

# PERLA

Annual Newsletter and Bibliography of  
The International Society of Plecopterologists



*Brachyptera putata* (Newman, 1838), River Dee at Mar Lodge, a Scottish endemic.  
Photograph by David Pryce

## PERLA NO. 34, 2016

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**PERLA**  
**Annual Newsletter and Bibliography of the**  
**International Society of Plecopterologists**  
**Available on Request to the Managing Editor**

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## TABLE OF CONTENTS

Subscription policy .....	3
2015 XVIII International Symposium on Plecoptera, XIVth International Conference on Ephemeroptera in Aberdeen, Scotland .....	4
Illiesia.....	33
Announcements.....	33
Eleventh North American Plecoptera Symposium .....	34
Obituary .....	38
Member News.....	48
Articles.....	49
Recent Plecoptera Literature.....	55

## **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 34 (2016) in one of the following ways, in order to be kept on the mailing list for PERLA 35 (2017): (1) pay your annual dues, (2) make a \$10 donation (institutions), or (3) request a waiver. A form and an addressed envelope are included with this issue, (PERLA 34) 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**



The conveners, **Craig Macadam** and Dr. **Jenni Stockan** hosted an exceptionally enjoyable meeting at the James Hutton Institute in Aberdeen, Scotland from 1-6 June 2015. This meeting was attended by an international group of delegates, both esteemed veterans of our passion of study but also numerous students and enthusiasts (see map below). Our hosts ensured that besides intellectually stimulating scientific presentations and discussions, good old Scottish fun and traditions would be included all week. We enjoyed traditional Scottish dances by a local dancing school, mini Highland Games which included special conference versions of toss the caber, the welly toss, toss the turd, and toss the haggis. Team Plecoptera of course, won. We also had the special opportunity to savor fine Scottish whisky and food.

The first day of papers focused on phylogeny, taxonomy and systematics of Plecoptera and Ephemeroptera. The second day of presentations considered ecology and behavior. Day three included the mid conference tour to Cairngorms National Park, Balmoral Castle and [Glen Tanar](#) estate for some nice collecting and then ending the day with a sumptuous barbeque. Despite being in Scotland, we had nothing but sunshine during this pleasing excursion.

Day four included papers on the distribution, biogeography and ecological adaptation of our taxa. That evening we were greeted by a piper for the conference dinner held at Ardoe House Hotel. After a delightful dinner, awards were given and the rest of the evening the delegates enjoyed traditional Scottish folk music and dancing.

Presentations on Day five included aspects of biodiversity, conservation, and morphology. We were also given an overview of the next conference that will be held in Brazil in 2018. Additionally, the results of a contest 'Guess the meaning of the Scottish word' were noted.

The post conference tour included whisky tasting at Strathisla Distillery, followed by collecting at Craigellachie, lunch at the Lecht Ski Centre, before visiting Corgarff, Gairnshiel and finally travelling to Burn O Vat in the Muir of Dinnet.



Map courtesy of Craig Macadam

## International Conference on Ephemeroptera and Plecoptera

### Programme

#### Sunday 31 May

16.30 – 18.00 Wine reception, welcome and registration

#### Monday 1 June

08.45 – 09.15 Registration open

09.15 – 10.00 Opening ceremony

10.00 – 11.00 KEYNOTE: *Biodiversity in the Information Age*  
 Dr Ben Price, Natural History Museum, London

11.00 – 11.30 Coffee break

#### SESSION 1: Phylogeny, taxonomy and systematics (Plecoptera) (Chair: Boris Kondratieff)

11.30 – 11.50 *Diversity of Plecoptera (Perlidae) from southern Brazil (S\*)*

**Marcos Carneiro Novaes**

11.50 – 12.10 *Towards the generic revision of Capniidae (Plecoptera): synopsis of the East Palearctic genera (S\*)*

**Dávid Murányi, Maribet Gamboa, Weihai Li, Kozo Watanabe**

12:10 – 12:30 *Two new species of the family Chloroperlidae from China*

**Chen Zhi-Teng, Du Yu-Zhou**

12.30 – 13.45 Lunch and posters

**SESSION 2: Phylogeny, taxonomy & systematics (Ephemeroptera I)** (Chair: Arnold Staniczek)

13.45 – 14.05 *Larval redescription of *Prosopistoma pennigerum* (Müller, 1785) from the River Volga near Rzhev, Tver Region, Russia (Insecta: Ephemeroptera)*

**Martin Schletterer, Ernst Bauernfeind, Wolfgang Lechthaler**

14.05 – 14.25 *Revisiting the generic concepts of *Afronurus* and *Electrogena* (Ephemeroptera: Heptageniidae): morphology, genetics and distribution (S)*

**Zohar Yanai, Michel Sartori, Roi Dor, Netta Dorchin**

14.25 – 14.45 *Deciphering genital anatomy of rare, delicate and precious specimens: first study of two type specimens of mayflies using micro-computed X-ray tomography (Ephemeroptera; Heptageniidae)*

**Michel Sartori, Martin Kubiak, Peter Michalik**

14.45 – 15.05 *Systematics of the Ephemeroptera of India: present status and future prospects*

**Kumbakonam G Sivaramakrishnan**

15.05 – 15.35 Coffee break

**SESSION 3: Phylogeny, taxonomy & systematics (Ephemeroptera II)** (Chair: Peter Grant)

15.35 – 15.55 *Phylogenetic analyses of *Cloeodes* Traver, 1938 (Ephemeroptera: Baetidae) and related genera*

**Frederico F. Salles, Jean-Luc Gattolliat, Michel Sartori**

15.55 – 16.15 *Phylogeny for synchronized mass emergence mayfly *Ephoron* (Ephemeroptera: Polymitarcyidae)*

**Kazuki Sekiné, Koji Tojo, Yeon Jae Bae**

16.15 – 16.35 *Molecular phylogenetics of mayflies: status and future directions*

**T. Heath Ogden**

16.35 – 17.15 Welcome to Scotland social event

17.15 – 18.15 Plecoptera Committee Meeting

**Tuesday 2 June**

09.00 – 09.30 Registration open

09.30 – 10.30 KEYNOTE: *The changing ecology of Britain's rivers: places and perspectives*

**Professor Steve Ormerod, Cardiff University**

10.30 – 11.00 Coffee break

**SESSION 4: Ecology of Ephemeroptera** (Chair: John Brittain)

11.00 – 11.20 *Mayfly (Ephemeroptera, Insecta) community of a regulated Mediterranean river (S)*

**Marina Vilenica, Ana Previšić, Marija Ivković, Aleksandar Popijač, Ivan Vučković, Mladen Kučinić, Jean-Luc Gattolliat, Michel Sartori, Zlatko Mihaljević**

11.20 – 11.40 *Influence of food availability and predation risk on growth and maturation of *Cloeon dipterum* (Ephemeroptera: Baetidae) (S)*

**Jan Šupina, Jindřiška Bojková, David S. Boukal**

11.40 – 12.00 *Ephemeroptera and Chironomidae (Diptera): A review of parasitic and epioictic larval relationships*

**Tomáš Soldán, Jindřiška Bojková**

12.00 – 12.20 *Development of a habitat preference curve for the mayfly *Baetis alpinus* (Pictet 1843)*

**Michael Hubmann, Martin Schletterer**

12.20 – 13.40 Lunch and posters

**SESSION 5: Ecology of Plecoptera & Ephemeroptera** (Chair: Ed DeWalt)

13.40 – 14.00 *Distribution and diversity of Slovak stoneflies (Plecoptera) according to selected environmental factors*

**Matej Žiak, Ilja Krno, Pavol Beracko**

14.00 – 14.20 *The effect of in-stream woody debris on riverfly communities (S)*

**Kerry Mackay**

14.20 – 14.40 *Contribution to the taxonomy and biology of two Balkan endemic *Isoperla* Banks, 1906 (Plecoptera: Perlodidae) species (S)*

**Dávid Murányi, Tibor Kovács, Kirill Márk Orci**

14.40 – 15.00 *A simple, inexpensive artificial stream for rearing mayflies*

**Peter Grant**

15.00 – 15.30 Coffee break

**SESSION 6: Behavioural ecology** (Chair: J. Manuel Tierno de Figueroa)

15.30 – 15.50 *Mateguarding tactics can explain stonefly duetting patterns (S)*

**Louis Boumans**

15.50 – 16.10 *Emergence patterns of the mayflies (Insecta, Ephemeroptera) in the area of Plitvice Lakes NP, Croatia (S)*

**Marina Vilenica, Marija Ivković, Zlatko Mihaljević, Michel Sartori**

16.10 – 16.30 *Unsolved problems within the research of stoneflies*

**Rainer Rupprecht**

16.30 – 17.30 Ephemeroptera Committee Meeting

19.00 – 21.00 Riverside and historical walks social event (optional)

**Wednesday 3 June**

08.30 – 19.30 Mid-conference tour: Dee Valley and Royal Deeside



## Thursday 4 June

09.00 – 09.30 Registration open

09.30 – 10.30 KEYNOTE: *More than just fish food – the contribution of mayflies and stoneflies to freshwater ecosystems*

**Craig Macadam, Jenni Stockan**

10.30 – 11.00 Coffee break

### SESSION 7: Distribution & Biogeography (Chair: Stanley Szczytko)

11.00 – 11.20 *Do USA Upper Great Lakes National Parks Protect Stoneflies, Mayflies, and Caddisflies Better Than Surrounding Areas?*

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

11.20 – 11.40 *Paleo-drainage patterns and effects on the distribution of Teloganodidae (Ephemeroptera) – a South African example (S\*)*

**Lyndall Pereira-da-Conceicao**

11.40 – 12.00 *Investigating disjunct distribution patterns in closely related mayflies between the Palaearctic and Southern Africa*

**Helen M. Barber-James**

12.00 – 12.20 *Mitochondrial reconstruction of Corsican mayflies (Ephemeroptera) with implications on biogeography, systematics and biodiversity*

**Jean-Luc Gattolliat, Emilie Cavallo, Laurent Vuataz, Michel Sartori**

12.20 – 14.00 Lunch, posters and golf lessons

### SESSION 8: Adaptation and change (Chair: Alexa Trusiak)

14:00 – 14:20 *Mayflies and drought – how to survive in intermittent streams? (S)*

**Marek Polásek, Petr Pařil, Světlana Zahrádková, Vít Syrovátka**

14:20 – 14:40 *Mayflies (Ephemeroptera) and stoneflies (Plecoptera) in extreme and unusual environments*

**John E. Brittain**

14.40 – 15.00 *Gene expression changes governing thermal adaptation of stoneflies in Japan*

**Maribet Gamboa, Yusuke Gotoh, Kozo Watanabe**

15:00 – 15.30 Results of Silent Auction

15:30 – 16:30 Joint Plecoptera and Ephemeroptera Committee Meeting

18.00 – 23.30 Conference dinner and Ceilidh at Ardoe House Hotel

## Friday 5 June

09.30 – 10.00 Registration open

10.00 – 11.00 KEYNOTE: *The IUCN Red List of Threatened Species: potential benefits of conducting a global assessment for Ephemeroptera and Plecoptera*

**Dr Will Darwall, IUCN Global Species Programme**

11.00 – 11.30 Coffee break

**SESSION 9: Biodiversity & Conservation** (Chair: Javier Alba-Tercedor)

11.30 – 11.50 *The UK Red List for mayflies and stoneflies*

**Craig Macadam**

11.50 – 12.50 Discussion on data sharing and red listing

12.50 – 14.00 Lunch and posters

**SESSION 10: Morphology** (Chair: Michel Sartori)

14.00 – 14.20 *The developmental origin of gills in mayflies*

**Brigid C. O'Donnell**, Christopher J. Gonzalez

14.20 – 14.40 *Anatomy of the eyes of mayflies using computer microtomography (micro-CT)*

**Javier Alba-Tercedor**

14.40 – 15.00 *A wolf among sheep: Larval head morphology of the carnivorous mayfly *Ameletopsis perscitus* (Ephemeroptera: Ameletopsidae)*

**Arnold H. Staniczek**

15.00 – 15.45 Concluding remarks, closing ceremony and 2018 Conference update

15.45 – 17.00 Farewell reception

**Saturday 6 June**

08.30 – 18.00 Post-conference tour: Cairngorms National Park and Speyside

(S) = Student

(\*) = Scholarship

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

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

The following images were provided by Dr. Jenni Stockan, Dr. Arnold Staniczek, and others.



**Participants of XVIII INTERNATIONAL SYMPOSIUM ON PLECOPTERA AND THE XIV INTERNATIONAL CONFERENCE ON EPHEMEROPTERA**



**Participants of XVIII INTERNATIONAL SYMPOSIUM ON PLECOPTERA  
AND THE XIV INTERNATIONAL CONFERENCE ON EPHEMEROPTERA**





**Craig Macadam, co-convener of XVIII INTERNATIONAL SYMPOSIUM ON PLECOPTERA AND THE XIV INTERNATIONAL CONFERENCE ON EPHEMEROPTERA**



**Dr. Jenni Stockan co-convener of the XVIII INTERNATIONAL SYMPOSIUM ON PLECOPTERA AND THE XIV INTERNATIONAL CONFERENCE ON EPHEMEROPTERA (Photo from <http://www.hutton.ac.uk/staff/jenni-stockan>)**



**John E. Brittain and Marcos Carneiro Novaes.**



**Javier Alba-Tercedor and John Brittain in intense discussion about stonefly biology.**



**During the poster session, M. J. Lopez-Rodriguez, J. Manuel Tierno de Figueroa, Du Yu-Zhou, and Romolo Fochetti.**



**Martin Schletterer, Stanley Szczytko, Boris Kondratieff and R. Ed DeWalt checking their catch during the mid-conference field trip.**





**Despite not being a hardcore Plecopterist, Arnold Staniczek, the genius needs to be included reflecting on his next success!**



**Dr. J. Manuel Tierno de Figueroa no doubt discussing stonefly biology at the silent auction tables.**





**Traditional Scottish dances presented by a Aberdeen dancing school.**



**Craig Macadam looking Scottish!**



**From left to right, Stan Szczytko, Boris Kondratieff (Lifetime Achievement awardees), David Muranyi, Marcos Carneiro Novaes, Fernanda Avelino Capistrana da Silva (Plecoptera travel scholarships awardees); Fabiana Criste Massariol, Alexander Martynov, Lyndall Pereira-da-Conceicoa, Pavel Sroka (Ephemeroptera travel scholarship awardees); Louis Boumans (Plecoptera travel scholarship awardee & best student presentation), Ian Campbell (Ephemeroptera Lifetime Achievement awardee), Rie Saito (best student poster), Thomas Soldan (Ephemeroptera Lifetime Achievement awardee).**



**Poster Sessions with Matej Ziak, Jan Šupina, Javier Alba-Tercedor, and John Brittain.**

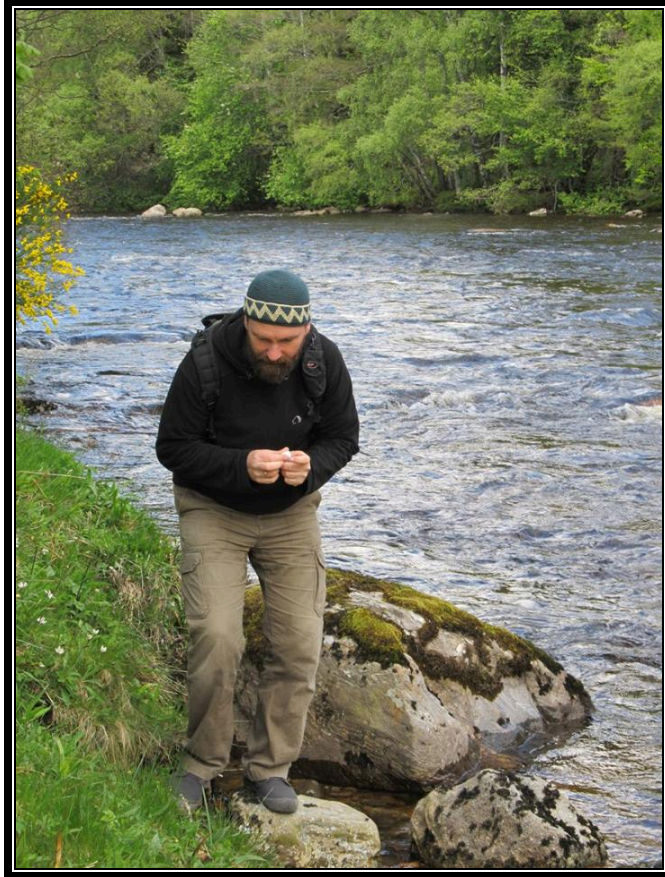




**Mini Highland Games which included special conference versions of toss the caber, the welly toss, toss the turd, and toss the haggis. Team Plecoptera, of course, won.**



**Jenni Stockan and Du Yu-Zhou.**



**Dr. Dávid Murányi what he likes doing the best, collecting stoneflies.**



**The convener of our next meeting in 2018 in Brazil, Dr. Frederico Salles with Dr. Martin Schletterer and Lyndall Pereira.**



## 2015 LIFETIME ACHIEVEMENT AWARDS

The International Committee continued the practice begun at the XI Symposium in Treehaven, Wisconsin, USA in 1992, of presenting Lifetime Achievement Awards to Plecopterologists who have made exemplary contributions to our field over their professional lifetimes. Previous awards have been made to Noel Hynes and Bill Ricker (announced in Perla 11); Jacques Aubert, Teizi Kawai, and Ian McLellan (announced in Perla 14); Claudio Froehlich, Lidija Zhiltzova, and Peter Zwick (announced in Perla 17); Kenneth Stewart, Elisabetta Dematteis Ravizza, and Carlaberto Ravizza (announced in Perla 20); and Richard W. Baumann, and Bill P. Stark (announced in Perla 23). Adding to this distinguished list of scientists, the International Committee awarded Lifetime Achievement Awards in 2008 to Peter Harper and Ignac Sivec (announced in Perla 27) and in 2012 recipients of the Award included John Brittain, Yu Isobe, and the late Dr. Hanson (announced in Perla 31).



**Drs. Boris C. Kondratieff and Stanley W. Szczytko with their awards**

### **Stanley W. Szczytko** **Professor Emeritus University of Wisconsin/Stevens Point**

Professor Dr. **Stanley Szczytko** studied under the guidance of another Lifetime Awardee, the late Dr. **Kenneth Stewart** for his Ph.D at the University of North Texas. Professor Szczytko

recently retired from the University of Wisconsin in 2013 as Professor Emeritus. He continues his research on Plecoptera.

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## ILLIESIA

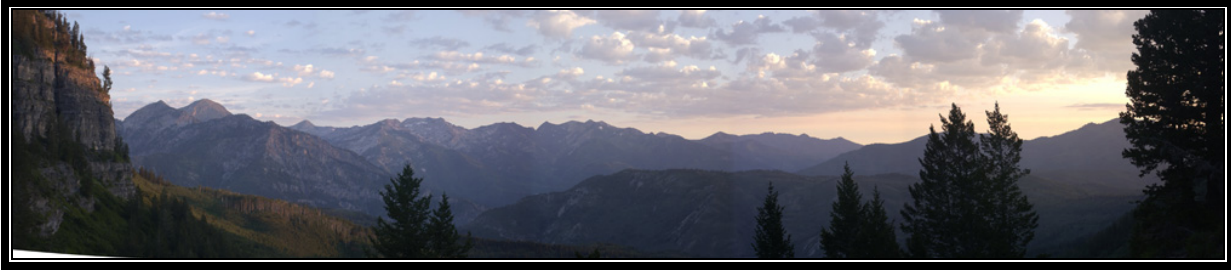
*Illiesia*, International Journal of Stonefly Research, completed publication of Volume 11 in December, 2015. Fourteen articles submitted by 24 authors, and based on material and studies in the Palearctic, Oriental, Neotropical and Nearctic regions were included in the 178 pages of this volume. In addition to these studies, the first two *Monographs of Illiesia* were published in 2015; both of these were authored by **S.W. Szczytko** and **B.C. Kondratieff**. *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**, **R. Edward DeWalt**, and **Bill P. Stark**, and the Advisory Board for 2015 included **Boris C. Kondratieff**, **Richard W. Baumann**, **Stanley W. Szczytko**, **C. Riley Nelson**, **Charles H. Nelson**, **John Brittain**, **Takao Shimizu**, **Claudio Froehlich**, **Wolfram Graf**, and **Peter Harper**. Journal formatting for Volume 11 was under the direction of **Mia Sivec** and **Mojmir Stangelj**. *Illiesia* is hosted by **R. Edward DeWalt** on the Illinois Natural History Survey server.

## ANNOUNCEMENTS

### PERLA ONLINE

The Standing Committee of the International Society of Plecopterists suggested at the Aberdeen meeting that all past issues of **Perla** be available as pdf's online. Through the courtesy of Dr. **R. Edward DeWalt**, issue 1 (1974) to issue 33 (2015) are now hosted on and can be accessed through Plecoptera Species File  
<http://plecoptera.speciesfile.org/HomePage/Plecoptera/PerlaList.aspx>

**ELEVENTH NORTH AMERICAN PLECOPTERA SYMPOSIUM, 17-19 May 2016,**  
Mount Timpanogos, Utah, U.S.A.



View of Wasatch Mountains north from Timpanogos Basin, Utah, U.S.A.

Invitation to Attend

The 2016 meeting of the North American Plecoptera Symposium will be held 17-19 May 2016 on the eastern slopes of Mount Timpanogos in the Wasatch Mountains of scenic northern Utah. Our accommodations will be in the historic Timp Lodge of Brigham Young University (Fig. 1). This site is adjacent to the Sundance Ski Area with its rich history of environmental and cultural awareness. On behalf of the NAPS, we invite you to attend this meeting which will consist of field interactions, congenial conversations, and as formal of presentations as attendees propose. This will bring together Plecoptera workers from throughout North America and the world to rub shoulders and explore new and continuing friendships and research opportunities.

Mount Timpanogos is a stunning location. The unique environment at 1934m (6,345ft) with relatively easy access to elevations ranging from 3,582 m (11,749m) on the summit of Mount Timpanogos (locals simply call it “Timp”) to 1281 m (4202ft) on the shore of the Great Salt Lake (locals call it “eew, salty”, will provide outstanding collecting opportunities and lead to human and biotic interactions in field, laboratory, and informal settings. The scenery and biodiversity from Timp Lodge itself are spectacular.



USA: UTAH: Utah Co., Mount Timpanogos, Little North Fork Creek at BYU Timp Lodge, N 40.38920 W 111.58580, elev. 1934 m, C. R. Nelson #9683. View to Roberts Horn from Timp Lodge.

Timp Lodge is about a one hour drive from Salt Lake International Airport. You leave the margins of the Great Salt Lake, pass south along the highly populated Wasatch Front, and climb

quickly into the mountains by way of Provo Canyon. Habitats are available for an assortment of stoneflies. The area contains a variety of terrestrial, wetland, and aquatic habitats, including sagebrush and greasewood flats, cattail marshes, lowland lakes, alpine lakes, cold and hot springs, a large river, and many small streams..

The lodge provides firewood for use in the massive indoor fireplace and at a nice fire pit on the upper lawn. Also provided are a freezer, stove, refrigerator, microwave, piano, foosball table, and ping pong table. We will arrange for a few microscopes and light sources as well as specimen grade ethanol.

If you want to know a good assortment of the stoneflies available nearby consult, Judson SW, Nelson CR. 2010. Diversity, phenology, and elevational distribution of Ephemeroptera, Plecoptera, and Trichoptera in American Fork Canyon, Utah. *Western North American Naturalist* 70(4):526–540.

### **Tentative schedule 2016**

#### **Tuesday, 17 May (late afternoon / evening) 2016**

Check-in at Timp Lodge.

Collecting near Timp Lodge, perhaps Stewart Falls

Dinner at Timp Lodge

Welcome and introduction to area

Later visit to the Owl Bar at Sundance Ski Area as needed,

[http://www.sundanceresort.com/dine/owl\\_bar.html](http://www.sundanceresort.com/dine/owl_bar.html)

#### **Wednesday, 18 May 2016**

Breakfast in Timp Lodge

Visit to Sundance Foundry Grill by some, [http://www.sundanceresort.com/dine/foundry\\_grill.html](http://www.sundanceresort.com/dine/foundry_grill.html)

Welcome and stonefly talks. Short trip(s) to Aspen Grove Trail, Cascade Springs, or Timpooneke Trail

Box Lunches hand-packed at Breakfast

Dinner at Timp Lodge

Presentations and sorting the day's catch

Later visit to the Owl Club at Sundance Ski Area as needed

#### **Thursday, 19 May 2016**

Breakfast at Timp Lodge

Box Lunches hand-packed at Breakfast

Meeting wrap up.

On the road by noon. Some head to Nobletts Creek at headwaters of the Provo River

### **Driving directions:**

Participants can easily fly to Salt Lake International Airport (SLC), and arrange for a rental car from reasonable national agencies to go the remaining 55 miles, or consider the shuttle service information given under "Cost" below.

### Presentations

Please email Riley Nelson or Boris Kondratieff with the title and abstract of any presentation you would like to make to the group as a whole and the time you need. We suggest 10 minute talks and 20 minute discussions. Send them to us by 30 March 2016, please.

### Cost

Registration for each participant will be \$225 and includes lodge rental, catered meals, box lunches, and some field trip transportation. There are 64 beds, all single bunk beds, in the lodge.

Each will be provided with linens, two blankets, pillow, towel, wash cloth, and soap. There are plates and silverware for 150.

By sharing rides from the airport and to collecting sites we will be able to keep within this budget. No shuttles to or from the airport are provided. Express Shuttle offers rides to Sundance. This is easy walking distance to the lodge, or the driver may take you to Timp Lodge if you ask. The shuttle costs \$48 one way with each additional passenger paying \$15, up to seven passengers. So, if three people share the one way ride and book together it costs  $48 + 15 + 15 =$  \$78 or about \$26.00 each. If seven, then the price drops to \$20. Note this charge is one-way and requires a single booking for all. Arrange for your own shuttle service at 1-800-397-0773 or on-line at: <http://www.expressshuttleutah.com> Note that Timp Lodge and Sundance are in zip code 84604 in Provo Canyon.

Please register early, registration begins mid-December 2015 (deadline March 30, 2016, please, even earlier is better for me to arrange food) by calling Brigham Young University, Department of Conferences and Workshops, at 801-422-7589. That is their front desk. The preferred payment method is by calling them with a credit card to charge. The secretaries will be able to answer questions and transfer calls to the registration office for you to pay by credit card. The address for mail-in registration (by check only) is: Conference and Workshops, 120 Harman Building, Brigham Young University, Provo, UT 84602 USA. The BYU staff person helping with this conference is Ann Baxter 801-422-4852, [ann\\_baxter@byu.edu](mailto:ann_baxter@byu.edu). Cancellations will require a \$75 service fee, the remainder will be returned.

After you register with the university, please send each of us (Riley and Boris) an email note that you have done so

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**2012 XIIIITH INTERNATIONAL CONFERENCE ON EPHEMEROPTERA, XVIITH INTERNATIONAL SYMPOSIUM ON PLECOPTERA IN JAPAN**

Dr. Mayumi Yoshimura has indicated that the review process for the proceedings is almost finished and editing for publication is in progress and the papers will be published as a supplement to *Biology of Inland Waters* hopefully in 2016.

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**New book:**



**The Stonefly (Plecoptera)  
of Ireland**

**A comprehensive review of their  
distribution and ecology**

Hugh B. Feeley\*

Jan-Robert Baars, Liam Lysaght &  
Mary Kelly-Quinn



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**L.A. Zhiltzova (1926-2015)**

Dr. Lidija Andrejevna Zhiltzova, the grand old lady of Plecoptera research, passed away on September 13, 2015 in Karelia at the age of 89 years. Our science has lost a remarkable and productive student of the Plecoptera. Since the early sixties, Dr. Zhiltzova completed pioneer work throughout the former Soviet Union and adjacent countries, from the Carpathians in the west to the Kolyma River Basin in the East, from Novaja Zemlja in the north to Tien-shan and Pamir in the south. Her outstanding detailed illustrated publications set global standards. Lidija Andrejevna also worked with I. Levanidova and other Russian colleagues, with I. Sivec in Slovenija and with P. Zwick in Germany.

Only after the fall of the Iron Curtain, could Lidija Andrejevna visit other parts of the world. She attended the International Plecoptera and Ephemeroptera Symposia in Lausanne (1995) meeting for the first time colleagues from many countries, and also in Argentina (1998) and Italy (2001). She was an eager collector and very happy to take the only male of an *Anacroneuria* species collected during a private post-congress trip to Jujuy, Argentina; her two younger colleagues failed to collect any material.

In 1998, at the XIIIth International Symposium on Plecoptera which was held in conjunction with the IXth International Conference on Ephemeroptera at Tafi del Valle (Prov. Tucumán, Argentina) Lidija Andrejevna received the Lifetime Achievement Award of the International Association of Plecopterists. The laudatio, an appraisal of her lifetime work, and brief notes on her private life were published in PERLA 17, 1999, together with a complete list of her publications.

Lidia Andrejevna was born February 2, 1926, in a family of workers at Kusty, in the Tambov Region SE of Moscow. Her childhood in the war years was difficult. In 1943, Lidija Andrejevna graduated from secondary school with honors. In 1944 she started to study at the Biological Faculty of Moscow State University, her main interest was insects. She graduated with top honors with a diploma thesis on cicadas of the genus *Macropsis* living on willows (1949). She was admitted to postgraduate studies and her PhD thesis "The insect-pests of acorns in the area of state shelterbelts at Kamyshin – Stalingrad" was defended in 1953.

Her studies earned Lidija Andrejevna an invitation to the Zoological Institute of the Russian Academy of Sciences in then Leningrad, on the banks of the Neva River, opposite the Winterpalais. She worked there her entire lifetime on Plecoptera. Her collection is deposited at this institution. Lidija Andrejevna continued to work and publish beyond retirement age, also with several younger colleagues whom she had inspired to work with *vesnjanki*, the publication list in PERLA 17 is only current until 1999. The continuation and, unfortunately, the end of her impressive publication list is part of this obituary. It includes synopses of regional faunas as well as of the entire former Soviet Union. Lidija Andrejevna hoped to publish a comprehensive treatment of the stoneflies of this huge area in English and prepared a draft manuscript on Nemouroidea, in English. However, her monograph of the Euholognatha with her extraordinary detailed illustrations was eventually published in Russian (2003). Her plans to present a similar treatment of the Systellognatha were not completed.

Lidija Andrejevna was a very pleasant guest and became a personal friend. However, she never disclosed much of her private life. During an expedition to Svanetia in 1957, she met Yury A. Leister a student from the Tbilisi Pedagogical Institute. Later, he became her faithful companion of life. Yury Alexandrovich of German descent was born in 1921, in Georgia. At the end of the World War II, he was subjected to political repression in the Gulag (1945-1954), and was rehabilitated completely only in 1965. Yury Alexandrovich provided outstanding help and support to the work of Lidija Andrejevna, he stayed at home and cared for their two small children. This allowed Lidija Andrejevna to engage in scientific field work and expeditions. Lidija Andrejevna cared for her sick husband until his death in 2000. Subsequently, she spent part of the summers in Karelia with her daughter Natasha and family.

The memory of Lidija Andrejevna Zhiltzova will live forever, by her example of excellent scientific work and through the many taxa (4 genera, 135 species and subspecies) she named from a vast part of Eurasia.

The numerous patronyms named in her honour remind us of her noteworthy scientific impact that she had: *Amphinemura zhiltzovae* Joost, 1970; *Chloroperla zhiltzovae* Zwick, 1967; *Leuctra zhiltzovae* Theischinger, 1976; *Neoperla zhiltzovae* Teslenko 2012; *Protonemura zhiltzovae* Vincon & Ravizza, 2005; *Sweltsa zhiltzovae* Zwick, 2010; *Sylvoperlodes zhiltzovae* Sinitshenkova, 1987; *Zhiltzovaia* Özdikmen, 2008 (= *Aubertiana* Zhiltzova, 2005, not Victorov, 1970 [Hymenoptera]); *Zhiltzovia* Ricker et Ross, 1975 [Plecoptera]; *Ecdyonurus (Afghanurus) zhiltzovae* (Bajkova 1975); *Notacanthurus zhiltzovae* (Tshernova 1972); *Rhithrogena zhiltzovae* Sinichenkova, 1979 [Ephemeroptera]; *Asynarchus zhiltzovae* Kumanski, 1981; *Drusus zhiltzovae* Malicki & Olah, 1979 [Trichoptera]; *Sialis zhiltzovae* Vshivkova, 1985 [Megaloptera]; *Diamesa zhiltzovae* Makarchenko, 1989; *Krenosmittia zhiltzovae* Makarchenko & Makarchenko, 2006; *Simulium (Nevermannia) zhiltzovae* Rubtsov, 1976 [Diptera]; *Sikhotealinia zhiltzovae* Lafer, 1996 [Coleoptera]; *Wesmaelius (Kimminsia) zhiltzovae* Makarkin, 1986 [Neuroptera]; *Neobisium zhiltzovae* Čurčić, 1984 [Pseudoscorpiones].

We sincerely thank Susanna Cherchesova for information, Ed DeWalt and J. L. Gattolliat for help with some of the dedication names, and B. Kondratieff for improving our English.

**P. Zwick, V. A. Teslenko, I. Sivec**





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Continuation and additions to the list in Perla 17 (1999)

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L. A. Zhiltzova (4th from right) with colleagues at Erevan, 1950 (top) and at the Upper Kolyma river with E. A. Makarchenko and other colleagues (1977, bottom)



L.A. Zhiltzova,  
1979, and with  
her husband,  
Yury A.  
Leister



L.A. Zhiltzova loved fieldwork; 1992  
in Slovenia and 1998 in Argentina,  
with Y. Z. Du



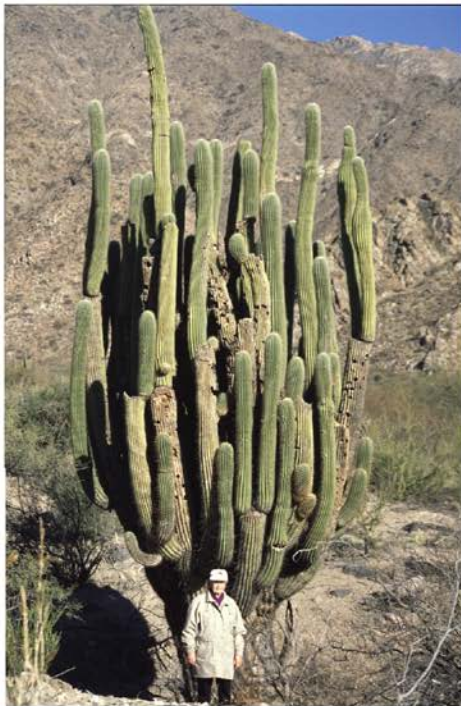
Visit to  
Wolfgang and  
Monika Joost  
at Gotha,  
Germany, 1991





I.D. McLellan,  
L.A. Zhiltzova and  
C.G. Froehlich (from  
left; Perugia, 1991)

With her daughter,  
Natalya Yurjevna  
G., in Karelia, 2005



Manuscript preparation,  
Schlitz, 2000





## MEMBER NEWS

### STONEFLY (PLECOPTERA) COLLECTION AT BRIGHAM YOUNG UNIVERSITY

#### R. W. Baumann

The alcohol preserved collection of stoneflies at Brigham Young University, Provo, Utah, U.S.A. was moved into a newly constructed facility in 2015. This mostly underground area is earthquake proof and fire resistant and is housed in metal cabinets, placed on steel rails, forming a compactor system that makes collection storage easy. The system not only gives space for all existing collections but also provides for future expansion.

All curated specimens are organized taxonomically by order, family, genus and species and then geographically. Most of the specimens are from North America, with an emphasis on western North America from Canada to Mexico (Nearctic). However, the Palearctic collection is the largest outside of Europe and Asia. In addition, valuable holdings are present from the African and Australian regions and islands of the sea, along with large areas of Central and South America.

The foundation of the collection is the product of extensive field work by Richard Baumann and colleagues during the years of 1975 to 2015. These colleagues are much appreciated and their help and friendship made this valuable collection a reality. A link to the collecting notebooks that were used is available at the BYU website through the Monte L. Bean Museum (<https://sites.lib.byu.edu/scholarsarchive/r-baumann-entomology-fieldnotes/>). Also, several large stonefly collections were received as donations by the following individuals:

Richard Bottorff	Andy Sheldon
Derham Giuliani	Sandy Fiance
David Muranyi	Jerry Kraft
Donald Burdick	Bill Shepard
John Hudson	Paul Freytag
Chad Murvosh	David Lauck
Shawn Clark	Ken Stewart
Stan Jewett	Ed Fuller
Marilyn Myers	Ed Masteller
Tom Eichlin	Stan Szczytko
Alan Knight	Arden Gaufin
David Potter	Terry Mingo
Gene Fiala	Bob Wisseman
Boris Kondratieff	

Plus, over the years, many valuable specimens have been obtained as gifts or exchanges from scores of individuals, too numerous to list, and their contributions are greatly appreciated. Ideally, all specimens would be completely curated and identified to the genus or species level. However, this is not the case and much time and effort are needed to reach this goal. With the space problem solved, this hope can become a reality in a much shorter length of time.

Plecopterologists and those interested are invited to visit the museum and tour the collection facility. Since, the North American stonefly meeting will be held in Provo in 2016, this is an ideal time to see the collection.

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## World Capniidae Studies

Dear Colleagues:

This year we are about to finish a generic revision of the World Capniidae and a species level revision of the Japanese Capniidae. I will stay in Japan until December 2016 as a Postdoctorate Fellow supported by the Japan Society for the Promotion of Science working with **Maribet Gamboa** and **Kozo Watanabe**, Ehime University. The generic revision will be based on holomorphology and COI sequences. We plan submit a multi-authored Zootaxa monography. We will not resolve the complete phylogeny of the family but we will be able to define the genera using both approaches. Of course, autapomorphies will be also defined using comparative morphology. The revision of the Japanese species will be based on morphology, COI, and bioacoustics. We plan to submit this work also as a Zootaxa monograph, being published shortly after the generic revision. Since last December, I have been informing many of you about the progress through regular e-mails updates. If you have not received my progress reports but are interested in joining the project, or simply would like to follow our progress, please contact me at [d.muranyi@gmail.com](mailto:d.muranyi@gmail.com) and I will add you to the list. It is my hope that these two future monographs will be realized with the cooperation of the stonefly research community.

**Dávid Murányi**

<b>ARTICLES</b>
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### **Progress on Digitization of the Kenneth Wilson Stewart Plecoptera Collections at the Illinois Natural History Survey**

**R. Edward DeWalt, Dmitry Dmitriev, and Matt Yoder.** University of Illinois, Illinois Natural History Survey, 1816 S Oak St., Champaign, IL, USA, 61820, dewalt@illinois.edu, 217-649-7414

**Introduction.** Kenneth Wilson Stewart, just prior to his death in December of 2012, made arrangements for his Plecoptera collection to be shared by two institutions: the Illinois Natural History Survey (INHS) at the University of Illinois and the Monte L. Bean Museum at Brigham Young University (BYU). Eastern specimens (Great Plains and east) went to the INHS under the care of R. Edward DeWalt, and the western material went to BYU under the care of Richard (Dick) W. Baumann. The eastern material amounted to 3,800 vials of specimens, two field notebooks, original and replicate illustrations, and many reprints. A tally for BYU specimens is not yet available, but it is at least as large as the INHS share.

Dick, Shawn Clark (BYU Insect Collection Manager), and I met in February 2013 in Denton, Texas. We visited with Francine Stewart and the loss of Ken was still very difficult for her. She spent a lot of time reminiscing with photographs and other mementos that we brought out of the laboratory for her. We all shared a nice evening with her and her family one evening.

The packing and sorting of Ken's accumulated life's work took two and a half days. About half of the material was well organized in wooden cabinets. The rest was stowed away in dozens of boxes or racks by project (e.g., Texas stoneflies), several of which were in progress at the time of Ken's death. In addition, there was much borrowed material, care being taken to keep those vials together for eventual return to their home institutions. I left for home with a heavy heart and pickup truck full of important specimens and supporting documents—a large proportion of Ken's life work.

**A Profile of the Collection.** In Champaign, Illinois, RED reorganized Ken's collection by taxon into numbered INHS racks and then profiled the condition of the specimens (Favret et al. 2007). Profiling provides numerical benchmarks of current condition and future improvement after additional curation. *Identification* among most specimens was to genus or species. *Locality labels* were a mixed bag. While they were usually precise enough to georeference, many photocopied labels were in danger of losing their type entirely. About 20% of locality labels consisted of either codes or incomplete location data. Most of these labels originated from two projects: Poulton & Stewart (1991) in Arkansas, Missouri, and Oklahoma; and Stark & Stewart (1973) for Oklahoma work. The Poulton key codes and the Stark field notebook for 1971-72 were found in Ken's laboratory and they have been digitized and georeferenced. A publication later this year (probably Biodiversity Data Journal) will provide access to all these locations—anyone with specimens from these projects will be able to obtain full label data for them.

*Storage containers* ranged from 2 dram snap caps to eight dram screwcaps, but most specimens were housed in 3 dram, patent lip vials with old, dried out or swollen stoppers (Fig. 1). *Preservative* levels were often low and fluids discolored. The entire collection would have to be unified into one storage type. Due to the inability to find high quality stoppers, we have opted to move all material into 4-dram glass, screw top vials and screwcaps with beveled polypropylene liners. Fluids will need to be replaced with one or more rinses of 75% EtOH to remove the variety of original preservatives used (denatured EtOH, isopropanol, Kahle's fluid, and some fluids with sticky residues). It is readily apparent that part of this collection was in danger of being lost due to its poor condition.

**Authors Receive Grant to Accession Collection.** The authors recently obtained a USA National Science Foundation grant to accession some 80,000 vials of donated material from Stewart, Stanley W. Szczytko, Brian J. Armitage (Ohio Biological Survey specimens and others), and several other collections. We will also be moving wet insect types to refrigerated storage and imaging types and their labels. Work began in September 2015 and will last through August 2018. Not only will all specimens be accessioned, but their identities and event data will be digitized and shared through the INHS website and with the Global Biodiversity Informatics Facility in Copenhagen, Denmark. A master's student will examine repeated patterns of distribution of stoneflies in the east and look at factors promoting these distributions. Undergraduate summer interns will be trained in museum work and systematics as well.

**Planning and Implementation.** We wanted to do the following with specimens and labels for thousands of specimens: rinse out old preservatives, move to new storage, and image specimens and labels. How do we do all this and minimize damage due to handling? We needed a procedure that gave us industrial efficiency, but was gentle enough to protect the specimens and labels. We also envisioned a protocol that was composed of stages that could be interrupted at the end of each stage. After several failed workflows, we settled on a process where vial contents are handled only twice: removal from old and placement in new storage, with photography between. We also wanted to time each stage and record conditions that increased handling time. There were three phases of the work: Pre-image processing, Imaging, Post-image processing.

*Pre-image.* This involved work on specimens in their previously profiled and numbered racks. First, all caps and stoppers were removed from up to 100 vials at a time. The racks were then tilted to dribble out old fluids (saved as for disposal as chemical waste) and 75% EtOH added as rinse. Enough small, plastic petri dishes were assembled onto cafeteria trays (Fig. 2) to match the number of vials in a rack, the contents of each vial was moved to the dishes and covered. Unique catalog numbers were cut and placed in sequence on the petri lids.

*Imaging.* A jig used in photography was constructed from two layers black plastic sheeting (Fig. 3). It includes a well for the petri dish of specimens and red tape that defined quadrants for the catalog number, collecting event, determination label, and other labels. A label with metadata with the project name, date, and person imaging was also provided. Images were taken with natural light in a well-lit room and replaced on the tray. All images for a given set of metadata were downloaded from the camera immediately after imaging, saved to a folder on the laboratory computer, and then copied to Dropbox for ease of sharing with project personnel.

*Post-imaging.* The order of vials in the original racks was reconstructed from the sequential catalog numbers. All new vials needed were placed into original racks and filled with 75% EtOH (Fig. 4). Labels were transferred to vials to fit its long axis. Specimens were gently moved to the vials and the catalog number fit inside the top of the vial so that they could be easily seen.

**TaxonWorks, a New Data Management System.** My co-PIs have written software that recognizes the quadrants of the jig and conducts Optical Character Recognition (OCR) on the text, placing the text into editable text boxes (Fig. 5). Of course, OCR often works for printed text with some editing nearly always necessary. Most important is to capture the catalog number accurately. Matt Yoder is currently adding in pick lists for state, county, stream, and taxon names (Fig. 6). Once these are added to a digital record, sorting and rapid normalization of the rest of the data will follow.

**Time in a Bottle.** With data from processing of 1509 vials, we found that it takes just under three minutes per vial to complete all three phases (Fig. 7). It turns out that putting specimens back into the 4-dram vials is the most time consuming, the actual photography takes the least amount of time.

Some problems that add time to processing specimens are relegated to only one stage, or plague staff throughout the process. Swollen stoppers are a problem only during the Pre-imaging stage. All vials where stoppers did not come out easily were set aside until all racks for a given set were worked through. We then wrapped a vial with a failed stopper in paper toweling and

broke the vial with pliers to remove its contents. An example where time was lost throughout the process involved over-sized labels that were longer than the vials and especially those that are coiled within a vial. These had to be unwound and gently pulled out of the vial. Sometimes, these had to be folded to fit in the petri dishes. They often required trimming to get them into the new vials. We understand why labels are coiled, but the oversized label make little sense. Event labels are often coiled at the top of the vial to help a curator to organize collections by state and county. Once a catalog number has been added to a vial, coiling labels is not necessary, and frankly undesirable. Of course, those donating materials do not often realize that how they organize specimens really affects those of us who are trying to save their work for posterity. In the digital age when specimen data must be electronically available, we all need to re-evaluate how we label specimens.

Most of Ken's material has now been imaged and we have started working on the Szczytko material as of late January, 2016. Stan's material will be finished by the end of March and data from these collections will become available by the end of the year. The work presented here may seem a bit esoteric, but it will help to preserve the accumulated works of two of the most prominent Plecoptera researchers in recent history. This method may also be useful for collaborative purposes since the software that is managing the effort, TaxonWorks, is fully internet based.

Favret, C., K. W. Cummings, R. J. McGinley, E. J. Heskey, K. P. Johnson, C. A. Phillips, L. R. Phillippe, M. E. Retzer, C. A. Taylor, and M. J. Wetzel. Profiling natural history collections: a method for quantitative and comparative health assessment. *Collection Forum* 22:53-65.

Poulton, B.C. & Kenneth W. Stewart. 1991. The stoneflies of the Ozark and Ouachita Mountains (Plecoptera). *Memoirs of the American Entomological Society*. 38:1-116.

Stark, Bill P. & Kenneth W. Stewart. 1973. New species and descriptions of stoneflies (Plecoptera) from Oklahoma. *Entomological News*. 84(6):192-197.



Fig. 1. Range of storage typical of the K. W. Stewart Collection.



Fig. 2. Specimens and labels from rack placed in petri dishes on cafeteria tray, catalog numbers atop.

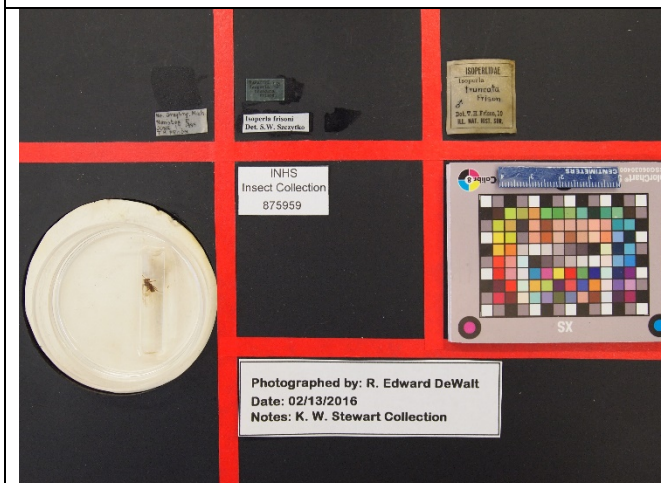


Fig. 3. Photographic jig for imaging labels and specimens. Quadrants for specimens, several types of labels, catalog number, and metadata.



Fig. 4. Final product: specimens and labels moved to 4 dram glass vials with polypropylene beveled insert in screw cap.



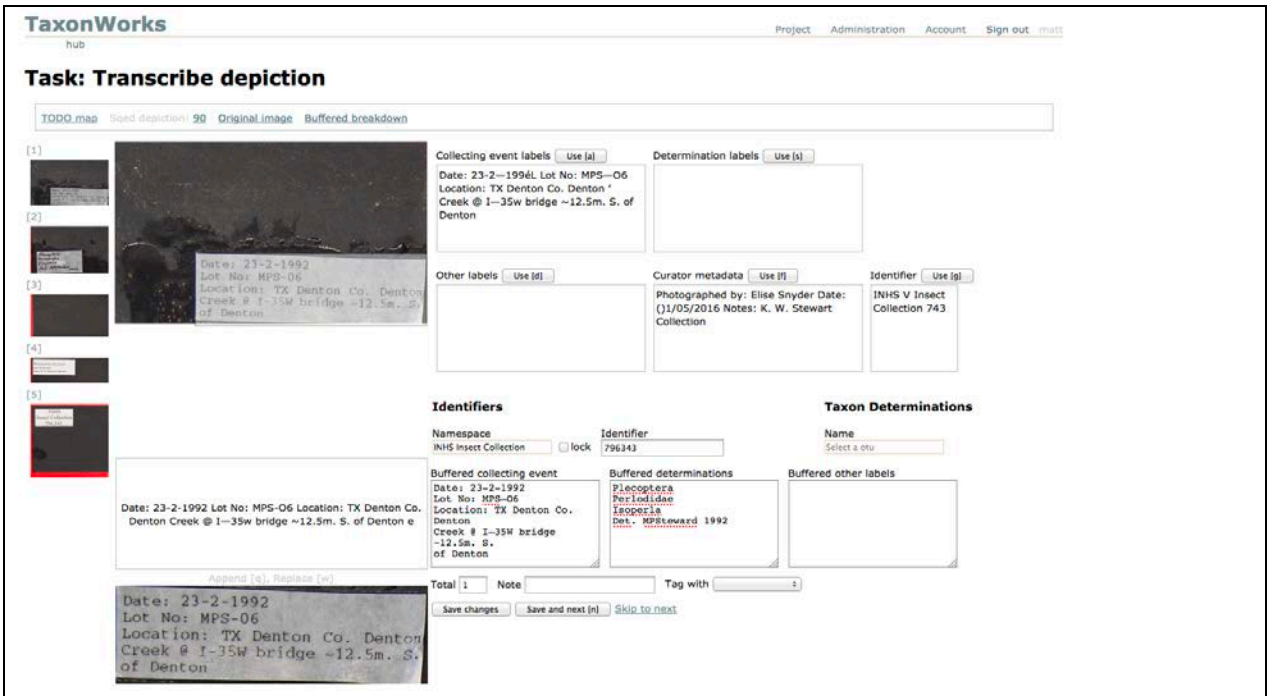


Fig. 5. TaxonWorks having pulled separate images from quadrants and OCR'd them. Continue refining of label data may take place as needed.

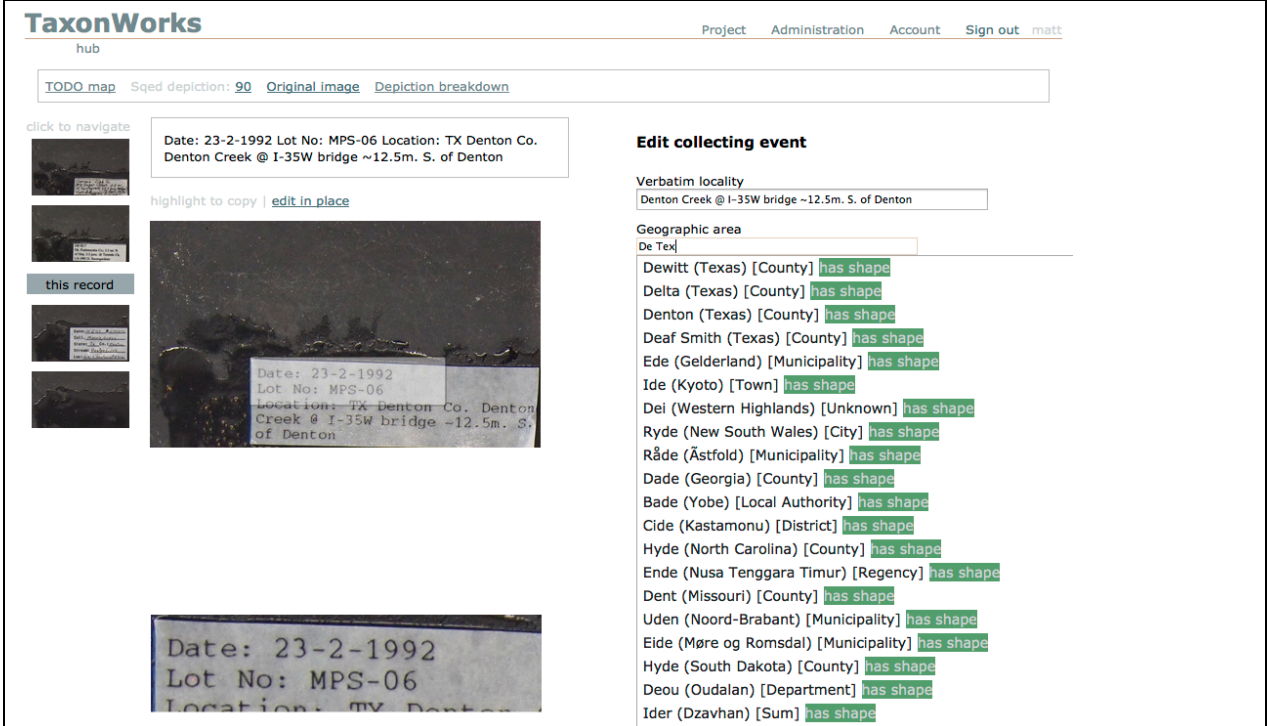


Fig. 6. TaxonWorks with pick list for county and state names. Selection helps with sorting that will group similar collecting events.

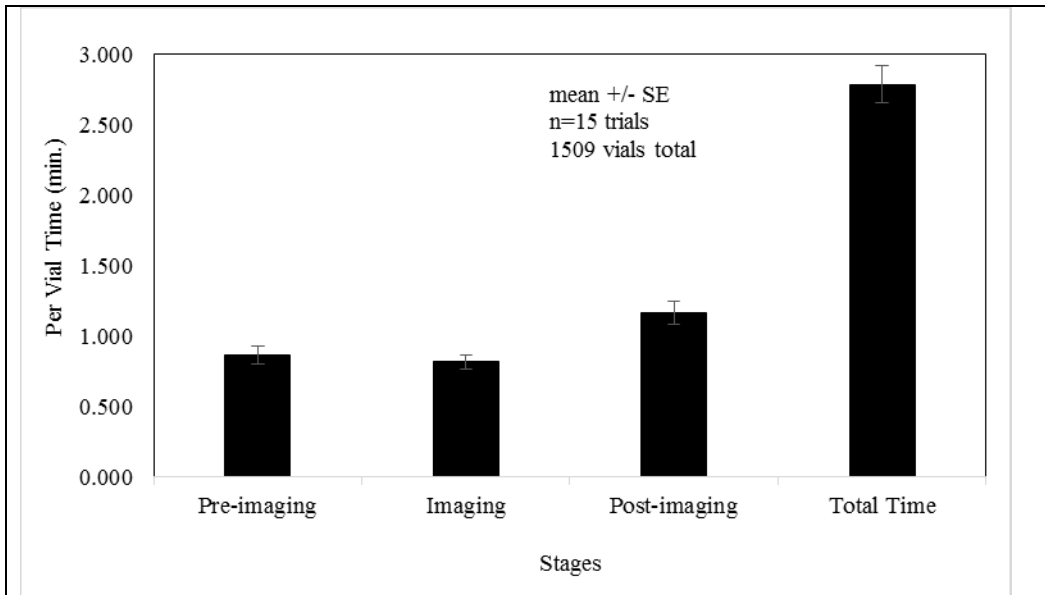


Fig. 7. Per vial timing for accessioning 1,509 vials of the K. W. Stewart Collection.

#### **RECENT PLECOPTERA LITERATURE (CALENDAR YEAR 2015 AND**

**EARLIER)**. Papers made available after 1 February 2016 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.

Abong'o, D.A., S.O. Wandiga, I.O. Jumba, P.J. Brink, B.B. Naziriwo, V.O. Madadi, G.A. Wafula, P. Nkedi-Kizza, and H. Kylin. 2015. Occurrence, abundance and distribution of benthic macroinvertebrates in the Nyando River catchment, Kenya. *South African Journal of Aquatic Science* 40:373-392.

Arai, R., K. Nukazawa, S. Kazama, and Y. Takemon. 2015. Variation in benthic invertebrate abundance along thermal gradients within headwater streams of a temperate basin in Japan. *Hydrobiologia* 762: 55-63.

de Araujo, A.V. and R.S. Peixoto. 2015. The impact of geomorphology and human disturbances on the faunal distributions in Tiquara and Angico Caves of Campo Formoso, Bahia, Brazil. *Ambient Science* 2:25-30.

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Bellstedt, R., Apfel, W., Marbach, K., Bährmann, R. & Schulz, H.-J. (2014) Relikte im Kühlschrank – zur Fauna einer Blockhalde im Biosphärenreservat Rhön / Thüringen (Amphibia, Mammalia, Insecta: Collembola, Coleoptera, Diptera) \ Relics in the fridge – the fauna of a basalt block dump in the biosphere reserve "Rhön" (Thuringia) (Amphibia, Mammalia, Insecta: Collembola, Coleoptera, Diptera). - Thüringer Faunistische Abhandlungen 19: 5-25

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Bhowmik, A.K. and R.B. Schaefer. 2015. Large scale relationship between aquatic insect traits and climate. *PLoS ONE* 10(6) DOI: 10.1371/journal.pone.0130025

Booker, D.J., T.H. Snelder, M.J. Greenwood, and S.K. Crow. 2015. Relationships between invertebrate communities and both hydrological regime and other environmental factors across New Zealand's rivers. *Ecohydrology* 8(1):13-32.

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*Strophopteryx arkansae* Ricker & Ross, an Ozark, USA endemic.  
Photograph by Bill P. Stark