PERLA

Annual Newsletter and Bibliography of The International Society of Plecopterologists

***Soliperla campanula* (Jewett) Wahkeena Falls, Multnomah County, Oregon, U.S.A.**
Photograph by Bill P. Stark

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Department of Bioagricultural Sciences
and Pest Management
Colorado State University
Fort Collins, Colorado 80523 USA

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TABLE OF CONTENTS

PERLA SUBSCRIPTION POLICY

Dues for membership in the International Society of Plecopterologists are $15 U.S. per year. Members will automatically receive PERLA. Libraries or other institutions may receive PERLA by making a $10 annual donation, or through an exchange of publications agreement approved by the Managing Editor and Editorial Board. Five dollars ($5) of the dues will become part of the Scholarship Fund of the Society, to be used for helping active and deserving workers or students participate in future symposia.

Persons or institutions who have no support or are financially unable to pay dues may continue to receive PERLA by writing a brief note to the Managing Editor requesting a waiver of dues and to be retained on the mailing list.

It is therefore important that you respond to this receipt of PERLA 33 (2015) in one of the following ways, in order to be kept on the mailing list for PERLA 34 (2016): (1) pay your annual dues, (2) make a $10 donation (institutions), or (3) request a waiver. A form and self-addressed envelope are included with this issue, (PERLA 33) for your convenience in responding.

You may send your dues or donation in the form of a personal check, bank note, cashier's check, or postal money order designated in U.S. funds to the Managing Editor. Because of high bank costs for exchange in some countries, you may send cash, in which case the Managing Editor will respond with a personal acknowledgment when received. NO CREDIT CARD CHARGES CAN BE ACCEPTED.

Dues and donations are used to help pay the costs of publishing and mailing PERLA, for Lifetime Achievement Award plaques presented by the Society at International Symposia and for the Scholarship Fund. The Managing Editor will make a financial report to the International Committee at each International Symposium Business Meeting or at any other time when requested.

Members or institutions whose dues remain unpaid for two consecutive years, or have not been granted exchange, waiver or emeritus status, will be dropped from the PERLA mailing list.

ON THE XVIII INTERNATIONAL SYMPOSIUM ON PLECOPTERA AND THE XIV INTERNATIONAL CONFERENCE ON EPHEMEROPTERA

International Conference on Ephemeroptera and Plecoptera

The 2015 Joint Meeting of the XIV International Conference on Ephemeroptera and XVIII International Symposia on Plecoptera will take place in Aberdeen from 31 May - 5 June 2015.

Dear Attendees:

The James Hutton Institute and Buglife are honoured to host the "2015 Joint Meeting of the XIV International Conference on Ephemeroptera and XVIII International Symposia on Plecoptera", being organized for the first time in Scotland.

Our aim is to offer an exciting meeting, where scientists, experts and students will present their recent work, exchange ideas, make important connections and enjoy social gatherings in the pleasant surroundings of Aberdeen, Royal Deeside and the Cairngorms National Park.

We welcome presentations (oral and poster) on all aspects of Ephemeroptera and Plecoptera research.

Information on the Conference, a Draft Programme and the Registration/Abstract submission form are available on the James Hutton Institute's website: http://www.hutton.ac.uk/events/international-conference-ephemeroptera-and-plecoptera. Early bird registration is open until 20 February. Standard registration closes on the 31st March 2015.

For all additional questions, please do not hesitate to ask!

We look forward to welcoming you to Scotland!

Craig Macadam
Conservation Director
Buglife – The Invertebrate Conservation Trust, Balallan House, 24 Allan Park, Stirling, FK8 2QG
t: 01786 460360
m: 07880 316029
www.buglife.org.uk

SCIENTIFIC PROGRAMME
KEYNOTE SPEAKERS
Dr Ben Price, Natural History Museum, London
Prof. Steve Ormerod, Cardiff University
Dr William Darwall, Freshwater Biodiversity Unit, IUCN Species Programme, Cambridge
Robert Boyle, New York Times

THEMES
Palaeontology
Phylogeny, taxonomy & systematics
Biodiversity and conservation
Ecosystem Services
Aquatic-terrestrial linkages
Behaviour
Ecology
Data sharing
Reproductive biology
Distribution and biogeography
Future adaptation and change

TECHNICAL INFORMATION FOR ORAL AND POSTER PRESENTATIONS

Time limit - Regular oral presentations will have a total time limit of 20 minutes (including discussion) and it will be strictly enforced. The convenors reserve the right to reduce talk times if sessions are oversubscribed.

PC and data projector - This will be provided for uploading presentations in the main lecture theatre, presenters are strongly encouraged to upload their presentations as soon as possible and at the latest, before 9.30am on the day of their presentation. Technical assistance will be available.

Posters – We would prefer posters as A1 size (594 x 841mm), landscape format. If you intend to bring a poster in any other size/format, please advise the convenors at the earliest opportunity. We would encourage poster presenters to bring additional A4 copies of their poster for distribution to delegates.

Prizes – there will be prizes for both the best student presentation and poster as judged by our panel of experts.

REGISTRATION & ACCOMMODATION

To register for the Conference, book accommodation and/or to submit an abstract, please complete the online form available at http://www.hutton.ac.uk/events/international-conference-ephemeroptera-and-plecoptera/register-interest

Payment must made before 20 February to secure early-bird rates.
The Conference registration desk, where delegates can sign in and collect badge and programme information, will be open from 16.00-18.00 on Sunday 31 May and weekdays (except Wednesday) from 09:00. Every delegate attending the Conference will be issued with an ID badge at the registration desk on arrival. Please make sure that you wear your badge whilst on site and at social events.

To register:

http://www.hutton.ac.uk/events/international-conference-ephemeroptera-and-plecoptera/register-interest.

Organizing committee

The organisation and delivery of the Joint Meeting will be overseen by a committee comprised as follows:
Craig Macadam - Buglife – The Invertebrate Conservation Trust & Riverfly Recording Schemes Coordinator
Jenni Stockan **- James Hutton Institute**
Michael Dobson - **Freshwater Biological Association**
Bridget Peacock - **Riverfly Partnership**
Correspondence should be directed to:
Craig Macadam
Email: craig.macadam@buglife.org.uk; Telephone: +44 (0)1786 460360

The **International Society of Plecopterologists** awarded US$4,272 in travel scholarships to the following persons for **XVII INTERNATIONAL SYMPOSIUM ON PLECOPTERA AND THE XIII INTERNATIONAL CONFERENCE ON EPHEMEROPTERA** :

Fernanda Avelino Capistrano da Silva, Brazil , **Marcos Carneiro Novaes**, Brazil; **Dávid Murányi**, Hungary; and **Louis Boumans**, Norway .

EUROPEAN PLECOPTERA SYMPOSIUM

Dávid Murányi, Department of Zoology, Hungarian Natural History Museum

We finally made plans to hold the European Plecoptera Symposium between the international symposia for the first time in 20 years. The in-between symposia timing is similar to the North American Plecoptera Symposium schedule. In September of 2014, we had a small symposium in Budapest, in hope that it will be followed by future regular meetings. However, this meeting was not the first European Plecoptera conference. During the first international meeting in 1956 there were only European participants. There were several other events such as the Plecoptera session included in the European Congress of Entomology that provided an opportunity for the gathering of European stonefly workers.

Our symposium was very much a “family” event that took four days; two days were spent in Hungary and two days in Slovakia. The Hungarian Natural History Museum hosted the first two days in Budapest, where one day was available for oral presentations and the next for holding workshops. Section I and the workshops focused on the stonefly distributions and creating user friendly databases. Section II included presentations on stonefly bioacoustics. On the third and fourth days we traveled to Slovakia to visit several gorgeous Carpathian streams, collecting on the first day in Veľká Fatra, and the next day in Tatranský National Park.

The Hungarian portion of the symposium was organized with the assistance of my colleagues Mónika Pozsgai and Kirill Márk Orci, whereas the trip to Slovakia was organized and led by Tomáš Derka, Erik Baláž, Andrea Rúfusová and Matej Žiak. The accompanying photos were kindly provided by Wolfram Graf, Dora Kouvarda, Ignac Sivec and Matej Žiak. We are especially grateful to Ed DeWalt and Sandy Ferguson, for making this European meeting intercontinental!

No decision has been made regarding the location and schedule for the next meeting. We have planned to meet sometime between the Aberdeen, Scotland and Aracruz, Brazil symposia, somewhere in Europe!

PROGRAM

17–18 September, Hungarian Natural History Museum, Budapest, Hungary

First day, Oral presentations:

Korsós, Z.: Welcome speech.

Brittain, J.E.: Invitation to the Aberdeen conference.

Section I (chairman J.E. Brittain)

Brittain, J.E. & Boumans, L.: Faunistics of stoneflies (Plecoptera) in northern Norway and barcoding of Scandinavian species.

DeWalt, R.E., Cao, Y., Robinson, J.L., Grubbs, S.A. & Tweddale, T.: Reconstructing the Past: Pre-European settlement distributions of stoneflies (Plecoptera) in the Midwest, USA.

Sivec, I. & Horvat, B.: Faunistics of stoneflies (Plecoptera) in Slovenia.

Popijač, A., Pušić, I. & Sivec, I.: Plecoptera inventory project in Croatia 2014-2016: interesting first results.

Murányi, D. & Chvojka, P.: What we have from the old times: tracing Klapálek, Kempny and Brauer types.

Section II (chairman I. Sivec)

Rupprecht, R.: The drumming signals of some rare European stonefly species of the family Perlidae.

Rupprecht, R.: Drumming behavior of five species of the family Perlodidae.

Orci, K.M., Murányi, D. & Kovács, T.: Two male drumming call variants and their attractiveness to females in the *Perla pallida* species complex.

Boumans, L.: Mateguarding tactics can explain stonefly duetting patterns.

Second day, Workshops:

DeWalt, R.E.: Plecoptera Species File (Demonstration of how to use the website, adding editors from European community, comments about the future).

Neu, P., Schmidt-Kloiber, A. & Graf, W.: Distribution Atlas of European Plecoptera (Outline of the project, actual informations and how to provide data).

also included: Graf, W. & Neu, P: European Plecoptera distribution: from vision to reality.

Murányi, D.: Balkan monography (What we have done hitherto and what have to do, who will participate with what, and how should we publish it).

19–20 September, Field trip to Slovakia

First day, Veľká Fatra National Park (Žilina region, Greater Fatra Mts, Gader valley)

Species captured (leg. R. Andriopoulou, L. Boumans, T. Derka, R.E. DeWalt, S. Ferguson, D. Kouvarda, D. Murányi, K.M. Orci, A. Rúfusová, M. Žiak):

Veterné, main stream, N48°53.568' E19°03.230', 945m:
Leuctra moselyi Morton, 1929, ***Leuctra aurita*** Navás, 1919, ***Leuctra autumnalis*** Aubert, 1948, ***Protonemura hrabei*** Raušer, 1956, ***Protonemura auberti*** Illies, 1954, ***Protonemura montana*** Kimmins, 1941, ***Perla*** cf**.** ***pallida*** Guérin-Méneville, 1838.

Forest tributary, N48°53.338' E19°03.475', 995m:
Protonemura auberti Illies, 1954, ***Nemurella pictetii*** (Klapálek, 1900), ***Arcynopteryx dichroa*** (McLachlan, 1872).

Main stream, N48°53.318' E19°03.912', 1060m:
Isoperla **sp.**

Forest seep, N48°53.223' E19°04.090', 1095m:
Leuctra braueri Kempny, 1898, ***Leuctra moselyi*** Morton, 1929, ***Leuctra aurita*** Navás, 1919, ***Leuctra autumnalis*** Aubert, 1948, ***Protonemura auberti*** Illies, 1954.

Second Day, Tatranský National Park (Prešov region, High Tatra Mts)

Species captured (leg. R. Andriopoulou, E. Baláž, L. Boumans, T. Derka, R.E. DeWalt, S. Ferguson, D. Kouvarda, D. Murányi, K.M. Orci, A. Rúfusová):

Podbanské, Belá River, N49°08.647' E19°54.424', 945m:
Leuctra autumnalis Aubert, 1948, ***Protonemura hrabei*** Raušer, 1956, ***Protonemura montana*** Kimmins, ***Perlodes*** **sp.**

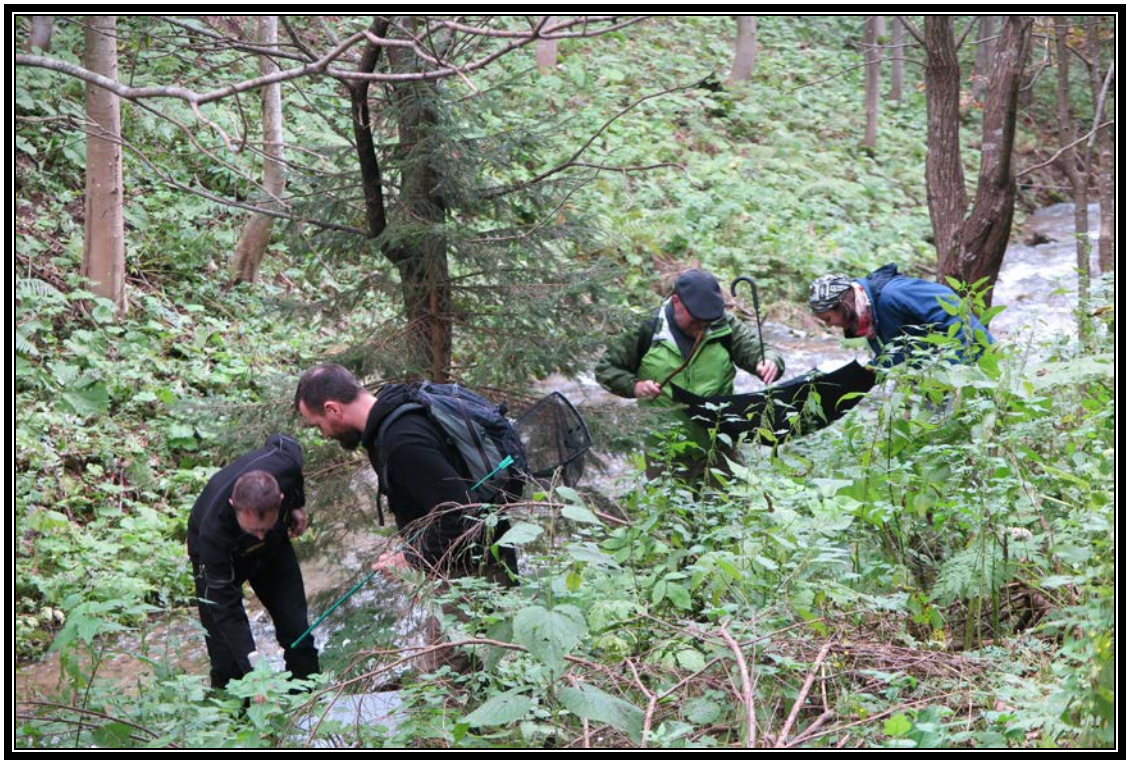
Podbanské, road by the Belá River, N49°09.116' E19°55.320', 995m:
Protonemura montana Kimmins, 1941

Tichá dolina, tributary of Tichý Stream, N49°09.759' E19°55.366', 1005m:
Leuctra fusca fusca (Linnaeus, 1758), ***Leuctra autumnalis*** Aubert, 1948, ***Leuctra pusilla*** Krno, 1985.

Symposium participants at the entrance to the Hungarian Natural History Museum exhibition hall; left to right**: R. Edward DeWalt, Peter Neu, Idefix, Sandy Ferguson, Wolfram Graf, John E. Brittain, Aleksandar Popijač, Dávid Murányi, Ivana Pušić, Roula Andriopoulou, Louis Boumans, Dora Kouvarda, Tibor Kovács, Ignac Sivec**.

Symposium participants in the lecture room. **Dr. Edward DeWalt** presenting his lecture.

One of the species collected, *Protonemura auberti* Illies, Photograph by Ignac Sivec.



Louis Boumans, Dávid Murányi, Ed DeWalt, and **Roula Andriopoulou** left to right representing four nations collecting with four methods in the Gader Valley, in the Greater Fatra Range in Central Slovakia.

One of the species collected, *Leuctra fusca* (L.), Photograph by Ignac Sivec.

Louis Boumans and **Kirill Orci** in the Gader Valley, Gader Valley in the Greater Fatra Range in Central Slovakia, searching for stonefly adults for drumming studies.

ILLIESIA

Illiesia, International Journal of Stonefly Research, completed publication of Volume 10 in December, 2014. Nine articles submitted by 14 authors and based on material and studies in the Palearctic, Oriental, Nearctic and Neotropical regions were included in the 87 pages of this volume. Illiesia continues to offer rigorous peer review under the direction of the Advisory Board and Editors, with assistance of colleagues who agree to review manuscripts. Editors are **Ignac Sivec** and **Bill P. Stark** and the advisory board for 2014 included **Boris Kondratieff, Richard Baumann, Stan Szczytko, C. Riley Nelson, Charles H. Nelson, John Brittain, Takao Shimizu, Claudio Froehlich, Wolfram Graf** and **Peter Harper**. Journal formatting for Volume 10 was under the direction of **Mia Sivec** and **Mojmir Stangelj**. We also announce the Illiesia website is "moving" and our subsequent volumes will be hosted by **Ed DeWalt** and the Illinois Natural History Survey server. We thank Ed and the Survey for this generous act and we also thank the Slovenian Museum of Natural History for their outstanding support during the past 10 years.

OBITUARY

Lloyd Dosdall passed away at the age of 61 on June 12, 2014, after a courageous battle with cancer. Although Lloyd concentrated on agricultural entomology during his later career, students of Plecoptera will know his name for his important work on stoneflies of the Canadian prairies, especially Saskatchewan, from the late 1970s through the 1990s. He published at least 14 papers directly or indirectly relating to stoneflies during this part of his career, many of which are still cited today. His *Stoneflies of Saskatchewan* (Quaest. Entomol. 15: 3-116) continues to be a standard reference for stoneflies in this region. His most recent paper, a book chapter updating information on stoneflies of the Canadian Prairie Provinces, was just published this year. Additional details of Lloyd's life and interests can be seen at http://www.legacy.com/obituaries/edmontonjournal/obituary.aspx?pid=171372349

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Dosdall, L. M. & D. J. Giberson. 2014. Stoneflies (Plecoptera) of the Canadian Prairie Provinces. In Arthropods of Canadian Grasslands (Volume 3): Biodiversity and Systematics Part 1. Edited by H. A. Cárcamo and D. J. Giberson. Biological Survey of Canada. pp. 201-229.

Ed DeWalt

MEMBER NEWS

Dear Colleagues:

After the first steps we recently took towards a generic revision of the Capniidae, we need your assistance/cooperation to continue with this endeavor! From the East Palaearctic and Oriental regions, we are in need of material of any additional *Capnia* sensu lato species, regarding both specimens for morphological analyses and fresh material for DNA studies. From the West Palaearctic and the Nearctic, we are in need of fresh specimens for DNA, or any sequences newly retrieved especially type species of genera or the defined species groups. If you are willing to cooperate, please contact us on d.muranyi@gmail.com or maribetg@gmail.com.

Besides gathering materials for the generic revision, our plans for 2015 are redefinition of *Eocapnia* Kawai, 1955, *Takagripopteryx* Okamoto, 1922 and *C.* s.l. *lepnevae* Zapekina-Dulkeit, 1960 (that can be assigned to the hitherto West Nearctic *nana* group sensu Nelson & Baumann 1989). In cooperation with **Weihai Li**, we are also are redefining the concept of the genus *Capniella* Klapálek, 1920 and present an overview on Oriental Capniidae, with description of a new species. Regarding the recently defined *Zwicknia* Murányi, 2014, we are progressing with

species level taxonomy including morphology, bioacustic and molecular studies: this year we will describe further Balkanian species in cooperation with **Louis Boumans, Tibor Kovács** and **Kirill Márk Orci. Bertrand Launay, Jean-Paul Reding, Alexandre Ruffoni** and **Gilles Vinçon** are working on the French species.

Dávid Murányi and **Maribet Gamboa**

Dear Colleagues:

I have just prepared a red list for the United Kingdom Plecoptera. Thirty-four species were assessed with 1 Regionally Extinct, 1 Critically Endangered (Possibly Extinct) and 1 Vulnerable species. Four species were found to be Data Deficient.

Four species were found to be Nationally Rare and five species are Nationally Scarce.

Details of the various species are below. The full report will be published at http://jncc.defra.gov.uk/page-3352 in the near future.

Regionally Extinct
Perlodidae *Isoperla obscura* (Zetterstedt)

Critically Endangered (Possibly Extinct)
Perlodidae *Isogenus nubecula* Newman

Vulnerable
Taeniopterygidae *Rhabdiopteryx acuminata* Klapálek

Data Deficient
Capniidae *Capnia atra* Morton, *Capnia vidua anglica* Aubert
Nemouridae *Nemoura lacustris* Pictet, *Protonemura montana* Kimmins

Nationally Rare
Nemouridae *Nemoura lacustris* Pictet, *Nemoura dubitans* Morton
Perlodidae *Isogenus nubecula* Newman
Taeniopterygidae *Rhabdiopteryx acuminata* Klapálek

Nationally Scarce
Capniidae *Capnia atra* Morton, *Capnia vidua anglica* Aubert
Nemouridae *Amphinemura standfussi* (Ris), *Protonemura montana* Kimmins
Taeniopterygidae *Brachyptera putata* (Newman)

Craig Macadam
Conservation Director

Buglife – The Invertebrate Conservation Trust, Balallan House, 24 Allan Park, Stirling, FK8 2QG

ARTICLES

The 2014 *Sierraperla* (Plecoptera: Peltoperlidae) Pacific Northwest U.S.A. Expedition

Bill P. Stark[1], John B. Sandberg[2], Boris C. Kondratieff[3], Chris J. Verdone[3] and Audrey B. Harrison[4]

[1]Department of Biology, Box 4045, Mississippi College, Clinton, Mississippi, U.S.A. 39058
E-mail: stark@mc.edu

[2]California Department of Fish & Wildlife – A.B.L. and CSUC Research Foundation, California State University, Chico, California, U.S.A. 95929
E-mail: jsandberg@csuchico.edu

[3]Department of Bioagricultural Sciences and Pest Management, Colorado State University, Fort Collins, Colorado, U.S.A. 80523
E-mail: boris.kondratieff@colostate.edu
E-mail: verdonec@gmail.com

[4]Department of Biology, University of Mississippi, University, Mississippi, U.S.A. 38677
E-mail: audreybharrison@gmail.com

During 13-30 May 2014, we traveled to the Pacific Northwest to obtain additional material of the western Nearctic peltoperlid genus *Sierraperla* to confirm that two different taxa exist. Most of our collecting was focused in Oregon and northern California, U.S.A. Fifty-seven sites in 23 counties were collected in these states, and collections were made at two additional sites from two counties in Idaho and Utah (Table 1, Fig. 1). Most adults and nymphs of *Sierraperla* were specifically collected in 95% ethanol for DNA extractions. A paper was written describing a new species of *Sierraperla* based on male aedeagal characters, egg characters, and molecular evidence (Stark et al. 2015). Additionally, fresh material of *Osobenus yakimae* (Hoppe) allowed us to describe the distinctive epiproctal structures of this Pacific Northwest species (Sandberg et al. 2015) and specimens of the banded-wing phenotype of *Moselia infuscata* (Claassen) were collected for DNA barcode (Cytochrome c Oxidase subunit I [COI]) analysis (Gill et al. 2015).

Other stonefly species were either preserved in 70-95% ethanol or returned to Mississippi College, Colorado State University or Paradise, California for adult rearing. Most adults were collected by using beating sheets (DeWalt et al. 2014). The scanning electron micrograph was produced by a JEOL JSM-6500F Field Emission Scanning Electron Microscope (FESEM) at the Central Instrument Facility, Imaging Laboratory, Colorado State University, Fort Collins, Colorado (http://cif.colostate.edu/imaging-laboratory/).

A total of 3,059 stoneflies representing at least 91species were collected (Table 2), and several of these were reared. Several of the known species are uncommon and others represented new species or new state records. *Salmoperla sylvanica* Baumann & Lauck, a rare perlodid species previously known from a few streams in northern California (Baumann & Lauck 1987, Nelson and Stark 1987, Stark and Baumann 2006) was reared from a stream in Jackson Co., Oregon, (Split Rock Creek, Wagner Gap Road, 12 mi S Talent, 42.09480°N, 122.77397°W) and specimens of an apparent new species of *Kathroperla* were also collected at the same site. Other

relatively uncommon Pacific Northwest species included two perlodid stoneflies, *Frisonia picticeps* (Hanson) and *Susulus venustus* (Jewett), and a significant range extension is reported for *Soliperla quadrispinula* (Jewett) from Meacham Creek, Umatilla Co., Oregon. This species is presently known from sites along the Coast Range of northern California to Clatsop and Benton counties in Oregon (Stark & Gustafson 2004). We also present a SEM image of the epiproct of *Alloperla delicata* Frison to illustrate the characteristic ellipsoidal dorsal aspect of the epiproct with the two anterolateral horns (Fig. 2). Lyon and Stark (1997) previously presented SEM images of the epiproct of this species; however the apex was obscured by the dense hair fringe of the epiproct and abdominal terga. In our images the distinctive epiproct tip of this species is more clearly illustrated.

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Stark, B.P. and D.L. Gustafson. 2004. New species and records of *Soliperla* Ricker, 1952 from western North America (Insecta, Plecoptera, Peltoperlidae). Spixiana 27:97-105.

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Table 1. 2014 Sierraperla Expedition. * indicates multiple visits.

State	County	#	Waterbody	Location	Date
OR	Jackson	1	Union Creek	Falls (mapped), 0.6 mi S Hwy 62	5/16
		2	Trib of Union Cr.	1000 Springs Rd 3 mi SE Hwy 62	5/16
	Douglas	3	Clearwater River	Clearwater Falls CG, Hwy 138	5/16
		4	Watson Creek	Watson Falls NFD37RD & Hwy 138	5/16
	Union	5	Grande Ronde River	Birdtrack Springs CG	5/16
		6	Grande Ronde River	Hilgard Jct, Hwy 244	5/16*
	Clatsop	7	Fishhawk Creek	Nr Jewel, Fishhawk Falls Hwy	5/17
	Clackamas	8	Still Creek	Near Still Creek CG	5/17*
	Linn	9	North Santiam River	Hwy 22, 0.5 mi W Bruno Mtn. Rd.	5/18
		10	Seeps on Willis Creek	NFD 2255	5/18

		11	Marion Creek	Hwy 22	5/18
	Benton	12	Alder Creek	Hwy 30 Alder Creek Falls Marys Pk	5/19
		13	Unknown stream	Mary's Peak, 2 mi W Hwy 30	5/19
	Lincoln	14	Thornton Creek	Thornton Creek Rd	5/19
UT	Summit		Weber River	I-84 Exit 112, Fish Access	5/19
ID	Twin Falls		4th Fork Rock Creek	Rock Creek Rd, 1/4 mi S of 5th fork	5/19
	Malheur	15	Snake River (Hwy 201)	Ontario State Rec Site	5/19
	Multnomah	16	Wahkeena Spring	Hwy 84, 20 mi E Troutdale	5/18
		17	Wahkeena Creek	Wahkeena Falls, Hwy 30	5/20
	Clackamas	18	Salmon River	Salmon River Rd	5/20
	Umatilla	19	Meacham Creek	Off Exit 238 1-84	5/20
	Josephine	20	Rogue River	Grants Pass, Riverside Park	5/21
		21	Cave Creek	Grayback CG, Hwy 46	5/21
		22	Spring Trib of Lake Cr.	NFD-070 Foot Trail	5/21
		23	Lake Creek	NFD-070 Foot Trail	5/21
OR		24	West Fork Illinois R.	Illinois Forks State Park	5/21
	Jackson	25	Wagner Creek	Wagner Creek Rd, 5 mi S Talent	5/22
		26	Basin Creek	Wagner Creek Rd, 5.9 mi S Talent	5/22
		27	Sheep Creek	NFD-22-RD, 10.5 mi S Talent	5/22
		28	Corral Creek	NFD-22-RD, 10.7 mi S Talent	5/22
		29	Jim Creek	NFD-22-RD, 11.1 mi S Talent	5/22
		30	Split Rock Creek	NFD-22-RD, 12.4 mi S Talent	5/22
		31	Beaver Dam Creek	Daley Cr CG nr Deadwood Junction	5/22
		32	McDonald Creek	NFD-22 Rd	5/22
	Siskiyou	33	Big Springs Creek	Mt Shasta City Park	5/23
		34	Black Butte Spring Cr.	Black Butte	5/23*
CA		35	McCloud River	Lower Falls Pic Area Hwy 89	5/23
	Modoc	36	SF Davis Creek	Plum Valley CG, 3.5 mi E Davis Cr	5/23
		37	NF Pit River	Lowhead dam, 0.8 mi N Surprise Sta.	5/23
		38	Thoms Creek	Cedar Pass CG, 15 mi E Alturas	5/23
OR	Harney	39	Trout Creek	Whitehorse Ranch Rd 18 mi S Fields	5/24
	Nevada	40	Rock Creek	N Bloomfield Rd, 4.2 mi N NV City	5/24
		41	Spring Trib South Yuba R	N Bloomfield Rd, Edwards Crossing	5/24
	Del Norte	42	Patrick Creek	Patrick Creek Rd (1st Bridge)	5/24
		43	Small Falls into Patrick Cr	Patrick Creek Rd	5/24
		44	Sml Falls above Shelly Cr	Patrick Creek Rd	5/24
	Humboldt	45	Prairie Creek	Prairie Cr Redwoods SP, Drury Pkw.	5/25
		46	Freshwater Creek	Freshwater Pool Park	5/25
		47	Ruby Creek	Hwy 299	5/25
		48	Sml Waterfall	Hwy 299 above Boise Creek CG	5/25
CA	Trinity	49	Sml Stream	Burnt Ranch Hwy 299 NFCG	5/25
	Butte	50	Butte Creek	Humboldt Rd E Butte Meadows 1	5/25
		51	Butte Creek	Humboldt Rd E Butte Meadows 2	5/25
			Butte Creek	Humboldt Rd E Butte Meadows 3	5/25
	Tehama	52	Deer Creek	Hwy 32, below Potato Patch CG	5/25
		53	Morgan Creek	Hwy A6	5/26
		54	Deer Creek	Hwy 32 Elam Picnic Area	5/26
	Plumas	55	Domingo Springs	Old Red Bluff Rd	5/26
	Sierra	56	Big Spring	Hwy 49 near Bassetts	5/26

Table 2. 2014 *Sierraperla* Expedition taxa list. N* indicates nymph and exuviae.

	CAPNIIDAE			*A. fraterna*	36♂	29♀	
Capnia glabra	4♂	33♀		*Alloperla* sp.		11♀	
C. gracilaria	3♂	5♀		*Kathroperla perdita*	2♂	2♀	1E
C. melia	28♂	37♀		*Kathroperla* n.sp	1♂	3♀	
C. sextubercata	3♂	15♀		*Paraperla frontalis*	1♂	4♀	1E
Capnia sp.		10♀		*Suwallia* sp.		1♀	
Eucapnopsis brevicauda	14♂	51♀		*Sweltsa borealis* gr	49♂	62♀	
Paracapnia sp.		1♀		*S. coloradensis*	27♂	18♀	
	CHLOROPERLIDAE			*S. fidelis*	21♂	8♀	1N
Alloperla chandleri	8♂			*S. oregonensis*	2♂		
A. delicata	22♂	9♀		*S. pacifica*	23♂	16♀	

S. salix	34♂	38♀	
Sweltsa sp.	1♂	3♀	7N
S. townesi	73♂	46♀	
S. umbonata	21♂	40♀	
Triznaka pintada	10♂	7♀	
T. signata	2♂		
LEUCTRIDAE			
Megaleuctra complicata	3♂	5♀	
Megaleuctra kincaidi	2♂	2♀	1N
Moselia infuscata	167♂	120♀	
Paraleuctra forcipata	28♂	45♀	
P. occidentalis	15♂	27♀	
P. vershina	138♂	139♀	
Perlomyia collaris		4♀	
Pomoleuctra andersoni	1♂		
NEMOURIDAE			
Malenka bifurcata	2♂	1♀	
M. cornuta	22♂	13♀	
M. depressa	22♂	15♀	
Malenka n. sp.	1♂		
Malenka sp.	1♂	2♀	8N
Nanonemura waukeena	4♂	4♀	
Nemoura spiniloba		1♀	
Podmosta delicatula	16♂	24♀	
Prostoia besametsa		1♀	
Soyedina interrupta	7♂	3♀	1N
S. nevadensis	4♂	3♀	
S. producta	84♂	43♀	1N
Soyedina sp.		4♀	
Visoka cataractae		7♀	
Zapada cinctipes	2♂	11♀	
Z. columbiana		1♀	
Z. frigida	13♂	6♀	
Z. oregonensis	25♂	34♀	6N
PELTOPERLIDAE			
Sierraperla cora	14♂	4♀	78N
S. tolowa	3♂		46N
Soliperla campanula	13♂	6♀	
S. quadrispinula	1♂	1♀	13N
S. sierra	2♂		5N
Soliperla sp.	1♂		2N
Yoraperla mariana	16♂	32♀	
Y. nigrisoma	58♂	68♀	9N
Y. siletz	3♂	2♀	
Yoraperla sp.		1♀	7N
PERLIDAE			
Calineuria californica	23♂	14♀	14N
Doroneuria baumanni	1♂		8N
Hesperoperla pacifica	4♂	2♀	4N
PERLODIDAE			
Calliperla luctuosa		2♀	2E
Cascadoperla trictura	2♂	2♀	
Chernokrilus misnomus			6N
Cultus sp.	2♂		4E
C. tostonus	6♂		
Diura knowltoni	4♂	2♀	
Frisonia picticeps		29♀	1E
Isoperla bifurcata	13♂	1♀	64N
I. fulva	39♂	17♀	6N*
I. marmorata	3♂	10♀	
I. mormona	6♂	3♀	10N
I. phalerata	1♂	1♀	9N
I. quinquepunctata	21♂	16♀	
I. roguensis		1♀	
I. sobria	1♂	6♀	3N
Isoperla sp.		6♀	7N
I. tilasqua	5♂	3♀	
I. umpqua	1♂		
Kogotus nonus	12♂	8♀	
Kogotus/Rickera sp.			4E
Megarcys subtruncta	3♂	12♀	2E
Osobenus yakimae	14♂	20♀	2N
Rickera sorpta	9♂	11♀	
Salmoperla sylvanica	2♂	1♀	
Setvena waukeena			1N
Skwala curvata		1♀	
Skwala sp.			8E
Susulus venustus	6♂	13♀	2N
PTERONARCYIDAE			
Pteronarcella badia			2N
Pteronarcella regularis			1N
Pteronarcys californica		2♀	2N
P. princeps	10♂	6♀	7N
TAENIOPTERYGIDAE			
Taenionema kincaidi	10♂	16♀	
T. pacificum	3♂	3♀	
T. pallidum	51♂	103♀	
T. raynorium	1♂	1♀	

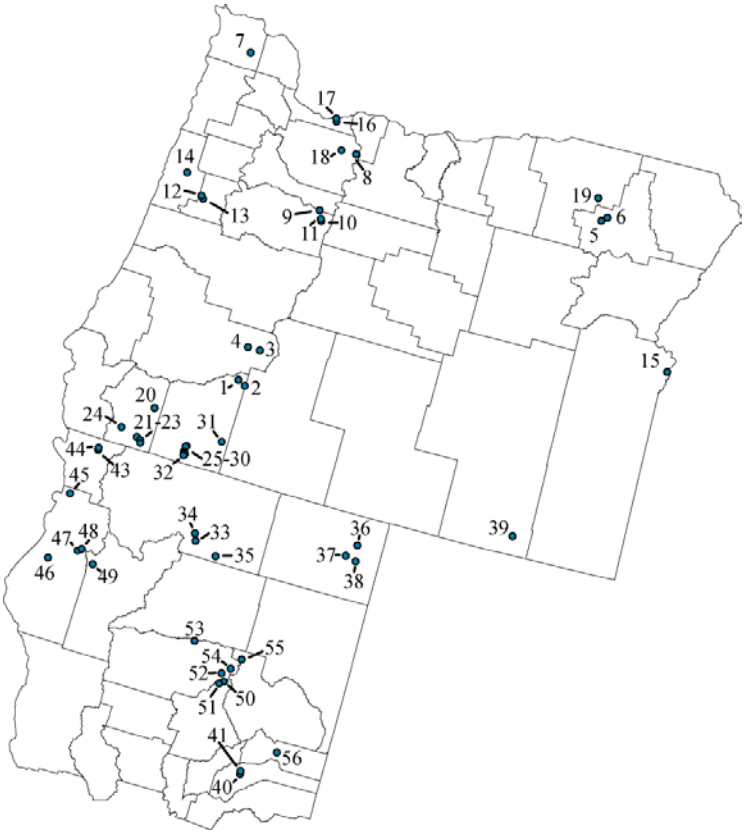

Figure 1. May 2014 *Sierraperla* Expedition site map.

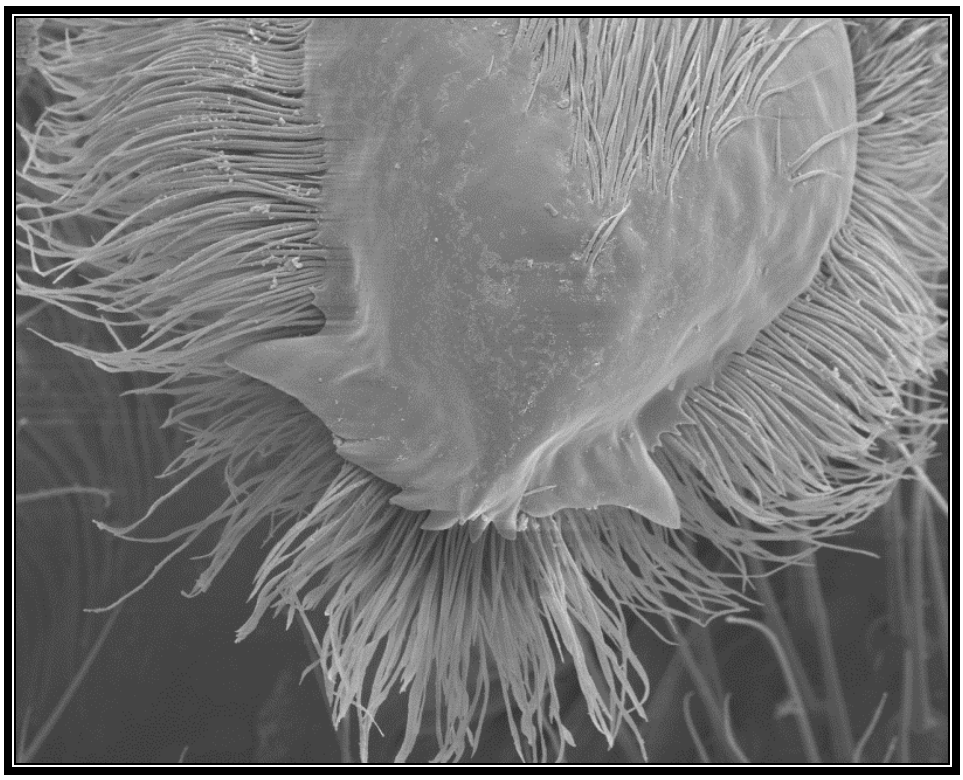

Figure 2. SEM of the epiproct of *Alloperla delicata*,
Nevada Co., California, Rock Creek, 24 May 2014.

Do Upper Great Lakes National Parks Protect Stoneflies, Mayflies, and Caddisflies Better Than Surrounding Areas?

R. Edward DeWalt, Eric J. South, and Jason L. Robinson

University of Illinois, Prairie Research Institute, Illinois Natural History Survey, 1816 S Oak St. Champaign, IL 61820, 217-649-7414, dewalt@illinois.edu

Over the past two years we have been sampling streams, lakes, and marshes in six upper Great Lakes national park units: Sleeping Bear Dunes National Lake Shore (Michigan), Indiana Dunes NLS (Indiana), Pictured Rock NLS (Michigan), Isle Royale National Park (Michigan), Voyageurs NP (Minnesota), and St. Croix & Namekagon National Scenic Waterway (Minnesota & Wisconsin). National parks were designed to protect the flora and fauna living within their boundaries and should protect sensitive species at a greater rate than found in the region species pool. The problem is how to define that region species pool. Some have used state checklists as a species pool, but this is too course and in some cases a park unit might have very different habitat from that across an entire state. We draw on two sources for regional species pool data: predicted pre-European settlement distributions for 427 Midwestern, USA EPT species and a

>200,000 record specimen database compiled over the past decade for a large portion of the Midwest. Prelimnary data suggest that Isle Royale NP has only a subset of the mainland fauna, mostly smaller species that could fly or flow to the island or that were already present in Lake Superior such as *Arcynopteryx dichroa* (McLachlan) and *Capnia vernalis* (Newport). Indiana Dunes is dominated by caddisflies due to its sluggish streams and marshes. Sleeping Bear Dunes has a quite different fauna given to its abundance of glacial features that are porous, preventing the formation of small surface streams. A few larger streams traverse the park, but always enter groundwater fed lakes before flowing into Lake Michigan. EPT richness here is atuned to lake, marsh, and the thermally influenced streams of limited size range. St. Croix has a rich EPT fauna due to the combination of large rivers and small streams that form the waterway. Pictured Rocks has an abundance of small, high gradient streams that produce a rich fauna, influenced by cold, Lake Superior climate. The EPT fauna is similar to that in the Allegeny Plateau of eastern Ohio and Pennsylvania. Finally, Voyageurs NP is a series of very large, brown water lakes siting on metamorphic bedrock. Here an abundance of caddisfly and mayfly species are found—a few stoneflies may be found in the outflows of these lakes. Sampling is ongoing, requiring another two years to complete. Soon, we will have an inventory of these remarkable habitats and know how their EPT fauna compare to various measures of the regional species pool.

RECENT PLECOPTERA LITERATURE (CALENDAR YEAR 2014 AND EARLIER). Papers made available after 1 February 2015 will be included in the next issue. **If papers were missed, please bring these to the attention of the Managing Editor**. Drs. Bill P. Stark, J. M. Tierno de Figueroa, and Peter Zwick are thanked for reviewing and providing additions to this present list.

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Standing Committee
International Society of Plecopterologists

John Brittain
Natural History Museum
University of Oslo
P.O. Box 1172 Blindern
NO-0318 Oslo, NORWAY
E-mail: j.e.brittain@nhm.uio.no

J. Manuel Tierno de Figueroa
Dpto. de Zoología
Facultad de Ciencias
Universidad de Granada
18071 Granada, SPAIN
E-mail: jmtdef@ugr.es

R. Edward DeWalt
University of Illinois,
Prairie Research Institute,
Illinois Natural History Survey,
1816 S Oak St., Champaign, IL, USA 61820
E-mail: dewalt@illinois.edu.

Boris Kondratieff
Department of Bioagricultural Sciences
and Pest Management
Colorado State University
Ft. Collins, Colorado 80523, USA
E-mail: Boris.Kondratieff@colostate.edu

Dávid Murányi
Hungarian Natural History Museum
H-1088 Budapest
Baross u. 13, Hungary
E-mail: d.muranyi@gmail.com

Ignac Sivec
Prirodoslovni Muzej Slovenije
Prešernova 20, POB 290
1001 Ljubljana, SLOVENIA
E-mail: isivec@pms-lj.si

Stanley W. Szczytko
University of Wisconsin
College of Natural Resources
Stevens Point, Wisconsin 54481, USA
E-mail: sszczytk@uwsp.edu

Mayumi Yoshimura
Forestry and Forest Products Research Institute
Kansai Research Center
Nagai Kyutaro 68
Momoyama
Fushimi, Kyoto
612-0855 JAPAN
Yoshi887@ffpri.affrc.go.jp

***Sweltsa borealis* complex, Wahkeena Falls, Multnomah County, Oregon, U.S.A.**
Photograph by Bill P. Stark