aedeagus, posterior view; MO: Ripley Co., Isaacs Creek.
Fig. 32.7 – *Isoperla namata* – female subgenital plate, ventral view; MO: Taney Co., Bull Creek.
Fig. 32.8 – *Isoperla namata* – female subgenital plate, ventral view; AR: Stone Co., Rocky Bayou.



Isoperla nana (Walsh)

Least Stripetail

Figs. 33.1-33.7.

Isoperla nana, Szczytko and Kondratieff 2015: 169.

Confirmed Distribution: CANADA – ON, PQ; USA – IL, IN, KY, MI, NY, OH, PA, WI.

Isoperla nana Figure Captions

Fig. 33.1 – *Isoperla nana* – male head pattern; .OH: Ashtabula Co., stream at Pymatuning State Park.

Fig. 33.2 – *Isoperla nana* – male terminal sterna; OH: Noble Co., Dog Run.

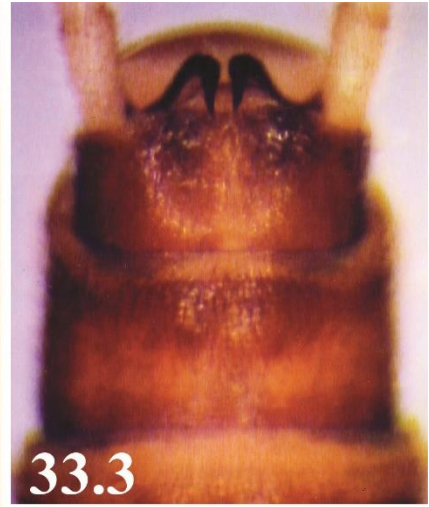
Fig. 33.3 – *Isoperla nana* – male terminal terga; OH: Ashtabula Co., stream at Pymatuning State Park.

Fig. 33.4 – *Isoperla nana* – male paraprocts lateral view; OH: Ashtabula Co., stream at Pymatuning State Park.

Fig. 33.5 – *Isoperla nana* – male wings dorsal view; OH: Noble Co., Dog Run.

Fig. 33.6 – *Isoperla nana* – male aedeagus lateral view; OH: Noble Co., Dog Run.

Fig. 33.7 – *Isoperla nana* – female subgenital plate ventral view; OH: Noble Co., Dog Run.



Isoperla nelsoni Szczytko and Kondratieff
Nelson Stripetail
Figs. 34.1-34.7.

Isoperla nelsoni, Szczytko and Kondratieff 2015: 174.

Confirmed Distribution: USA – AL, GA, KY, NC, TN, VA.

Isoperla nelsoni Figure Captions

- Fig. 34.1 – *Isoperla nelsoni* – male head pattern; GA: Dade Co., small stream near entrance to Cloudland Canyon State Park.
- Fig. 34.2 – *Isoperla nelsoni* – male terminal sterna; TN: Hamilton Co., Shoal Creek.
- Fig. 34.3 – *Isoperla nelsoni* – male terminal terga; TN: Hamilton Co., Shoal Creek.
- Fig. 34.4 – *Isoperla nelsoni* – male aedeagus, oblique posterolateral view; TN: Hamilton Co., Shoal Creek.
- Fig. 34.5 – *Isoperla nelsoni* – male aedeagus, ventral view; TN: Hamilton Co., Shoal Creek.
- Fig. 34.6 – *Isoperla nelsoni* – female subgenital plate, ventral view; TN: Hamilton Co., Shoal Creek.
- Fig. 34.7 – *Isoperla nelsoni* – female subgenital plate, lateral view; GA: Dade Co., small stream near entrance to Cloudland Canyon State Park.



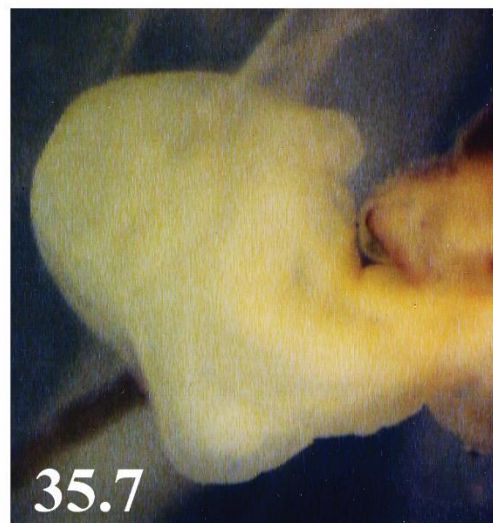
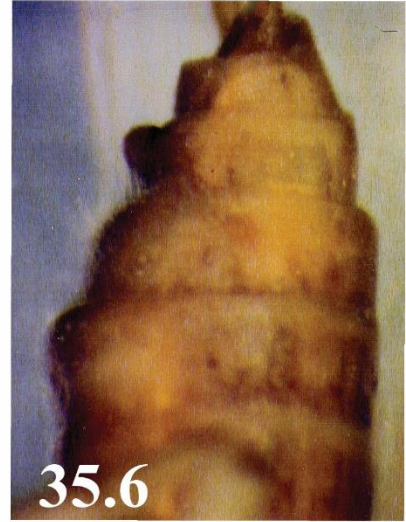
Isoperla orata Frison
Colorless Stripetail
Figs. 35.1-35.7.

Isoperla orata, Szczytko and Kondratieff 2015: 177.

Confirmed Distribution: USA - NC, PA, TN, VA.

Isoperla orata Figure Captions

- Fig. 35.1 – *Isoperla orata* – paratype male head pattern; TN: Sevier Co., LeConte Creek.
Fig. 35.2 – *Isoperla orata* – paratype male terminal sterna; TN: Sevier Co., LeConte Creek.
Fig. 35.3 – *Isoperla orata* – male terminal terga; TN: Sevier Co., Little River.
Fig. 35.4 – *Isoperla orata* – paratype male terminal terga; TN: Sevier Co., LeConte Creek.
Fig. 35.5 – *Isoperla orata* – female subgenital plate, ventral view; TN: Sevier Co., LeConte Creek.
Fig. 35.6 – *Isoperla orata* – female subgenital plate, lateral view; TN: Sevier Co., LeConte Creek.
Fig. 35.7 – *Isoperla orata* – male aedeagus, lateral view; TN: Sevier Co., Little River.



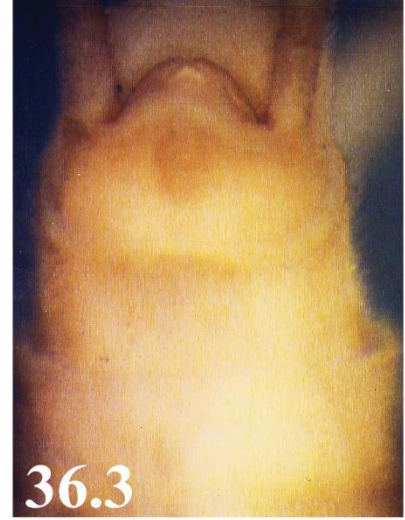
Isoperla ouachita Stark and Stewart
Ouachita Stripetail
Figs. 36.1-36.9.

Isoperla ouachita, Szczytko and Kondratieff 2015: 182.

Confirmed Distribution: USA – AR, MO, OK.

Isoperla ouachita Figure Captions

- Fig. 36.1 – *Isoperla ouachita* – male head pattern; AR: Madison Co., Mill Creek.
Fig. 36.2 – *Isoperla ouachita* – male terminal sterna; MO: Taney Co., Brushy Creek.
Fig. 36.3 – *Isoperla ouachita* – male terminal terga, dorsal view; AR: Madison Co., Mill Creek.
Fig. 36.4 – *Isoperla ouachita* – male hind leg, dorsal view; MO: Taney Co., Brushy Creek.
Fig. 36.5 – *Isoperla ouachita* – male paraprocts oblique, lateral view; AR: Scott Co., Rock Creek.
Fig. 36.6 – *Isoperla ouachita* – male aedeagus, lateral view; MO: Miller Co., Brumley Creek.
Fig. 36.7 – *Isoperla ouachita* – male aedeagus, dorsoposterior view; MO: Taney Co., Brushy Creek.
Fig. 36.8 – *Isoperla ouachita* – male aedeagus, apical tip view; MO: Taney Co., Brushy Creek.
Fig. 36.9 – *Isoperla ouachita* – female subgenital plate, ventral view; AR: Madison Co., Mill Creek.



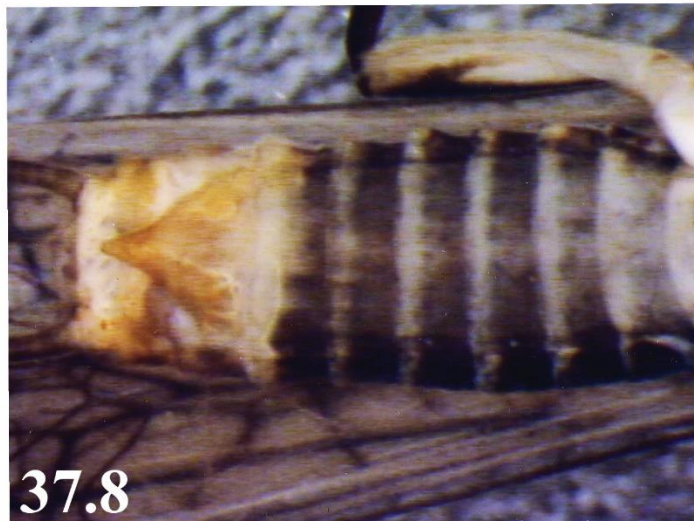
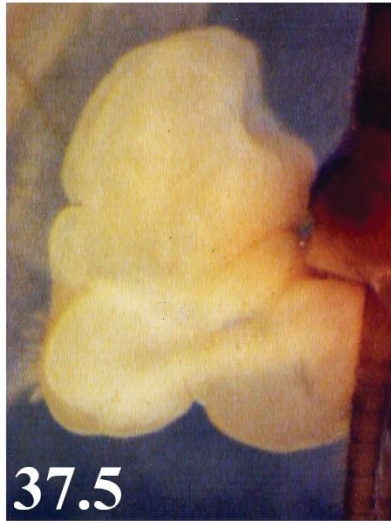
Isoperla pauli Szczytko and Kondratieff
Mt. Mitchell Stripetail
Figs. 37.1-37.8.

Isoperla pauli, Szczytko and Kondratieff 2015: 187.

Confirmed Distribution. USA – NC.

Isoperla pauli Figure Captions

- Fig. 37.1 – *Isoperla pauli* – male head pattern; NC: Yancey Co., Mt. Mitchell, Lower Creek.
- Fig. 37.2 – *Isoperla pauli* – male terminal sterna; NC: Avery Co., Wilson Creek.
- Fig. 37.3 – *Isoperla pauli* – male terminal terga, dorsal view; NC: Avery Co., Wilson Creek.
- Fig. 37.4 – *Isoperla pauli* – male paraprocts, lateral view; NC: Yancey Co., Mt. Mitchell, Lower Creek.
- Fig. 37.5 – *Isoperla pauli* – male aedeagus, lateral view; NC: Avery Co., Wilson Falls.
- Fig. 37.6 – *Isoperla pauli* – male aedeagus, posterior view; NC: Avery Co., Wilson Falls.
- Fig. 37.7 – *Isoperla pauli* – female subgenital plate, ventral view; NC: Yancey Co., Mt. Mitchell, Lower Creek.
- Fig. 37.8 – *Isoperla pauli* – female terminal abdominal sterna and subgenital plate; NC: Avery Co., Wilson Creek.



Isoperla phalerata (Needham)

Rockies Stripetail

Figs. 38.1-38.9.

Isoperla phalerata, Szczytko and Kondratieff 2015: 191.

Confirmed Eastern Distribution: USA – SD.

Isoperla phalerata Figure Captions

Fig. 38.1 – *Isoperla phalerata* – male head pattern; SD: Pennington Co., Spring Creek.

Fig. 38.2 – *Isoperla phalerata* – male terminal sterna; SD: Pennington Co., Spring Creek.

Fig. 38.3 – *Isoperla phalerata* – male terminal terga, dorsal view; NM: Taos Co., Fernando de Taos River.

Fig. 38.4 – *Isoperla phalerata* – male paraprocts, lateral view; NM: Taos Co., Fernando de Taos River.

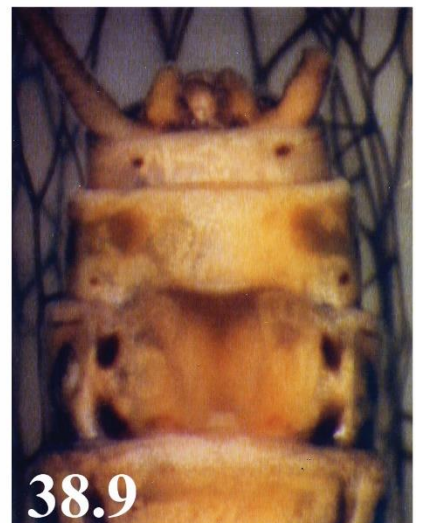
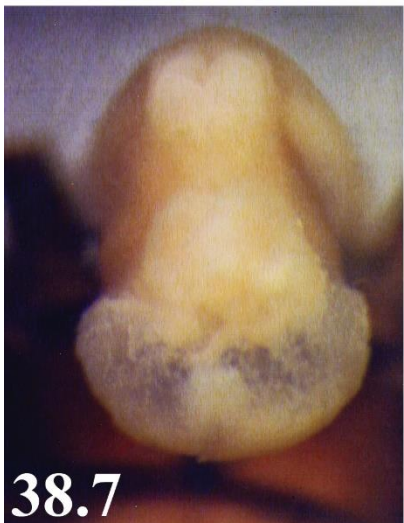
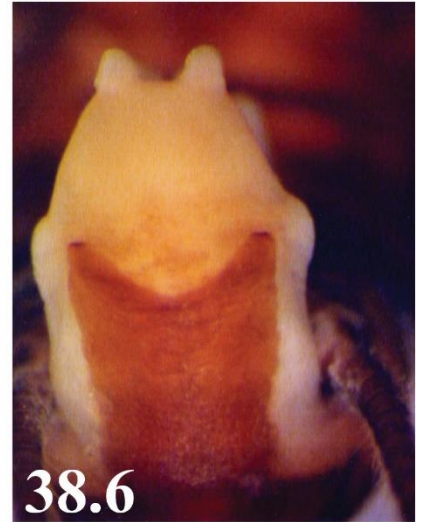
Fig. 38.5 – *Isoperla phalerata* – male aedeagus, lateral view; SD: Pennington Co., Spring Creek.

Fig. 38.6 – *Isoperla phalerata* – male aedeagus, posteroventral view; SD: Pennington Co., Spring Creek.

Fig. 38.7 – *Isoperla phalerata* – male aedeagus, posterior view; SD: Pennington Co., Spring Creek.

Fig. 38.8 – *Isoperla phalerata* – male meso- and metanota; SD: Pennington Co., Spring Creek.

Fig. 38.9 – *Isoperla phalerata* – female subgenital plate, ventral view; NM: Taos Co., Fernando de Taos River.



Isoperla poffi Szczytko and Kondratieff
Pentagonal Stripetail
Figs. 39.1-39.6.

Isoperla poffi, Szczytko and Kondratieff 2015: 195.

Confirmed Distribution: USA - Coastal Plain of FL, NC, SC.

Isoperla poffi Figure Captions

Fig. 39.1 – *Isoperla poffi* – male head pattern; NC: Columbus/Robeson Co. line, Lumber River.

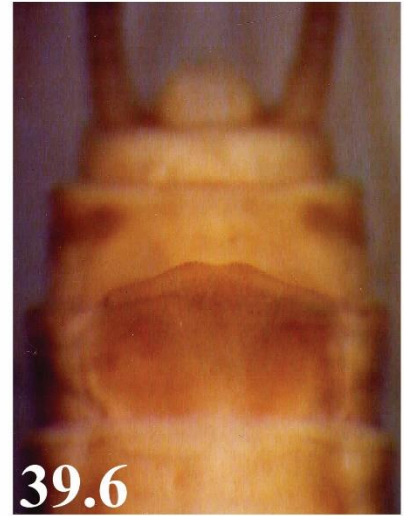
Fig. 39.2 – *Isoperla poffi* – male terminal sterna; NC: Columbus/Robeson Co. line, Lumber River.

Fig. 39.3 – *Isoperla poffi* – male terminal terga, dorsal view; NC: Columbus/Robeson Co. line, Lumber River.

Fig. 39.4 – *Isoperla poffi* – male aedeagus, lateral view; NC: Columbus/Robeson Co. line, Lumber River.

Fig. 39.5 – *Isoperla poffi* – male aedeagus, dorsal view; NC: Columbus/Robeson Co. line, Lumber River.

Fig. 39.6 – *Isoperla poffi* – female subgenital plate, ventral view; FL: Okaloosa Co., Shoal Creek.



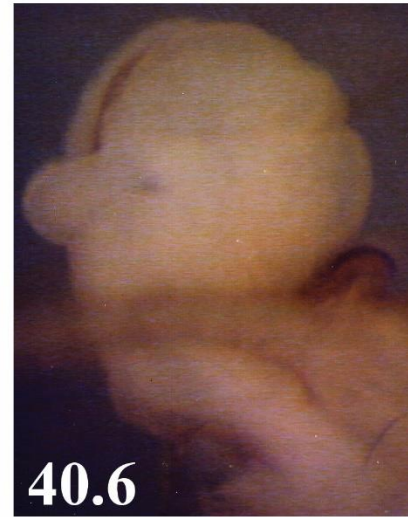
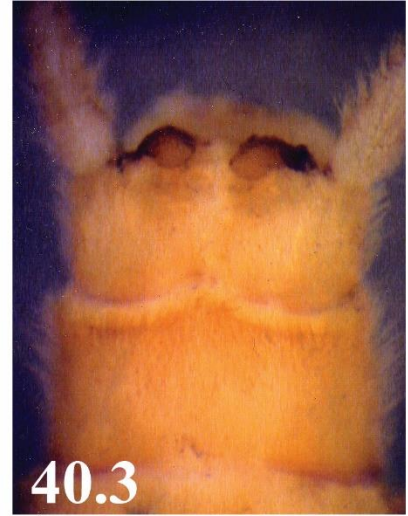
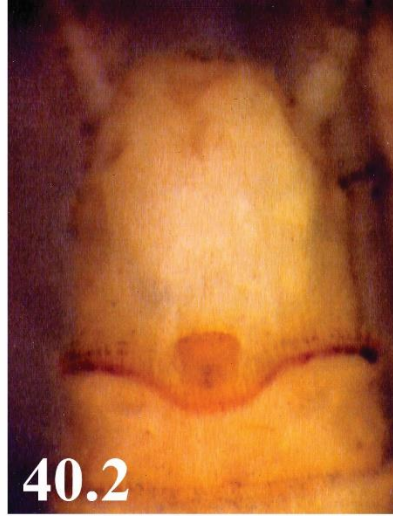
Isoperla powhatan Szczytko and Kondratieff
Powhatan Stripetail
Figs. 40.1-40.9.

Isoperla powhatan, Szczytko and Kondratieff 2015: 199.

Confirmed Distribution. - USA – PA, VA.

Isoperla powhatan Figure Captions

- Fig. 40.1 – *Isoperla powhatan* – male head pattern; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.2 – *Isoperla powhatan* – male terminal sterna; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.3 – *Isoperla powhatan* – male terminal terga, dorsal view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.4 – *Isoperla powhatan* – male paraproct, lateral view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.5 – *Isoperla powhatan* – male posterior abdominal segments, lateral view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.6 – *Isoperla powhatan* – male aedeagus, lateral view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.7 – *Isoperla powhatan* – male aedeagus, posterior view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.8 – *Isoperla powhatan* – female subgenital plate, ventral view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.
- Fig. 40.9 – *Isoperla powhatan* – female subgenital plate, lateral view; VA: Prince William Co. Campground at Bull Run Mountain, Jackson Hollow.



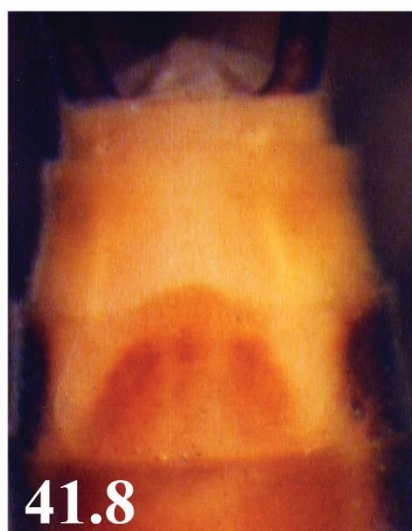
Isoperla pseudolata Szczytko and Kondratieff
Blacktail Stripetail
Figs. 41.1–41.8.

Isoperla pseudolata, Szczytko and Kondratieff 2015: 205.

Confirmed Distribution: USA – NC, VA, WV.

Isoperla pseudolata Figure Captions

- Fig. 41.1 – *Isoperla pseudolata* – male head pattern; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.2 – *Isoperla pseudolata* – male terminal sterna; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.3 – *Isoperla pseudolata* – male terminal terga, dorsal view; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.4 – *Isoperla pseudolata* – male aedeagus, lateral view; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.5 – *Isoperla pseudolata* – male aedeagus, dorsal view; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.6 – *Isoperla pseudolata* – male aedeagus apical tip, lateral view; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.7 – *Isoperla pseudolata* – female subgenital plate, ventral view; WV: Pocahontas Co., East Fork Greenbrier River.
- Fig. 41.8 – *Isoperla pseudolata* – female subgenital plate, ventral view; WV: Pocahontas Co., East Fork Greenbrier River.



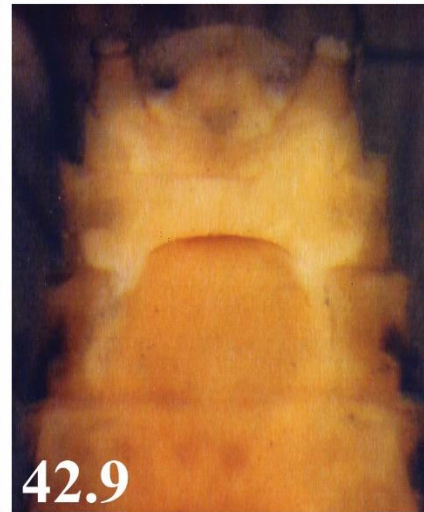
Isoperla pseudosimilis Szczytko and Kondratieff
Confusing Stripetail
Figs. 42.1-42.9.

Isoperla pseudosimilis, Szczytko and Kondratieff 2015: 205.

Confirmed Distribution. USA – CT, MA, ME, NC, NH, NJ, NY, PA, TN, VA, VT, WV.

Isoperla pseudosimilis Figure Captions

- Fig. 42.1 – *Isoperla pseudosimilis* – male head pattern; PA: Chester Co., Spring Creek.
Fig. 42.2 – *Isoperla pseudosimilis* – male posterior sterna; VA: Washington Co., Little Moccasin Creek.
Fig. 42.3 – *Isoperla pseudosimilis* – male posterior terga, dorsal view; VA: Washington Co., Little Moccasin Creek.
Fig. 42.4 – *Isoperla pseudosimilis* – male paraprocts, dorsal view; NC: Macon Co., Stoney Fork Creek.
Fig. 42.5 – *Isoperla pseudosimilis* – male paraproct, lateral view; VA: Page Co., Hogcamp Brook.
Fig. 42.6 – *Isoperla pseudosimilis* – male aedeagus, lateral view; NY: Franklin Co., Dutton Brook.
Fig. 42.7 – *Isoperla pseudosimilis* – male aedeagus, posterior view; PA: Chester Co., Spring Creek.
Fig. 42.8 – *Isoperla pseudosimilis* – male aedeagus, ventral view; NY: Franklin Co., Dutton Brook.
Fig. 42.9 – *Isoperla pseudosimilis* – female subgenital plate, ventral view; NY: Franklin Co., Dutton Brook.



Isoperla quinquepunctata (Banks)

Fivespot Stripetail

Figs. 43.1-43.9.

Isoperla quinquepunctata, Szczytko and Kondratieff 2015: 213.

Eastern Confirmed Distribution: USA – KS, NE.

Isoperla quinquepunctata Figure Captions

Fig. 43.1 – *Isoperla quinquepunctata* – male head pattern; WY: Carbon Co., North Plate River.

Fig. 43.2 – *Isoperla quinquepunctata* – male posterior sterna; CO: Moffat Co., Echo Park.

Fig. 43.3 – *Isoperla quinquepunctata* – male posterior terga; WY: Carbon Co., North Plate River.

Fig. 43.4 – *Isoperla quinquepunctata* – male paraprocts, lateral view; WY: Carbon Co., North Plate River.

Fig. 43.5 – *Isoperla quinquepunctata* – male meso- and metanota; WY: Carbon Co., North Plate River.

Fig. 43.6 – *Isoperla quinquepunctata* – male aedeagus, lateral view; NV: Washoe Co., Truckee River.

Fig. 43.7 – *Isoperla quinquepunctata* – male aedeagus, posterior view; NV: Washoe Co., Truckee River.

Fig. 43.8 – *Isoperla quinquepunctata* – female subgenital plate, ventral view; NM: Colfax Co., Cimarron River.

Fig. 43.9 – *Isoperla quinquepunctata* – female subgenital plate, ventral view; WY: Carbon Co., North Plate River.



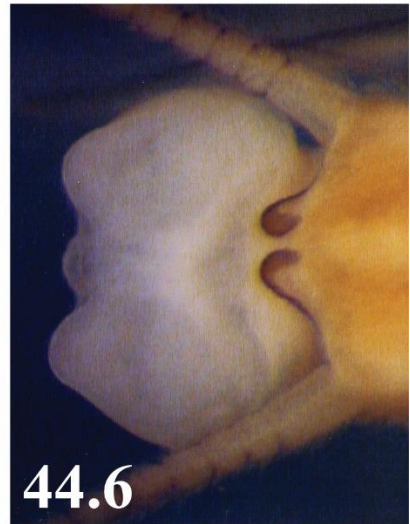
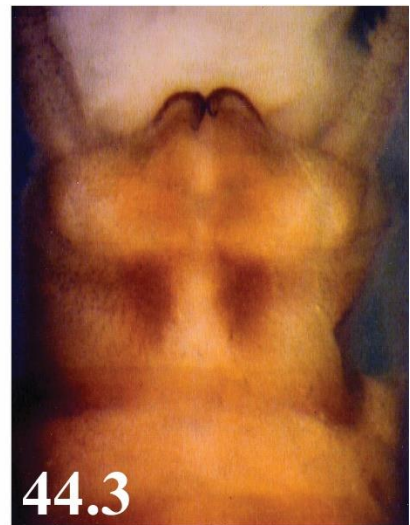
Isoperla reesi Szczytko and Kondratieff
Elk Garden Stripetail
Figs. 44.1-44.7.

Isoperla reesi, Szczytko and Kondratieff 2015: 221.

Confirmed Distribution. USA – NC, VA.

Isoperla reesi Figure Captions

- Fig. 44.1 – *Isoperla reesi* – male head pattern; NC: Watauga Co., unnamed stream northeast of Linville.
- Fig. 44.2 – *Isoperla reesi* – male posterior sterna; NC: Watauga Co., unnamed stream along Blue Ridge Parkway.
- Fig. 44.3 – *Isoperla reesi* – male posterior terga; NC: Watauga Co., unnamed stream along Blue Ridge Parkway.
- Fig. 44.4 – *Isoperla reesi* – male aedeagus, lateral view; VA: Smyth Co., Big Branch headwaters.
- Fig. 44.5 – *Isoperla reesi* – male aedeagus, posterior view; VA: Smyth Co., Big Branch headwaters.
- Fig. 44.6 – *Isoperla reesi* – male aedeagus, dorsal view; VA: Smyth Co., Big Branch headwaters.
- Fig. 44.7 – *Isoperla reesi* – female subgenital plate, ventral view; VA: Smyth Co., spring seeps Elk Gardens.



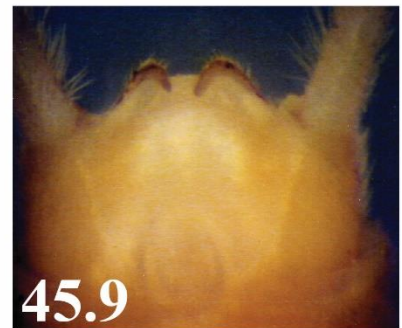
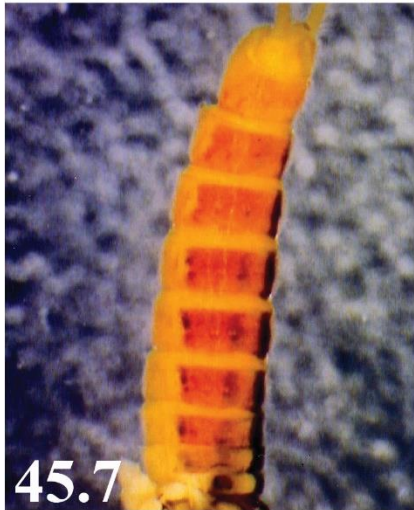
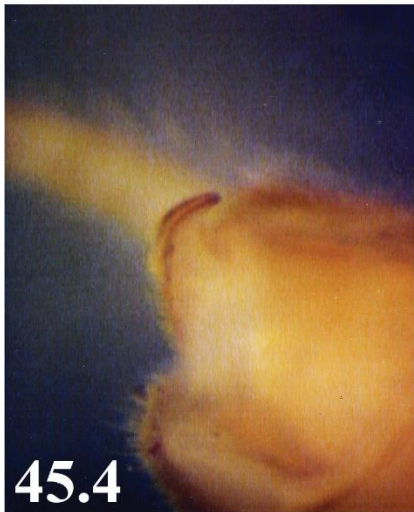
Isoperla richardsoni Frison
Sterling Stripetail
Figs. 45.1-45.9.

Isoperla richardsoni, Szczytko and Kondratieff 2015: 222.

Confirmed Distribution: USA – IA, IL, IN, MN, WI.

Isoperla richardsoni Figure Captions

- Fig. 45.1 – *Isoperla richardsoni* – male head pattern; WI: Iron Co., Manitowish River.
Fig. 45.2 – *Isoperla richardsoni* – male posterior sterna; WI: Iron Co., Manitowish River.
Fig. 45.3 – *Isoperla richardsoni* – male posterior terga; WI: Iron Co., Manitowish River.
Fig. 45.4 – *Isoperla richardsoni* – male paraproct, lateral view; WI: Iron Co., Manitowish River.
Fig. 45.5 – *Isoperla richardsoni* – male aedeagus, lateral view; WI: Iron Co., Manitowish River.
Fig. 45.6 – *Isoperla richardsoni* – male antennae, lateral view; WI: Iron Co., Manitowish River.
Fig. 45.7 – *Isoperla richardsoni* – male abdomen, lateral view; WI: Iron Co., Manitowish River.
Fig. 45.8 – *Isoperla richardsoni* – female subgenital plate, ventral view; WI: Iron Co., Manitowish River.
Fig. 45.9 – *Isoperla richardsoni* – male paraprocts, dorsal view; WI: Iron Co., Manitowish River.



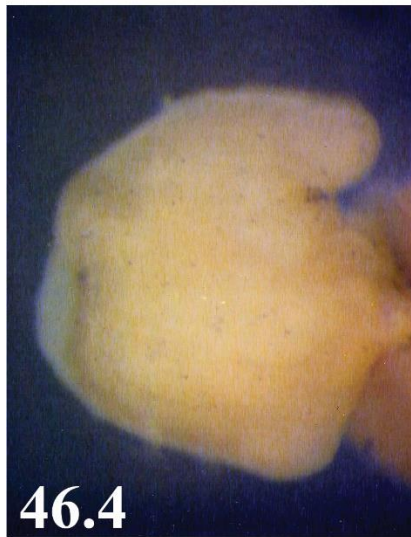
Isoperla sagittata Szczytko and Stewart
Arrowhead Stripetail
Figs. 46.1-46.6.

Isoperla sagittata, Szczytko and Kondratieff 2015: 227.

Confirmed Distribution: USA – TX.

Isoperla sagittata Figure Captions

- Fig. 46.1 – *Isoperla sagittata* – male head pattern; TX: Newton Co., Little Cow Creek.
Fig. 46.2 – *Isoperla sagittata* – male posterior sterna; TX: Newton Co., Little Cow Creek.
Fig. 46.3 – *Isoperla sagittata* – male posterior terga; TX: Newton Co., Little Cow Creek.
Fig. 46.4 – *Isoperla sagittata* – male aedeagus, lateral view; TX: Newton Co., Little Cow Creek.
Fig. 46.5 – *Isoperla sagittata* – allotype female subgenital plate, ventral view; TX: Newton Co., Little Cow Creek.
Fig. 46.6 – *Isoperla sagittata* – allotype female subgenital plate, lateral view; TX: Newton Co., Little Cow Creek.



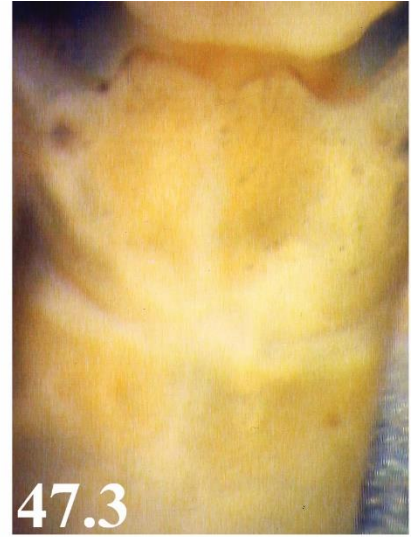
Isoperla sandbergi Szczytko and Kondratieff
Cheaha Stripetail
Figs. 47.1-47.9.

Isoperla sandbergi, Szczytko and Kondratieff 2015: 229.

Confirmed Distribution. USA – AL.

Isoperla sandbergi Figure Captions

- Fig. 47.1 – *Isoperla sandbergi* – male head pattern; AL: Cleburne Co., Mountain Lake.
Fig. 47.2 – *Isoperla sandbergi* – male terminal sterna; AL: Cleburne Co., Mountain Lake.
Fig. 47.3 – *Isoperla sandbergi* – male terminal terga; AL: Cleburne Co., small stream above Lake Cheaha.
Fig. 47.4 – *Isoperla sandbergi* – male paraprocts, lateral view; AL: Cleburne Co., small stream above Lake Cheaha.
Fig. 47.5 – *Isoperla sandbergi* – male aedeagus, lateral view; AL: Cleburne Co., small stream above Lake Cheaha.
Fig. 47.6 – *Isoperla sandbergi* – male aedeagus, posterior view; AL: Cleburne Co., small stream above Lake Cheaha.
Fig. 47.7 – *Isoperla sandbergi* – male aedeagus oblique ventroposterior view; AL: Cleburne Co., small stream above Lake Cheaha.
Fig. 47.8 – *Isoperla sandbergi* – male aedeagus dorsal view; AL: Cleburne Co., Mountain Creek.
Fig. 47.9 – *Isoperla sandbergi* – female subgenital plate ventral view; AL: Cleburne Co., Mountain Creek.



Isoperla signata (Banks)

Transverse Stripetail

Figs. 48.1-48.8.

Isoperla signata, Szczytko and Kondratieff 2015: 232.

Confirmed Distribution: CANADA – MB, NB, NS, ON; USA – AR, CT, ME, MI, MN, MO, NY, OH, OK, PA, VA, WI, WV.

Isoperla signata Figure Captions

Fig. 48.1 – *Isoperla signata* – male head pattern; WI: Rusk Co., Devils River.

Fig. 48.2 – *Isoperla signata* – male terminal sterna; WI: Rusk Co., Devils River.

Fig. 48.3 – *Isoperla signata* – male terminal terga; WI: Rusk Co., Devils River.

Fig. 48.4 – *Isoperla signata* – male paraprocts, oblique lateral view; WI: Ashland Co., Silver Creek.

Fig. 48.5 – *Isoperla signata* – male aedeagus, lateral view; WI: Ashland Co., Silver Creek.

Fig. 48.6 – *Isoperla signata* – male aedeagus, posterior view; WI: Ashland Co., Silver Creek.

Fig. 48.7 – *Isoperla signata* – female subgenital plate, ventral view; WI: Waushara Co., Bird Creek.

Fig. 48.8 – *Isoperla signata* – female subgenital plate, ventral view; WI: Waushara Co., Bird Creek.



Isoperla similis (Hagen)

Black Stripetail

Figs. 49.1-49.9.

Isoperla similis, Szczytko and Kondratieff 2015: 238.

Confirmed Distribution: USA- CT, MD, NH, NJ, NY, PA, VA.

Isoperla similis Figure Captions

- Fig. 49.1 – *Isoperla similis* – male head pattern; PA: Chester Co., East Fork Walton Springs.
- Fig. 49.2 – *Isoperla similis* – male posterior sterna; PA: Chester Co., East Fork Walton Springs.
- Fig. 49.3 – *Isoperla similis* – male posterior terga; PA: Chester Co., East Fork Walton Springs.
- Fig. 49.4 – *Isoperla similis* – male paraprocts, oblique lateral view; PA: Chester Co., East Fork Walton Springs.
- Fig. 49.5 – *Isoperla similis* – male aedeagus, lateral view; PA: Chester Co., Stroud Wet Lab.
- Fig. 49.6 – *Isoperla similis* – male aedeagus, dorsoposterior view; PA: Chester Co., Stroud Wet Lab.
- Fig. 49.7 – *Isoperla similis* – male aedeagus, ventral view; PA: Chester Co., Walton Spring.
- Fig. 49.8 – *Isoperla similis* – male aedeagus, dorsobasal paired spine plates; PA: Chester Co., Stroud Wet Lab.
- Fig. 49.9 – *Isoperla similis* – female subgenital plate, ventral view; PA: Chester Co., Walton Spring.



Isoperla siouan Szczytko and Stewart
Siouan Stripetail
Figs. 50.1-50.5.

Isoperla siouan, Szczytko and Kondratieff 2015: 245.

Confirmed Distribution. USA – NC.

Isoperla siouan Figure Captions

Fig. 50.1 – *Isoperla siouan* – male head pattern; NC: Moore Co., small tributary stream of McLendon's Creek.

Fig. 50.2 – *Isoperla siouan* – male posterior sterna; NC: Moore Co., small tributary stream of McLendon's Creek

Fig. 50.3 – *Isoperla siouan* – male posterior terga; NC: Moore Co., small tributary stream of McLendon's Creek.

Fig. 50.4 – *Isoperla siouan* – male aedeagus, lateral view; NC: Moore Co., small tributary stream of McLendon's Creek.

Fig. 50.5 – *Isoperla siouan* – female subgenital plate, ventral view; NC: Moore Co., small tributary stream of McLendon's Creek.



Isoperla slossonae (Banks)

Colorful Stripetail

Figs. 51.1-51.9.

Isoperla slossonae, Szczytko and Kondratieff 2015: 246.

Confirmed Distribution: CANADA – NB, NS, PE, PQ; USA – IA, ME, MI, MN, NC, NH, NY, PA, VA, WI, WV.

Isoperla slossonae Figure Captions

Fig. 51.1 – *Isoperla slossonae* – male head pattern; IA: Delaware Co., Maquoketa River.

Fig. 51.2 – *Isoperla slossonae* – male posterior sterna; WI: Oneida Co., Bearskin River.

Fig. 51.3 – *Isoperla slossonae* – male posterior terga; IA: Delaware Co., Maquoketa River.

Fig. 51.4 – *Isoperla slossonae* – male abdomen, ventral view; WI: Oneida Co., Bearskin River.

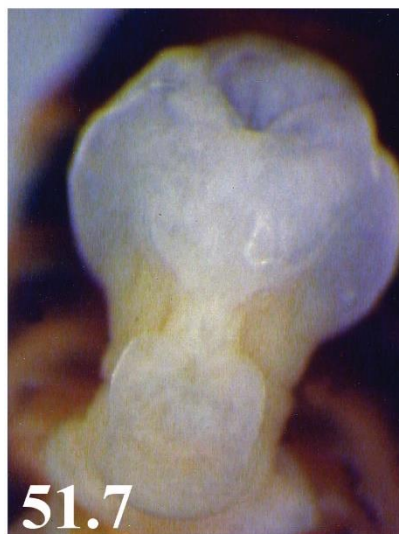
Fig. 51.5 – *Isoperla slossonae* – male hind leg, outer view; WI: Portage Co., Tomorrow River.

Fig. 51.6 – *Isoperla slossonae* – male aedeagus, lateral view; VA: Giles Co., Little Stoney Creek.

Fig. 51.7 – *Isoperla slossonae* – male aedeagus, posterior view; VA: Giles Co., Little Stoney Creek.

Fig. 51.8 – *Isoperla slossonae* – male aedeagus, dorsal view; WI: Portage Co., Tomorrow River.

Fig. 51.9 – *Isoperla slossonae* – female subgenital plate, ventral view; WI: Portage Co., Tomorrow River.



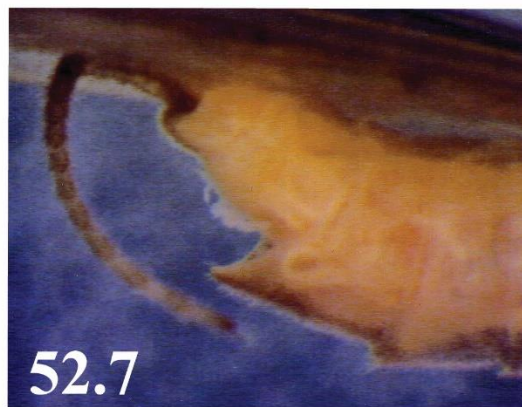
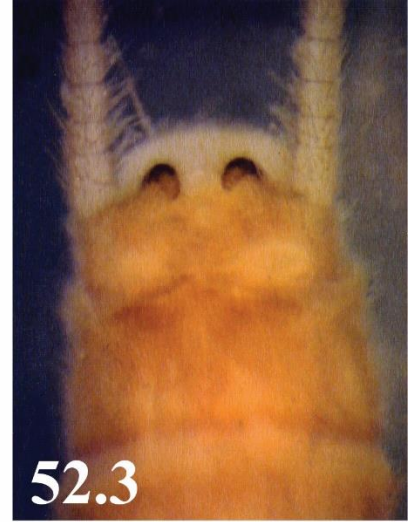
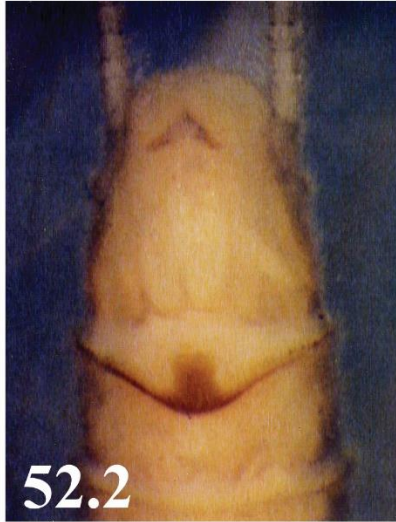
Isoperla smithi Szczytko and Kondratieff
West Virginia Stripetail
Figs. 52.1-52.6.

Isoperla smithi, Szczytko and Kondratieff 2015: 250.

Confirmed Distribution. USA – VA, WV.

Isoperla smithi Figure Captions

- Fig. 52.1 – *Isoperla smithi* – male head pattern; WV: Hardy Co., unnamed stream, 3 mi. E. Mathias.
- Fig. 52.2 – *Isoperla smithi* – male posterior sterna; WV: Hardy Co., unnamed stream, 3 mi. E. Mathias.
- Fig. 52.3 – *Isoperla smithi* – male posterior terga; WV: Hardy Co., unnamed stream, 3 mi. E. Mathias.
- Fig. 52.4 – *Isoperla smithi* – male paraprocts, lateral view; WV: Hardy Co., unnamed stream, 3 mi. E. Mathias.
- Fig. 52.5 – *Isoperla smithi* – male aedeagus, lateral view; VA: Montgomery Co., Tributary to Craig's Creek.
- Fig. 52.6 – *Isoperla smithi* – female subgenital plate, ventral view; VA: Montgomery Co., Tributary to Craig's Creek.
- Fig. 52.7 – *Isoperla smithi* – female subgenital plate, lateral view; WV: Hardy Co., unnamed stream, 3 mi. E. Mathias.



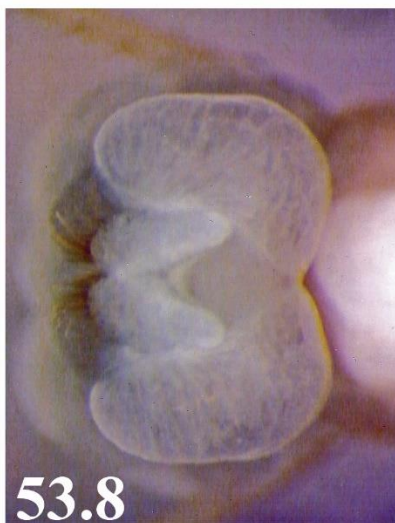
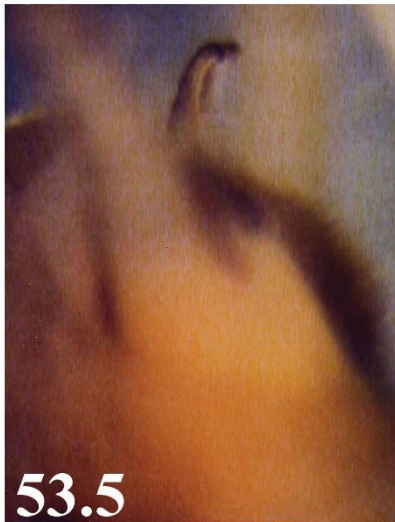
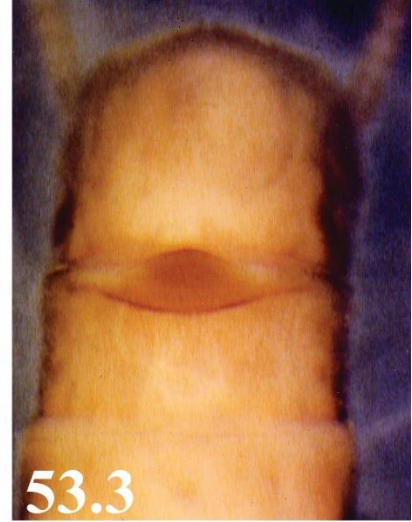
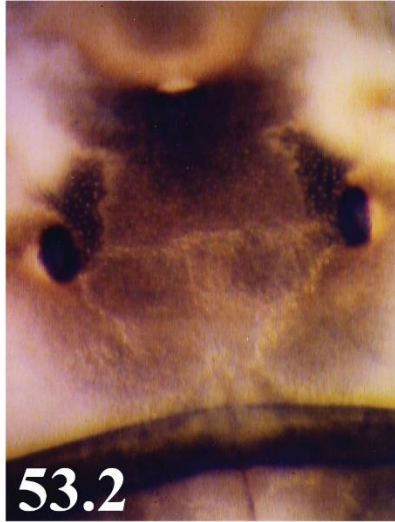
Isoperla starki Szczytko and Kondratieff
Wayah Stripetail
Figs. 53.1-53.9.

Isoperla starki, Szczytko and Kondratieff 2015: 252.

Confirmed Distribution: USA – NC.

Isoperla starki Figure Captions

- Fig. 53.1 – *Isoperla starki* – male head pattern; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.2 – *Isoperla starki* – male head pattern detail of interocellar area; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.3 – *Isoperla starki* – male posterior sterna; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.4 – *Isoperla starki* – male posterior terga; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.5 – *Isoperla starki* – male paraprocts, lateral view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.6 – *Isoperla starki* – male aedeagus, lateral view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.7 – *Isoperla starki* – male aedeagus, posterior view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.8 – *Isoperla starki* – male aedeagus, dorsal view; NC: Macon Co., Wayah Bald, Robin Branch.
- Fig. 53.9 – *Isoperla starki* – female subgenital plate, ventral view; NC: Macon Co., Wayah Bald, Robin Branch.



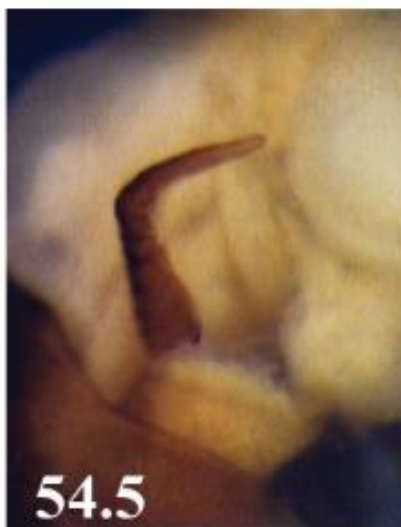
Isoperla stewarti Szczytko and Kondratieff
Stewart Stripetail
Figs. 54.1-54.9.

Isoperla stewarti, Szczytko and Kondratieff 2015: 258.

Confirmed Distribution. USA – NC, VA.

Isoperla stewarti Figure Captions

- Fig. 54.1 – *Isoperla stewarti* – male head pattern; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.2 – *Isoperla stewarti* – male posterior sterna; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.3 – *Isoperla stewarti* – male posterior terga; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.4 – *Isoperla stewarti* – male posterior abdomen, lateral view; NC: Yancey Co., spring near top of Mt. Mitchell.
- Fig. 54.5 – *Isoperla stewarti* – male paraprocts, lateral view; VA: Grayson Co., Seeps along Lewis Fork Trail.
- Fig. 54.6 – *Isoperla stewarti* – male aedeagus, lateral view; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.7 – *Isoperla stewarti* – male aedeagus, posterior view; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.8 – *Isoperla stewarti* – male aedeagus, dorsal view; NC: Yancey Co., Right Prong, Mt. Mitchell.
- Fig. 54.9 – *Isoperla stewarti* – female subgenital plate, ventral view; NC: Yancey Co., spring near top of Mt. Mitchell.



Isoperla szczytkoi Poulton and Stewart
Magazine Stripetail
Figs. 55.1-55.6.

Isoperla szczytkoi, Szczytko and Kondratieff 2015: 263.

Confirmed Distribution: USA – AR.

Plate 55. *Isoperla szczytkoi* Figure Captions

Fig. 55.1 – *Isoperla szczytkoi* – male head pattern; AR: Logan Co., Gutter Rock Creek.

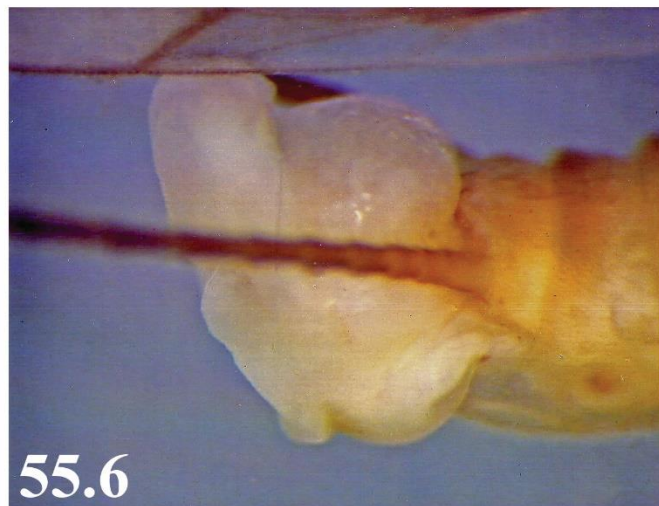
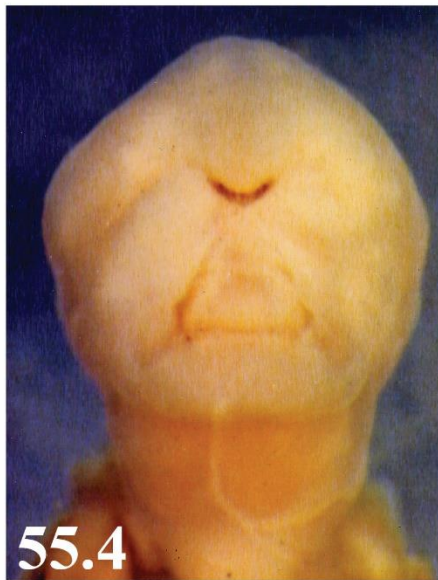
Fig. 55.2 – *Isoperla szczytkoi* – male posterior sterna; AR: Logan Co., Gutter Rock Creek.

Fig. 55.3 – *Isoperla szczytkoi* – male posterior terga; AR: Logan Co., Gutter Rock Creek.

Fig. 55.4 – *Isoperla szczytkoi* – male posterior abdomen, lateral view; AR: Logan Co.,
Gutter Rock Creek.

Fig. 55.5 – *Isoperla szczytkoi* – female subgenital plate, ventral view; AR: Logan Co.,
Gutter Rock Creek.

Fig. 55.6 – *Isoperla szczytkoi* – male aedeagus, lateral view; AR: Logan Co., Gutter Rock
Creek.



Isoperla transmarina (Newman)

Boreal Stripetail

Figs. 56.1-56.9.

Isoperla transmarina, Szczytko and Kondratieff 2015: 266.

Confirmed Distribution: CANADA – BC, LB, MB, NE, NS, PE, PQ, ON, SK; USA – CT, DE, IA, KY, MI, ME, MN, NC, NH, NY, OH, PA, SD, WI, WV.

Isoperla transmarina Figure Captions

Fig. 56.1 – *Isoperla transmarina* – male head pattern; WI: Shawano Co., Comet Creek.

Fig. 56.2 – *Isoperla transmarina* – male posterior sterna; MI: Alger Co., Miner's Creek.

Fig. 56.3 – *Isoperla transmarina* – male posterior sterna; MI: Alger Co., Miner's Creek.

Fig. 56.4 – *Isoperla transmarina* – male paraprocts, dorsal view; MI: Alger Co., Miner's Creek.

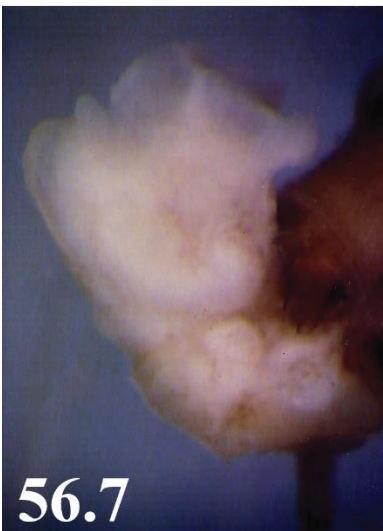
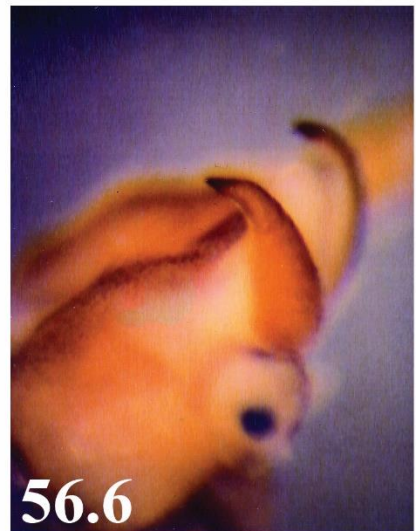
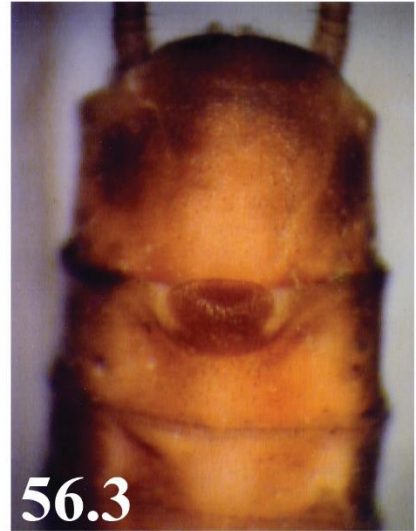
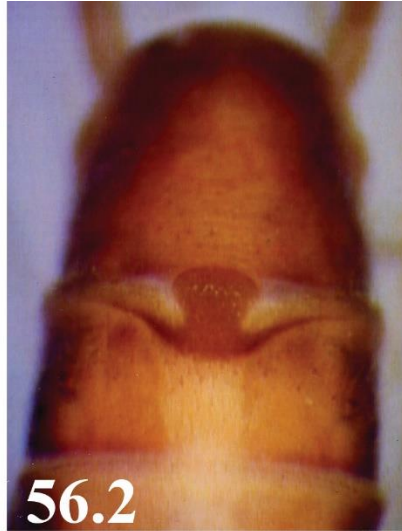
Fig. 56.5 – *Isoperla transmarina* – male posterior terga; MI: Alger Co., Miner's Creek.

Fig. 56.6 – *Isoperla transmarina* – male paraprocts, lateral view; WI: Marquette Co., Chaffee Creek.

Fig. 56.7 – *Isoperla transmarina* – male aedeagus, lateral view; MI: Alger Co., Miner's Creek.

Fig. 56.8 – *Isoperla transmarina* – female subgenital plate, ventral view; MI: Alger Co., Miner's Creek.

Fig. 56.9 – *Isoperla transmarina* – female subgenital plate, ventral view; WI: Shawano Co., Comet Creek.



Isoperla tutelo Szczytko and Kondratieff
North Carolina Stripetail
Figs. 57.1-57.6.

Isoperla tutelo, Szczytko and Kondratieff 2015: 270.

Confirmed Distribution. USA – NC.

Isoperla tutelo Figure Captions

- Fig. 57.1 – *Isoperla tutelo* – male head pattern; NC: Caldwell Co., John’s River.
Fig. 57.2 – *Isoperla tutelo* – male posterior sterna; NC: Caldwell Co., John’s River.
Fig. 57.3 – *Isoperla tutelo* – male posterior terga; NC: Caldwell Co., John’s River
Fig. 57.4 – *Isoperla tutelo* – male aedeagus, lateral view; NC: Caldwell Co., John’s River.
Fig. 57.5 – *Isoperla tutelo* – male aedeagus, posterior view; NC: Caldwell Co., John’s River.
Fig. 57.6 – *Isoperla tutelo* – female subgenital plate, ventral view; NC: Caldwell Co., John’s River.



Isoperla yuchi Szczytko and Kondratieff.

Yuchi Stripetail

Figs. 58.1-58.9.

Isoperla yuchi, Szczytko and Kondratieff 2015: 273.

Confirmed Distribution. USA – VA.

Isoperla yuchi Figure Captions

Fig. 58.1 – *Isoperla yuchi* – male head pattern; VA: Smyth Co., Dave’s Branch.

Fig. 58.2 – *Isoperla yuchi* – male posterior sterna; VA: Smyth Co., St. Claire Creek.

Fig. 58.3 – *Isoperla yuchi* – male posterior terga; VA: Smyth Co., Grindstone Branch.

Fig. 58.4 – *Isoperla yuchi* – male paraprocts, lateral view; VA: Smyth Co., seeps along Dave’s Creek.

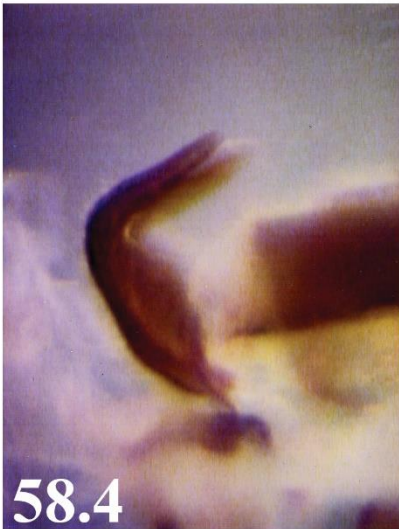
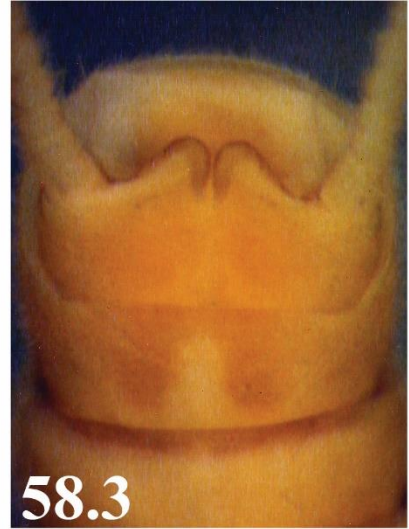
Fig. 58.5 – *Isoperla yuchi* – male posterior abdominal segments, lateral view; VA: Smyth Co., St. Claire Creek.

Fig. 58.6 – *Isoperla yuchi* – male aedeagus, lateral view; VA: Smyth Co., South Fork Holston River, St. Clair Bottoms.

Fig. 58.7 – *Isoperla yuchi* – male aedeagus, dorsal view; VA: Smyth Co., South Fork Holston River, St. Clair Bottoms.

Fig. 58.8 – *Isoperla yuchi* – female subgenital plate, ventral view; VA: Smyth Co., South Fork Holston River, St. Clair Bottoms.

Fig. 58.9 – *Isoperla yuchi* – female subgenital plate, ventral view; VA: Smyth Co., South Fork Holston River, St. Clair Bottoms.



Isoperla zuelligi Szczytko and Kondratieff
Uwharrie Stripetail
Figs. 59.1-59.6.

Isoperla zuelligi, Szczytko and Kondratieff 2015: 277.

Confirmed Distribution: USA – NC.

Plate. *Isoperla zuelligi* Figure Captions

Fig. 59.1 – *Isoperla zuelligi* – male head pattern; NC: Montgomery Co., Uwharrie River.

Fig. 59.2 – *Isoperla zuelligi* – male posterior sterna; NC: Montgomery Co., Uwharrie River.

Fig. 59.3 – *Isoperla zuelligi* – male posterior terga; NC: Montgomery Co., Uwharrie River.

Fig. 59.4 – *Isoperla zuelligi* – male paraprocts, lateral view; NC: Montgomery Co., Uwharrie River.

Fig. 59.5 – *Isoperla zuelligi* – male aedeagus, lateral view; NC: Montgomery Co., Uwharrie River.

Fig. 59.6 – *Isoperla zuelligi* – female aedeagus, ventral view; NC: Montgomery Co., Uwharrie River



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