PERLA

Annual Newsletter and Bibliography of The International Society of Plecopterologists

***Nemoura cinerea* (Retzius, 1783) (Nemouridae): Slovenia, near Planina, cave entrance to Ucina River, 15 June 2008. Photograph by Bill P. Stark**

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

TABLE OF CONTENTS

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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 37 (2019) in one of the following ways, in order to be kept on the mailing list for PERLA 38 (2020): (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 37) 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.

XV International Conference on
Ephemeroptera
&
XIX International Symposium on
Plecoptera
Brazil, Aracruz
03-08/June/2018

Participants of the XVth International Conference on Ephemeroptera and XIXth International Symposium on Plecoptera

Organizing committee

Dr. Frederico Falcão Salles
Universidade Federal do Espírito Santo

Dr. Rodolfo Mariano
Universidade Estadual de Santa Cruz

Dra. Roberta Paresque
Universidade Federal do Espírito Santo

The XVth International Conference on Ephemeroptera and XIXth International Symposium on Plecoptera

We all enjoyed a pleasing meeting in Brazil that included 81 participants, five of whom were accompanying persons, from 20 different countries, worldwide. The site of the meeting was a huge conference hall, the Praia Formosa SESC Lodge. The Atlantic Ocean was just across the street and provided a nice opportunity for swimming or a walk in the sand enjoying crabs running about or photographing sweet insects. The insect diversity was however, rather low, since this was the beginning of the "winter" in Brazil.

The scientific program began on 4 June 2018 at 8:30am. **Dr. Frederico Salles**, the convener, announced that there would be four student presentation awards (oral and poster) including two for stonefly research. **Dr. John Brittain**, President of the Standing Committee of the International Society of Plecopterologists, welcomed the participants and thanked the organizers for hosting the meeting. Sadly, he noted that since the last conference in Japan, the passing of five of our distinguished colleagues, **Drs. Stanley Szczytko, Lydija Zhiltzova, Andrew Sheldon, Per Brinck**, and **David Lenat**. We surely miss them.

Between sessions, wonderful local treats of cookies, cakes, sandwiches, and juices were available along with coffee. All meals, breakfast, lunch, and dinner were served in the cafeteria, a short walk from the conference hall. Each meal consisted of local delicacies such as moqueca capixaba (tomato and fish stew), feijoada (black bean stew), and farofa (toasted cassava flour mixture).

The mid-conference field trip was on June 6 to the Hotel Fazenda Monte Verde Golf and Resort, 14 km from Parque Estadual Pedra Azul, a state park near Vargem Alta. The bus trip was a classic Latin American experience, marveling at the skill of the bus drivers, who expertly weaved in and out of heavy traffic sometimes missing pedestrians, bicyclists, motorcyclists, and cars by what seemed like just centimeters! At Pousada Peterle, a rest stop, the well-known Pedra Azul, a 1,909-m high peak, named after the blue tonality reflected on the rock at some moments of the day, could be seen. At Hotel Fazenda Monte Verde Golf and Resort a fantastic banquet was waiting for lunch. We all enjoyed ample amounts of beef, chicken, and sausage and wonderful desserts. A stream on the Resort was sampled and it was good to examine adults of a Gripopterygidae genus and nymphs of an *Anacroneuria* species. Of course, no collecting was allowed, officially. There was a hiking trail that passed through a remnant of the Atlantic Forest on the property of the resort.

The conference dinner was held in the cafeteria with a special selection of Brazilian traditional foods. Drs. **Michel Sartori** and **John Brittain** served as the masters of ceremony. The travel scholarships made available by the International Society of Plecopterologists were presented to

Eric South, **Evan Newman** (University of Illinois) and **Chris Verdone** (Colorado State University). The 2018 Lifetime Achievement Awards were presented to **Dr. Romolo Fochetti** (Italy), **Dr. Charles Nelson** (University of Tennessee at Chattangooa, USA), and the late **Dr. Rainer Rupprecht** (Germany). **Drs. Romolo Fochetti,** Università degli Studi della Tuscia in Viterbo, Italy and **Pablo Pessaq**, Universidad Nacional de la Patagonia & Conicet, Argentina were added to Standing Committee of the International Society of Plecopterologists. **Dr. Maribet Gamboa** received the award for the best oral presentation at the meeting and **Lucas Henrique de Almeida** for the best poster among the stonefly workers.

Certificates of appreciation were presented to the three conveners - **Frederico Falcão Salles**, **Rodolfo Mariano** and **Roberta Paresque** and to the many friendly and efficient volunteers who assisted during the meeting. The silent auction raised more than US$ 1,000 US dollars ($4,012 Brazilian Real) for future travel scholarships.

The postconference trip was on 9 June and 37 persons visited the Atlantic Forest of the Reserva Natural da Vale.

The traditional group photograph (https://photos.app.goo.gl/DoP7GVzgoHPyEHdL6) was taken including separate photographs of the participants that acknowledged an affection for the Plecoptera. Many beautiful photographs taken during the conference are available at https://photos.app.goo.gl/fzjbcaXuuyEfYw1h8. Additionally, **Dr. Peter Grant** has provided a detailed review of the meeting in the Summer 2018 ***The Mayfly Newsletter*** [Ephemeroptera Galactica: http://www.ephemeroptera-galactica.com/].

The program

MONDAY, JUNE 04

08:00 / 08:30 – Registration

08:30 / 9:30 – Opening Ceremony

09:30 / 10:30 – Invited Lecture 1
The fossil history of mayflies / **Dr. Arnold STANICZEK**

10:30 / 11:00 – Coffee Break

11:00 / 12:00 – Oral Session 1 (Ecology & Biomonitoring)

- **11:00/11:20** – The use of Ephemeroptera in assessing ecological changes in the rivers of the Kruger National Park, South Africa / **Helen M. BARBER-JAMES**

- **11:20/11:40** – Utility of Metrics as Diagnostic Tools in Ecological Risk Assessment / **Alexa A. TRUSIAK**

- **11:40/12:00** – Mayflies as bioindicators: the challenges of relating biodiversity loss to anthropogenic pressures / **Kele R. FIRMIANO**.

12:00 / 14:00 – Lunch

14:00 / 15:00 – Oral Session 2 (Phylogeny, Systematics & Taxonomy)

- **14:00/14:20** – Molecular phylogeny and DNA taxonomy of European *Rhithrogena* (Ephemeroptera, Heptageniidae): a synthesis and future prospects. / **Laurent VUATAZ**

- **14:20/14:40** – Problems and solutions revealed by integrative taxonomy of the *Rhithrogena hybrida* species group (Ephemeroptera, Heptageniidae) / **André WAGNER**

- **14:40/15:00** – Diversity, distribution and molecular phylogeny of *Epeorus* (*Caucasiron*) Kluge, 1997 (Ephemeroptera: Heptageniidae) in the Caucasus Mountains and adjacent areas / **Ľuboš HRIVNIAK**

15:00 / 16:00 – Invited Lecture 2
Progress of Chinese Plecoptera researches in the 21st century / **Zhi-Teng CHEN**

16:00 / 17:00 – Coffee Break and Poster Session

17:00 / 18:00 – Oral Session 3 (Distribution & Faunistics)

- **17:00/17:20** – Arabian Peninsula: a dry Paradise for Mayflies / **Jean-Luc GATTOLLIAT**

- **17:20/17:40** – Historical Reconstruction of a Once Diverse Fauna: Stoneflies of the Midwest USA / **R. Edward DEWALT**

17:40/18:00 – The current knowledge of plecopterofauna of the state of Espirito Santo / **Marcos C. NOVAES**

TUESDAY, JUNE 05

08:30 / 9:30 – Invited Lecture 3
Exploring the potential systematic, morphological and functional value of the bullae in Ephemeroptera. Leptophlebiidae as an example / **Dr. Eduardo DOMÍNGUEZ**

09:30 / 10:30 – Oral session 4 (Ecology, Biomonitoring & Conservation)

- **09:30/09:50** – Ecological and genetic considerations regarding *Prosopistoma pennigerum* (MÜLLER, 1785) from the Volga (Russia) and Vjosa (Albania) / **Martin SCHLETTERER**

- **09:50/10:10** – Functional effects of deforestation on stream ecosystems in Madagascar based on growth and production of mayflies (Ephemeroptera) / **Michel SARTORI**

- **10:10/10:30** – Stonefly (Plecoptera) communities of geomorphologic units / **Matej ŽIAK**

10:30 / 11:00 – Coffee Break

11:00 / 12:00 – Oral session 5 (Distribution & Faunistics)

- **11:00/11:20** – The Canterbury Museum mayfly collection, and what it can show in changes of species abundance and distribution (Ephemeroptera) / **Timothy R. HITCHINGS**

- **11:20/11:40** – Review of the taxonomic status and distribution of Pannota (Insecta: Ephemeroptera) in the Philippines / **Jhoana M. GARCES**

- **11:40/12:00** – More than 100 species of mayflies in one of the smallest Brazilian states: how did we get there? / **Frederico F. SALLES**

12:00 / 14:00 – Lunch

14:00 / 15:00 – Oral session 6 (Biogeography & Phylogeography)

- **14:00/14:20** – Phylogeography of Nemouridae family (Insecta, Plecoptera) in the Japanese Archipelago / **Maribet GAMBOA**

- **14:20/14:40** – The reproductive experiment of the Japanese endemic mayfly family Dipteromimidae showing large genetic differentiation: Elucidation of their speciation mechanisms / **Masaki TAKENAKA**

- **14:40/15:00** – Phylogeography of *Simothraulopsis diamantinensis* Mariano, 2010 (Ephemeroptera: Leptophlebiidae) reveals signatures of isolation across east Brazil / **Taís B. ALMEIDA**

15:00 / 16:00 – Invited Lecture 4
Phylogeny of Leptohyphidae (Ephemeroptera: Ephemerelloidea): combined analysis of morphological and molecular data / **Paula SOUTO**

16:00 / 17:00 – Coffee Break and Poster Session

17:00 / 17:30 – Next conference proposals

18:00 – Mayfly committee meeting

19:00 – Stonefly committee meeting

WEDNESDAY, JUNE 06
08:00 / 19:00 – Trip to Monte Verde Golf & Resort (Vargem Alta)

THURSDAY, JUNE 07

08:30 / 9:30 – Invited Lecture 5
South American Plecoptera: current knowledge and perspectives / **Dr. Pablo PESSAQ**

09:30 / 10:30 – Oral session 7 (Biology & Reproduction)

- **09:30/09:50** – Reproduction and sex ratios in natural populations of the mayfly *Alainites muticus* Linneaus, 1758 (Ephemeroptera: Baetidae) / **Maud LIÉGEOIS**

- **09:50/10:10** – Unique reproductive strategy on a worldwide distributed mayfly, *Cloeon dipterum* (Ephemeroptera: Baetidae): Proposal for a new type of insect viviparity / **Koki YANO**

- **10:10/10:30** – Life cycle of stoneflies and the change in the ratio of stable isotope / **Mayumi YOSHIMURA**

10:30 / 11:00 – Coffee Break

11:00 / 12:00 – Oral session 8 (Ecology, Biomonitoring & Conservation)

- **11:00/11:20** – Diversity of Plecoptera in the state of Indiana, USA: using museum data to track changes in species assemblages over time and space / **Evan A. NEWMAN**

- **11:20/11:40** – Environmental factors shaping mayfly community structure (Ephemeroptera) in a hierarchical lotic system / **Zohar YANAI**

- **11:40/12:00** – The Mid-network Mayfly Maxima (MMM): A General Pattern of Mayfly (Ephemeroptera) Species Richness Within Drainage Networks And What We Can Learn From It / **Steven K. BURIAN**

12:00 / 14:00 – Lunch

14:00 / 15:00 – Oral session 9 (Biogeography, Biology & Faunistics)

- **14:00/14:20** – Direct analysis of vicariance in neotropical mayflies (Ephemeroptera) / **Carlos MOLINERI**

- **14:20/14:40** – Composition and Seasonality of Plecoptera from Reserva Biológica Augusto Ruschi, ES, Brazil / **Maisa C. GONÇALVES**

- **14:40/15:00** – Status of southern African Leptophlebiidae (Ephemeroptera) systematics and current research developments / **Ina S. FERREIRA**

15:00 / 16:00 – Invited Lecture 6

You don't belong here: explaining the excess of rare immature stream insects in terms of habitat, space and time / **Dr. Adriano MELO**

16:00 / 17:00 – Coffee Break and Poster Session

17:00 / 18:00 – Oral session 10 (Ecology, Biomonitoring & Conservation)

17:00/17:20 – Current challenges faced by endemic Malagasy mayflies (*Cheirogenesia*, Demoulin 1952, *Proboscidoplocia*, Demoulin 1966, *Madecassorythus*, Elouard & Oliarinony, 1997 and *Spinirythus*, Oliarinony & Elouard, 1998) toward climate change, damaged habitat, and pollution: illustrated cases of selected taxa / **Ranalison OLIARINONY**

17:20/17:40 – Colonisation of the restored stream by benthic invertebrates: a case study from the Bohemian Forest (Czech Republic) / **Jindřiška BOJKOVÁ**

17:40/18:00 – Predicting potentially suitable habitat of *Remenus* Ricker (Plecoptera: Perlodidae) in the southern Appalachians / **Chris J. VERDONE**

18:30 – Joint committee meeting

FRIDAY, JUNE 08

08:30 / 9:30 – silent auction closing

09:30 / 10:30 – Oral session 11 (Phylogeny, Systematics & Taxonomy)

- **09:30/09:50** – Anchored phylogenomics of Burrowing Mayflies (Ephemeroptera) and the evolution of tusks / **Dustin B. MILLER**

- **09:50/10:10** – From genetics to morphology: the diversity of *Labiobaetis* Novikova & Kluge (1987) (Ephemeroptera: Baetidae) in New Guinea and South-East Asia / **Thomas KALTENBACH**

- **10:10/10:30** – Phylogeny of Neotropical Leptophlebiidae (Ephemeroptera) based on molecular data / **Marina MONJRADIM**

10:30 / 11:00 – Coffee Break

11:00 / 12:00 – Invited Lecture 7
Phylogenomics and Evolution of Mayflies / **Dr. Heath OGDEN**

12:00 / 14:00 – Lunch

14:00 / 15:00 – Oral session 12 (Faunistics & Taxonomy)

- 14:00/14:20 – A brief history of South American research on Ephemeroptera / **Janice PETERS**

- 14:20/14:40– Mayfly research in Iran: species diversity and knowledge gaps / **Tomáš SOLDÁN**

- 14:40/15:00 – A New Type of Behningiidae from Southwestern China
- (Insecta: Ephemeroptera) (INSECTA: EPHEMEROPTERA) / **Chang-Fa ZHOU**

15:00 / 16:00 – Invited Lecture 8
The Nearctic species of the genus *Kogotus* Ricker (Plecoptera: Perlodidae) / **Dr. Boris KONDRATIEFF**

16:00 / 17:00 – Coffee Break and Poster Session

17:00 / 18:00 – closing of ballots for presentation prizes

19:00 – Conference dinner (scholarship holders, Lifetime Achievement Awards, prizes)

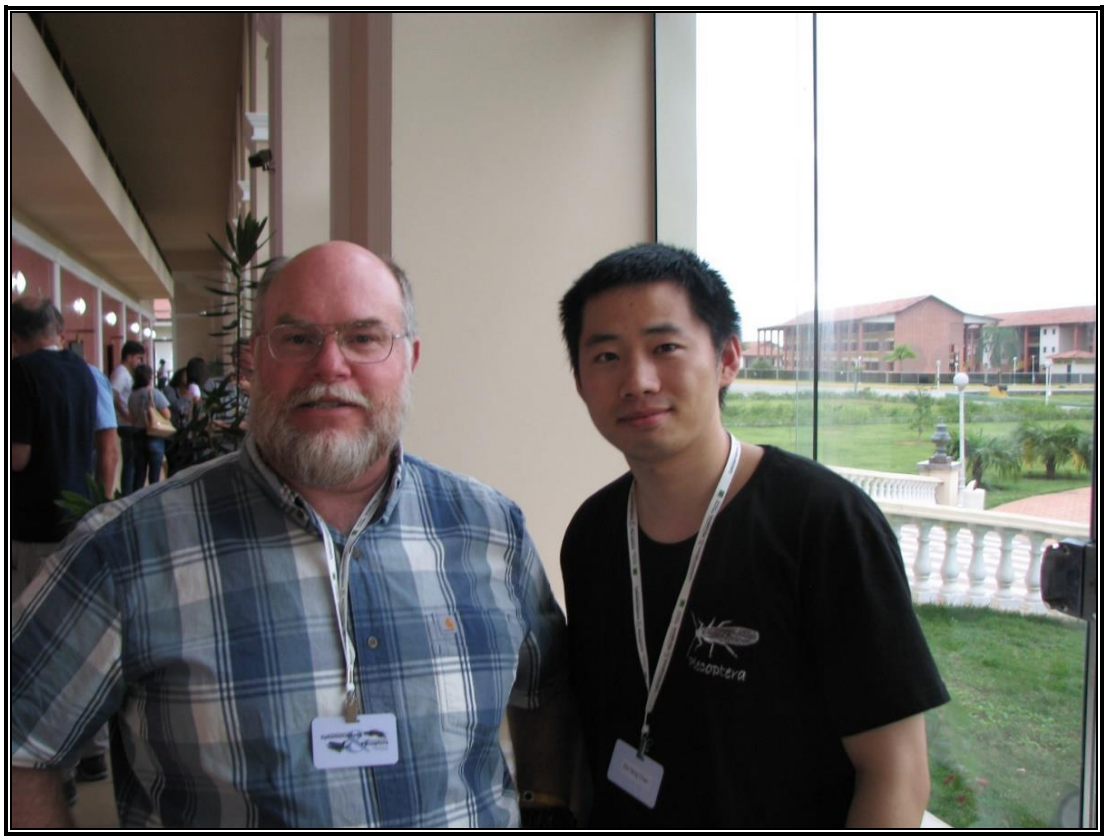
The meeting site of the conference, the Praia Formosa SESC Lodge.

Dr. Frederico Falcão Salles and Dr. Eduardo Domínguez.

One of the meeting sessions.

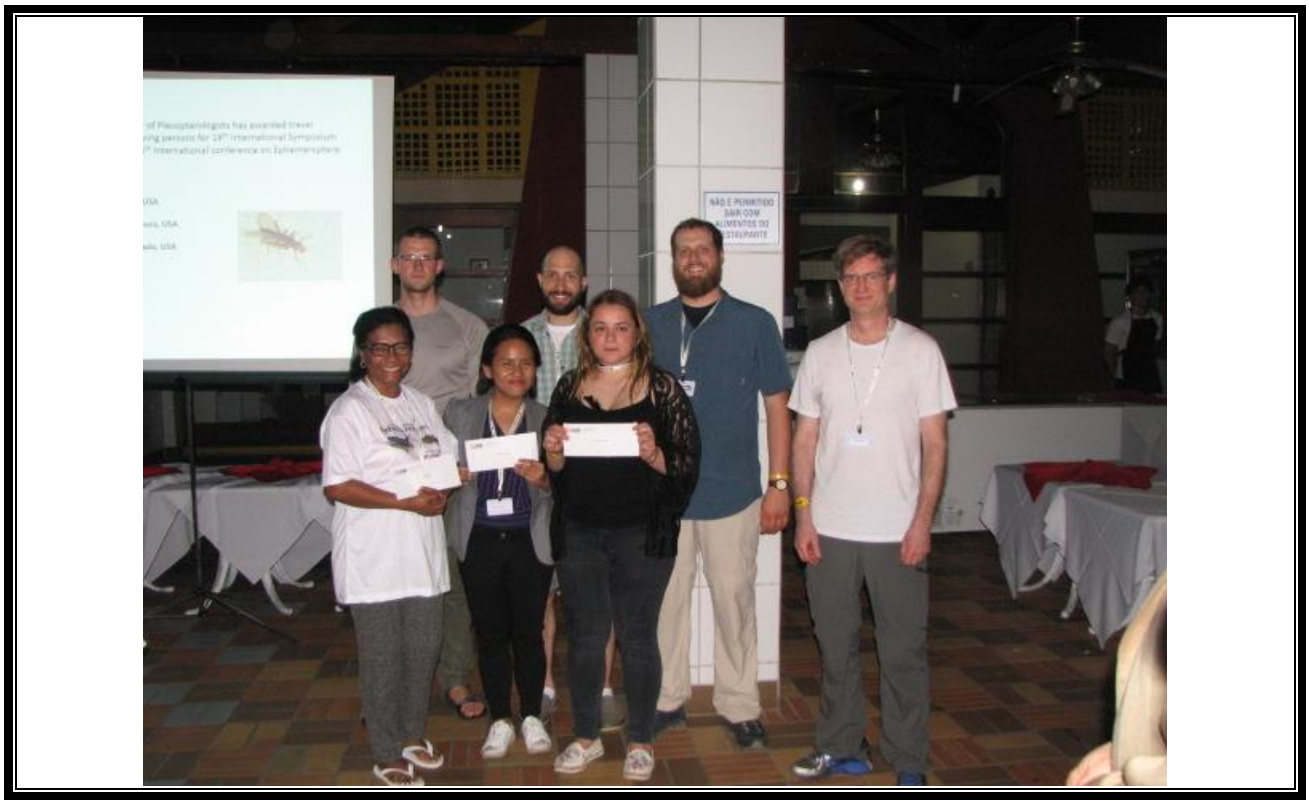
Session break in the spacious hallway of the Praia Formosa SESC Lodge.

Checking the items available for the Silent Auction.



Drs. R. Edward DeWalt and Zhi-Teng Chen.

Dr. Maribet Gamboa, the awardee for the best oral presentation on Plecoptera.

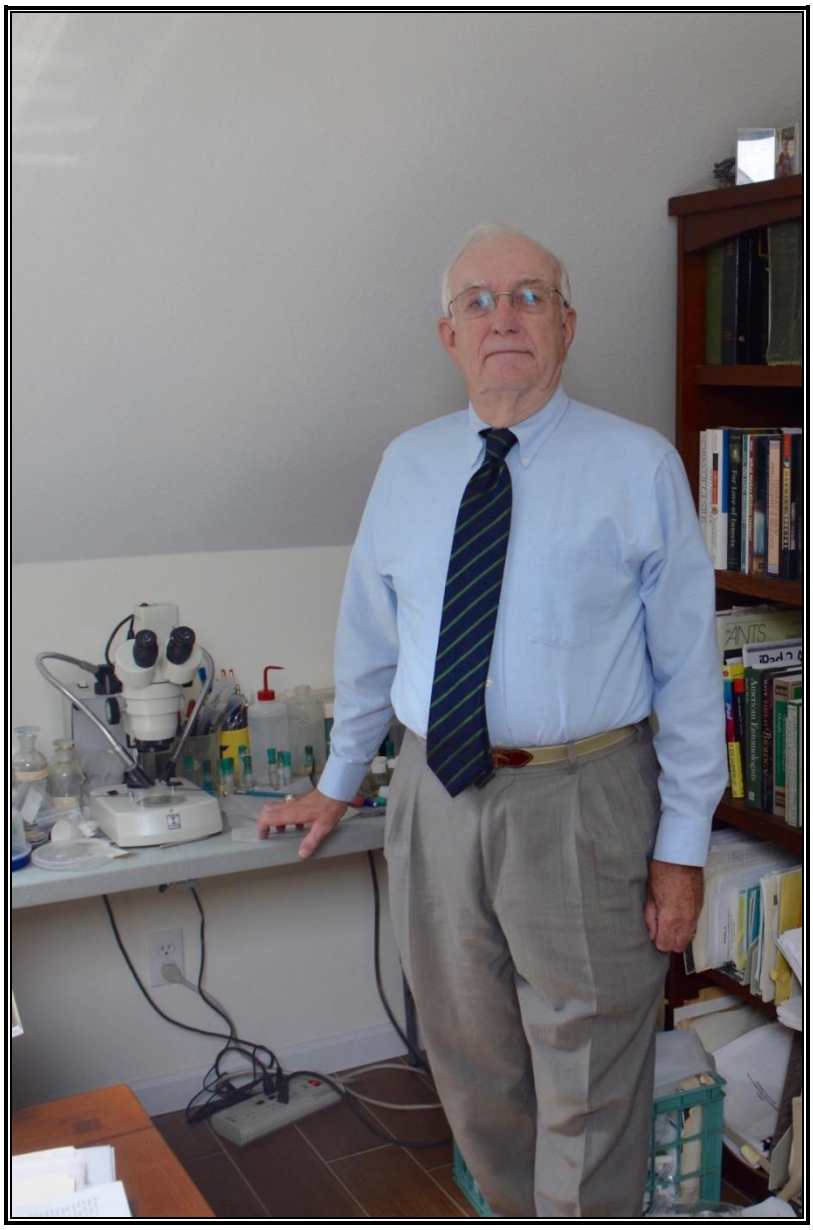


Travel scholarship awardees including Eric South, Evan Newman (University of Illinois) and Chris Verdone (Colorado State University) for Plecoptera.

The mid-conference field trip was to the Monte Verde Golf and Resort.
Dr. Arnold Staniczek scrutinizing mayfly taxa.

The view of the Atlantic Ocean from one of the dormitories.

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 the late **Noel Hynes** and **Bill Ricker** (announced in Perla No. 11); the late **Jacques Aubert**, **Teizi Kawai**, and the late **Ian McLellan** (announced in Perla No. 14); **Claudio Froehlich**, the late **Lidija Zhiltzova**, and **Peter Zwick** (announced in Perla No. 17); the late **Kenneth Stewart**, **Elisabetta Dematteis Ravizza**, and **Carlaberto Ravizza** (announced in Perla No. 20); and **Richard W. Baumann**, and **Bill P. Stark** (announced in Perla No. 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 No. 27) and in 2012 recipients of the Award included **John Brittain**, **Yu Isobe**, and the late **John Hanson** (announced in Perla No. 31). Most recently the late **Stanley W. Szczytko** (see Perla No. 36, 2018 for his obituary) and **Boris Kondratieff** were honored with the award (Perla No. 34). At the XIX International Symposium on Plecoptera, Lifetime Achievement Awards were announced, honoring **Drs. Romolo Fochetti, Charles H. Nelson** and the late **Rainer Rupprecht**.



Dr. Charles H. Nelson

Prof. Charles H. Nelson, retired in 2011 after a distinguished 42-year career at the University of Tennessee at Chattanooga. During his tenure at that institution as a noted scholar and teacher, he ably filled the important administrative positions as Acting Dean for the College of Arts and Sciences, Department Head, Department of Biological and Environmental Sciences, and Department Head of the Department of Biology. He is currently an Emeritus Professor at the University of Tennessee at Chattanooga. Prof. Nelson's PhD program was directed by the late **Dr**. **John F. Hanson (the 2012 Lifetime Achievement Awardee)** at the University of Massachusetts. His 1969 dissertation, "**Contribution to the anatomy and evolution of the family Pteronarcidae (Plecoptera)"** is considered a "classic" in modern Plecoptera literature. Dr. Nelson has received numerous honors from the University of Tennessee including induction

into the Council of Scholars; recognized as an Outstanding Teacher of the College of Arts and Sciences; awarded the Excellence in Scholarship Award from the College of Arts and Sciences; the Outstanding Service Award, College of Arts and Sciences; and the University Service Award. He hosted the 4th North American Plecoptera Symposium at the University of Tennessee at Chattanooga, May 20-22, 1994. Prof. Nelson has presented numerous talks and seminars including talks at the V International Symposium on Plecoptera, Washington, D.C., Xth International Symposium on Plecoptera, Granada, Spain, XVI International Symposium on Plecoptera, XII International Conference, Stuttgart, Germany, and XIII International Conference on Ephemeroptera and the XVII International Symposium on Plecoptera, Wakayama, Japan.

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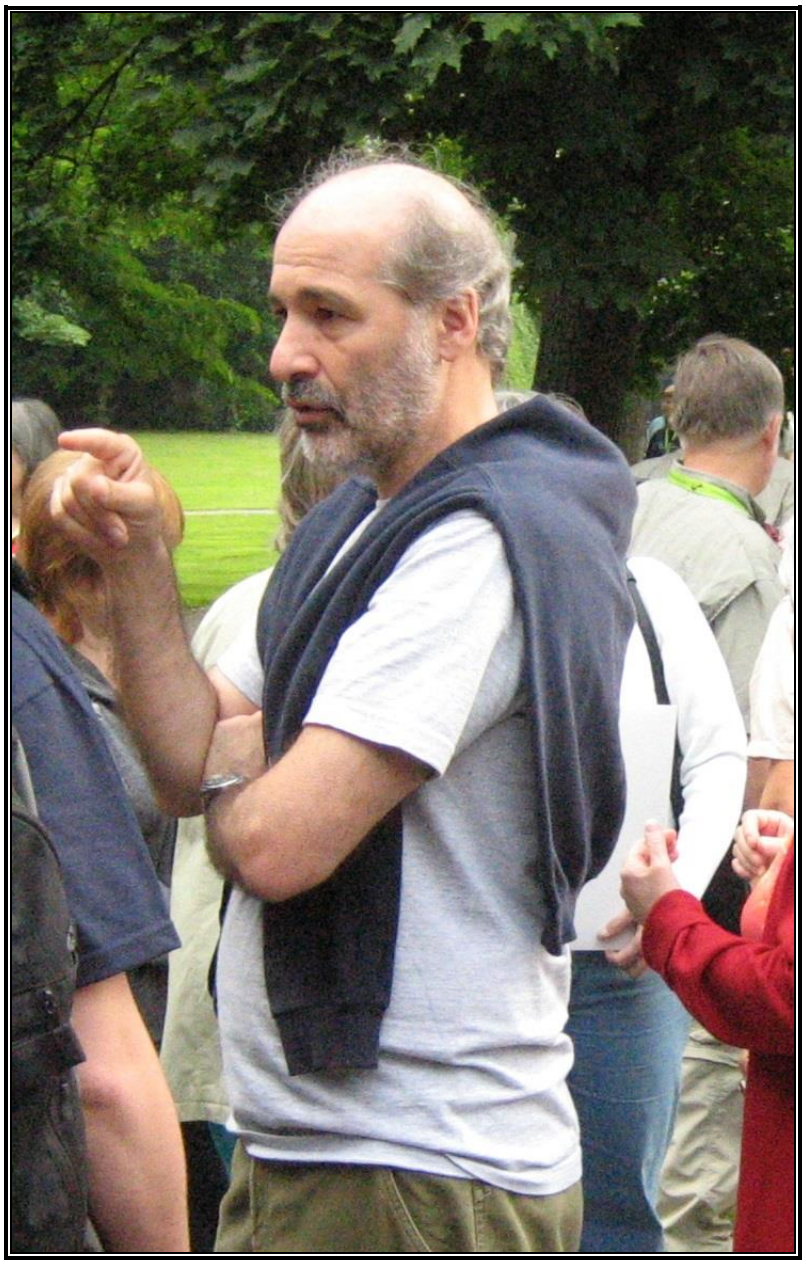

Dr. Romolo Fochetti

Dr. Romolo Fochetti is a professor at the Department for Innovation in Biological, Agro-food and Forest systems, Tuscia University, Viterbo, Italy. He took his Ph.D. on morphological and biochemical approaches to the systematics and biogeography of Plecoptera of the Mediterranean basin at the "La Sapienza" University of Rome, Italy. Since then, he has actively researched on different aspects of this insect group. Besides systematic, evolution and zoogeography (using morphological, biochemical, molecular and ethological approaches), he has made contributions ton population genetics and adult and nymphal biology, as well as on other very little-known topics in stoneflies as the morphology of the spermatozoa, the haemocytes or the presence of

hemocyanin. In addition to his research on Plecoptera, Dr. Fochetti is a well-known aquatic ecologist and evolutionary biologist with much interest in molecular systematics. Dr Fochetti is an acknowledged teacher and has coordinated the degree of Environmental Education at the University of Viterbo since 2005. He has published more than 200 papers, short notes, abstracts, technical reports and a book. Dr. Fochetti's book, co-authored with Dr. J. M. Tierno de Figueroa, on the Plecoptera of Italy is a must for anyone interested in stoneflies. He is a member of the Standing Committee of the International Society of Plecopterologists. His extensive knowledge on zoology, biogeography and freshwater science make him a great inspiration for his students and colleagues.

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Dr. J. M. Tierno de Figueroa assisted in preparing this overview of Dr. Fochetti's many substantial accomplishments.

Dr. Fochetti enjoying himself at one of our meetings.

Dr. Rainer Rupprecht
(5 May 1938 – 30 May 2018)

Unfortunately, **Dr. Rainer Rupprecht** passed away before he could receive his award. **Klaus Enting** provided the combined review of **Dr. Rupprecht's** contributions to Plecopterology and his obituary.

Dr. Rainer Rupprecht was born in Breslau (today Wrocław) as the younger of two children of Paul and Annemarie Rupprecht. As a seven-year-old boy, he experienced flight and expulsion. The family fled to the West via Czechoslovakia and found a new home in Sulzthal, a small town in Lower Franconia. Throughout his life, he felt home at this place. In nearby Bad Kissingen, Rainer Rupprecht attended the natural science high school. He showed talent not only in natural sciences but also in technical subjects. After finishing high school in 1958, he started studying mechanical engineering at the Technical University of Munich but discontinued the program. After a brief stay in Münster he started studies at the University of Mainz in 1961 to become a secondary school teacher with biology as his major and physics and chemistry as his minor subjects. He passed the first and second state exams in 1963 and 1965, respectively. Rainer Rupprecht completed his PhD with Professor Helmut Risler at the Zoological-morphological Institute in 1967 and started a career as a teacher. However, he soon switched to the chemical-pharmaceutical industry. During this time, there were also major changes in private life. He

married his wife Inge (nee Seitz) in 1967, their daughters Cornelia and Mechthild were born in 1968 and 1970, respectively. The family experienced difficult times in 2001 when Inge Rupprecht passed away after a serious illness.

With passing of the University Reform Act of 1970, a Department of Biology at the University of Mainz was created. His former supervisor, Professor Risler, asked Rainer Rupprecht to be his scientific assistant. Rainer Rupprecht completed his habilitation and was appointed a University Professor in 1973, after the establishment of the Department of Biology. His teaching subject was systematic zoology. His animal identification courses were legendary and, for many first-year students, a first hurdle to overcome. He also taught limnology and biocommunication to advanced students. He was considered a professor of the old school, perhaps a somewhat eccentric, and certainly a unique individual who allowed strange insects "drum" in a far corner of the institute. Many students struggled with his style, but those who got to know him better, appreciated him as a patient, helpful teacher. He gave his candidates plenty of room for independent work and he was always available to assist if someone needed help. In 2003 at the age of 65, he retired from the university. However, he remained faithful to his field of research, the drumming of Plecoptera. He equipped himself privately with the necessary apparatuses and continued his investigations in his private study.

For Rainer Rupprecht, physical fitness and health were always important. He never smoked, drank alcohol only moderately and kept fit with sports until old age. However, he fell ill shortly before his 80th birthday. He was diagnosed with lung cancer at an advanced stage a few days later. He died on May 30, 2018. Rainer Rupprecht's research interests were diverse. In his limnological work, he dealt with the chemical nature of relatively pristine mountain streams, the problem of acidification and the re-colonization of formerly polluted waters.

His scientific passion, however, was the drumming of stoneflies. It began when Professor Risler read an old paper about the drumming behavior of stoneflies and suggested this subject to Rainer Rupprecht for his thesis work. Although this stonefly behavior was known since Newport (1851), there were only speculations about the meaning and purpose of drumming. As a morphologist with a neurobiological background, Rainer Rupprecht was not satisfied to only evaluate the drumming signals of the stoneflies and to interpret their behavior. He also wanted to know how signal recognition functioned and which structures perceived the stimulus. He also investigated the morphological structures for signal generation.

At that time, such study still faced serious problems of recording an analysis, but Rainer Rupprecht was well prepared for this. He developed the first manageable method for recording and evaluating the drumming signals, borrowing part of the required equipment from the Institute of Nuclear Physics. As he admitted, he initially had difficulties in finding stoneflies at all, and his supervisor had no experience with this group of insects. Dr. Rupprecht eventually collected stoneflies from the high-quality streams of the nearby Taunus Mountains which led to his first publication: *Trommeln als Verständigungsmittel bei Steinfliegen* (Rupprecht, 1965). In his dissertation (1968) he improved knowledge of this behavior and showed, for the first time, that the drumming signals are part of the mating behavior, that virgin females also drum, and that the signals are not perceived acoustically but as vibrations. In further works, he documented the species specificity of the signals (1969), dialect formation (1972), and the existence of cryptic

species in *Capnia bifrons* complex (1997). In the revision of genus *Capnia*, Murányi et al. (2014) honored Rainer Rupprecht for his work and dedicated *Zwicknia rupprechti* Murányi, Orci & Gamboa, 2014 to him. He was a fixture of the international Plecopterologists community. He participated in almost all conferences of the International Society of Plecopterologists, where he presented the results of his research. Unfortunately, Rainer Rupprecht died shortly before being awarded the Lifetime Achievement Award in Brazil in 2018 which would have made him very proud.

He was very patient in his research work. He often spent many days and nights trying to elicit the drumming signs of his animals. If the results did not seem sufficient to him, he often drove nearly thousand kilometers within a day to catch additional specimens of the needed species and get them home alive. His driving behavior, as a result, was very impatient and a nerve test for every passenger. At home, he put the larvae of his study objects in small bags that hung in refrigerated aquariums to wait for the emergence of virgin specimens. In the years after his retirement, this was in a large refrigerator on his garden terrace.

Despite his 80 years, he was still quite fit and worked on several projects to stonefly drumming. His major goal, the summary of the communication signals of the European stonefly families, was completed only for the Taeniopterygidae. His serious illness was a complete disbelief and did not leave him much time to settle his estate. He left us suddenly and too early. On June 7, 2018, he was buried in the Mainz Main Cemetery next to his wife, Inge. His family, his partner Hedwig, his friends, colleagues and students mourn his loss. His personal collection of Plecoptera will be deposited in the Natural History Museum in Mainz.

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ANNOUNCEMENTS

XII North American Plecoptera Symposium 16-19 May 2019

8th North American Plecoptera Society Meeting

Organizers: Ed DeWalt, Illinois Natural History Survey, 1816 S Oak St., Champaign, Illinois, dewalt@illinois.edu, 217-649-7414. Scott Grubbs, Western Kentucky University, Department of Biology, Bowling Green, Kentucky, scott.grubbs@wku.edu, 270-202-6981

When: 16-19 May 2019

Where: USA: Illinois, Pope Co., 18.8 km (12.5 mi) ENE Vienna, Illinois-145 at Dixon Springs Agricultural Experiment Station, 37.43465, -88.66771, 16-19 May 2019. Business hours phone 618-695-2441.

Draft Agenda

- Thursday 16th May
    - Arrive by evening meal time 16th (Thursday)
    - Plenary session 8-9 pm
    - Mixer with light snacks, beverages
    - Evening light trapping (Ohio River at Golconda and the famous Lusk Creek SE of Eddyville are nearby)
- Friday 17th May
    - Poster and oral presentations all day
- Saturday 18th May
    - Morning to mid-afternoon conduct joint collecting trip to Lusk Creek, Gibbons Creek at Herod, and Garden of the Gods Wilderness Area.
    - Evening papers/posters and workshops (preparation of adult stoneflies to aid identification)
- Sunday 19th May
    - Workshop: An Anatomy Ontology for Plecoptera: Beginning the Process of Unifying Morphological Terminology for Stoneflies.
    - Discuss the upcoming International Conference on Ephemeroptera and Plecoptera at the Colorado State University's Mountain Campus. Sunday 25 July through Sunday 1 August 2021.
    - Adjourn by 12 noon

Venue: Dixon Springs Agricultural Experiment Station is a University of Illinois facility with limited dormitory style housing. It has a full-service kitchen, a dining room/conference facility, pavilion, and a tremendous setting surrounded by the Shawnee National Forest. Many stream locations made famous by the likes of Theodore H. Frison, Herbert H. Ross, and Bernard D. Burks and other surround the area, providing great collecting and comradery.

Registration: Anticipated total maximum cost is $150 for registration, room, and food. See form below. Fill out form, provide comments on food and housing and send funds in advance by check to R. Edward DeWalt with 8th NAPS in memo line.

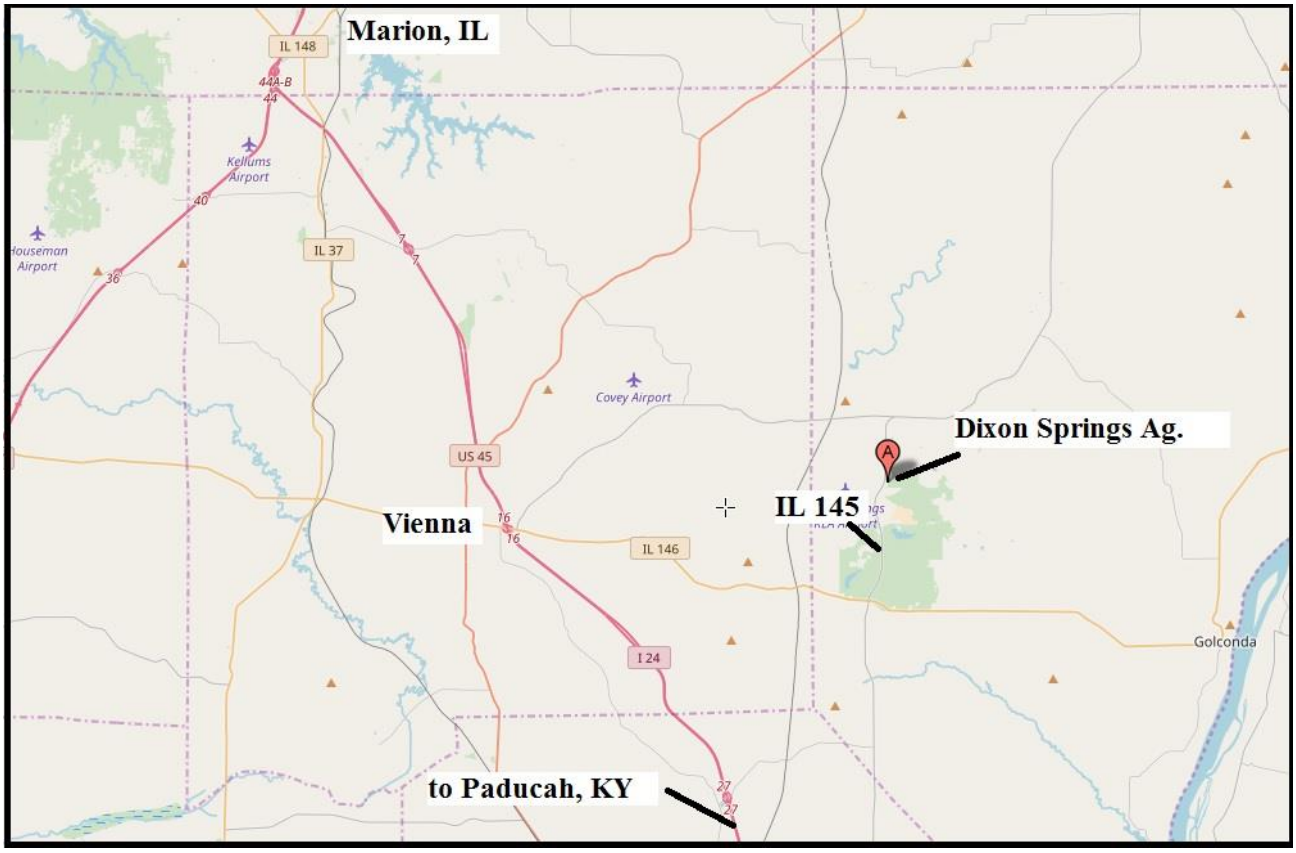
Housing: 16 total beds (shared bathroom or semiprivate with own bath) are available at the Dixon Springs Station dormitory. Alternatively, there are hotels in Vienna, camping at the US Forest Service Lake Glendale Campground and at Dixon Springs State Park (tent sites and screened cabins available) a few miles down the road, and there are hunting cabins for rent in the area.

Meals: Dixon Springs Station dormitory has a large kitchen and outdoor grill area where we will cook for ourselves.

Submission of abstracts. Please send abstracts by 31 March 2019 that conform to the following style: title in all caps, full name with affiliation and address, email, text consisting of maximum 300 words in single paragraph with no citations. Send abstracts to both dewalt@illinois.edu and scott.grubbs@wku.edu.

Travel: Flights into St. Louis, Missouri; Nashville, Tennessee; Evansville, Indiana; Memphis, Tennessee; Louisville, Kentucky; and Indianapolis, Indiana are most convenient, requiring a rental car and 2-3 hr drive to reach your destination. The nearest interstate is I-24, which runs through Vienna, Illinois and connects to I-40 to the south and I-57 to the north.

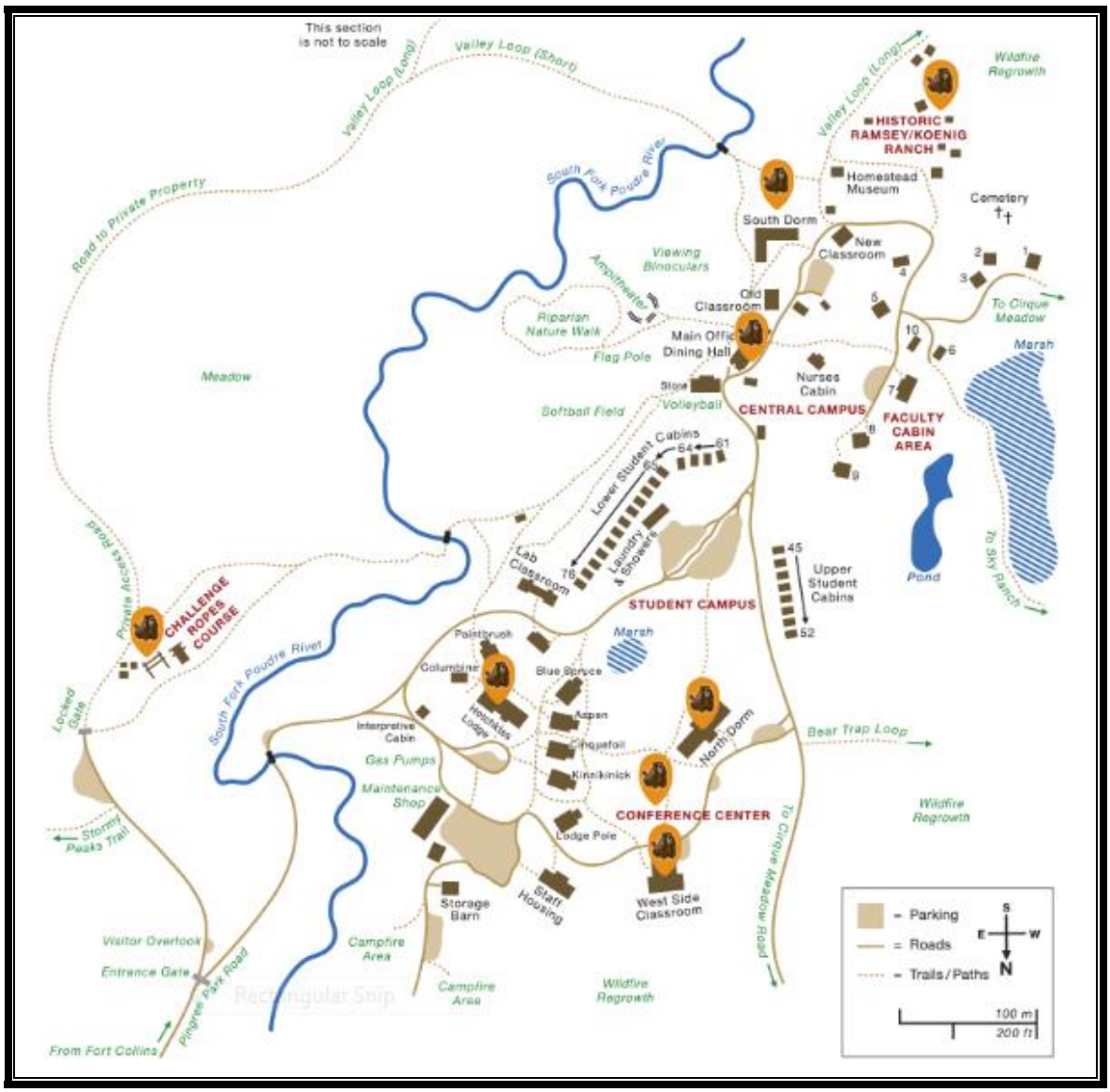
Please pass this around to other potential attendees/presenters. Mentors with students who work on stonefly taxonomy and systematics, ecology, biogeography, behavior, genetics/genomics are encouraged to participate.



8th NAPS Meeting Registration Form		
Information	**Cost**	**Comments**
Name(s):		
Affiliation:		
Mailing address:		
email:		
Phone:		
Gender (for housing):		
Housing:		
Dormitory style on first come basis. Thursday evening through Sunday noon.	90	
Will find my own: motel in Vienna or elsewhere, local hunting cabins, Air B&B, local campgrounds		
Food:		
Evening meal Thursday, three meals each Friday and Saturday, and breakfast Sunday. Break time snacks included.	60	
Single meals may be purchased for $8 breakfast and lunch, $15 for evening meals.		
Those bringing their own food may have reasonable access to kitchen facilities.	0	
Commemorative T-shirt: desired size	10	
Total		

The XVIth International Conference on Ephemeroptera and XXth International Symposium on Plecoptera

Drs. Edward DeWalt and **Boris Kondratieff** will host the next joint international conference at the Mountain Campus of Colorado State University (http://mountaincampus.colostate.edu/) near Fort Collins, Colorado (USA). Tentative dates are 25 July-1 August 2021. Cost estimate is $112/person/night (double occupancy) which includes meals.



Map of the Mountain Campus of Colorado State University, Colorado.

South Fork of the Poudre River, a pristine Rocky Mountain stream flowing through the campus area.

ILLIESIA

***Illiesia*: A 2018 Summary**

R. Edward DeWalt, B. P. Stark and N. Sivec

Illiesia (http://illiesia.speciesfile.org/index.html) output diminished in 2018, publishing only 10 papers (16 in 2017) for a total of 172 pages (223 in 2017). Our competitor Zootaxa with Boris C. Kondratieff as Subject Editor published 35 articles. *Aquatic Insects* published a single paper, while three Pensoft products, *Zookeys*, *Check List*, and *Biodiversity Data Journal* published one, one, and two papers, respectively.

Table 1. Summary data for *Illiesia* articles printed in 2018. Number of pages printed, number of species covered in each article, number of new species described, article type, family, and region where study was conducted.

Micro-citation	**pages**	**# spp.**	**n. sp.**	**Article Type**	**Family**	**Region**
Nelson CH & Nelson CR 2018	29	4	0	Revision	Perlodidae	Holarctic
Stark & Baumann 2018	14	3	2	Revision	Chloroperlidae	Canada, USA
Grubbs, Baumann, Burton 2018	21	3	0	Revision	Nemouridae	Holarctic
Grubbs 2018	16	114	0	Checklist	9 families	Maryland, USA
Verdone & Kondratieff 2018a	45	4	1	Revision	Perlodidae	eastern USA
Verdone & Kondratieff 2018b	9	2	1	Description	Nemouridae	California, USA
Hanada 2018a	9	1	1	Description	Nemouridae	Japan
Bogan & Carlson 2018	11	14		Ecology	Capniidae, Chloroperlidae, Nemouridae, Perlodidae, Taeniopterygidae	California, USA
Hanada 2018b	7	1	1	Description	Capniidae	Japan
Ogden, Giberson, Aiken 2018	11	31		Ecology	all Nearctic families but Peltoperlidae	Nova Scotia, Canada
	172	177	6			

At least 177 species were treated with varying levels of scrutiny, including six species new to science. Four articles were complete or partial revision of a group. There were three single species descriptions, one checklist, and two more ecologically oriented papers. Several early career scientists published with Illiesia this year, a gratifying sign that we are again attracting some talented plecopterologists. Fifteen authors published in *Illiesia* during 2018, 10 from the USA, four from Canada, and one from Japan (Table 1). Seven authors published two papers with *Illiesia*, while eight published one (Fig. 1).

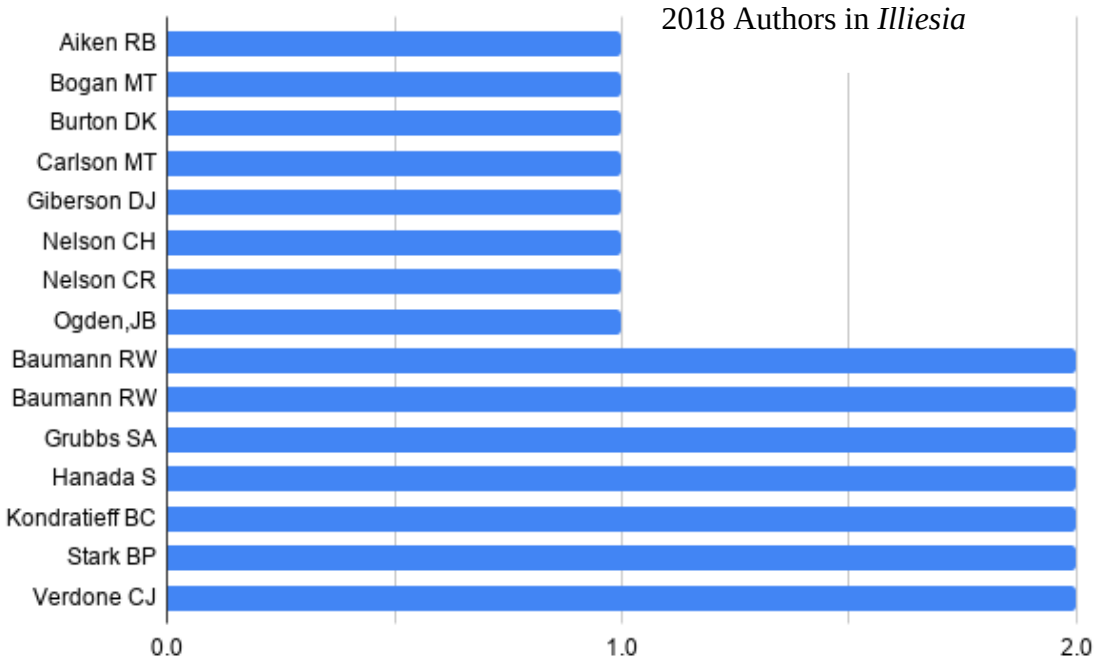


Fig. 1. Frequency of publication of authors in *Illiesia* during 2018.

OBITUARIES

Dr. Beate Wolf
(6 April 1960–10 May 2018)

Beate Wolf was born in Bremen, in the north German lowlands, but spent most of her life in the foothills of Hesse, mainly at Schlitz. When she asked me for a Diploma thesis (a former equivalent to a bachelor degree) she impressed me with her vivid interest in biology and her broad knowledge; we soon agreed on a subject. However, before she left she told me she suffered of an uncurable respiratory disease. I could hardly believe this because I saw how after our conversation she mounted her bike and rode up the hill in front of the Limnologische Flussstation. There, almost everbody else needs to get off and push his bicycle – not she. Her strength, her optimism, her firm will and ability to overcome problems, in good spirits, were characteristic of her. She led a life-long hard battle against Mucoviscidosis and later several additional serious diseases but remained active and cheerful even under the most difficult conditions.

In her diploma thesis, Beate Wolf documented the plurivoltinism of *Nemurella pictetii* for the first time. Her doctoral thesis on the phantom cranefly *Ptychoptera paludosa* in the Breitenbach near Schlitz remains one of the very few studies on the ecology of these exceptional Diptera. However, eventually her physical strength declined. For some time Beate continued field work and faunistic studies on Plecoptera, Ephemeroptera and Trichoptera from nearby mountain streams of the Vogelsberg, occasionally with some helper. She closely followed the return of the threatened *Brachyptera* and *Taeniopteryx* species to the river Fulda. Usually, she won a kind of competition we had on who would observe the first specimens in late winter / early spring. When her health restricted her to desk work, she studied collections made by others, mainly recently collected material from nature reserves that was given to the Senckenberg Museum at Frankfurt. Her own specimen collection of Plecoptera and other aquatic insects will now also be deposited there.

Beate Wolf was married to Thomas Gregor, a botanist. They lived in a very old half-timbered house that needed repair and reconstruction; Beate supervised the necessary works. As member of several societies, she was engaged in environmental issues. For example, for a number of years she served as treasurer of the Botanische Vereinigung für Naturschutz in Hessen, belonged to the Society for the Protection of Endangered Habitats at Schlitz, Germany. She was also a member of the society that supported the Hessian Music Academy at Schlitz. Beate Wolf kept in contact with neighbours and former colleagues. Several times, she aso organised and held at her home the annual meeting of ex-students of the Flussstation. The last time in September 2017 when the photograph was also taken.

We miss Beate Wolf and will keep her in very good memory.

Peter Zwick

Dr. T. Gregor is thanked for additions to the bibliography

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MEMBER NEWS

Devasting California Fire Affects Colleague

You may have heard about the recent devastating fires in California, especially the Paradise blaze that resulted in at least 86 deaths and destroyed more than 18,000 buildings, leaving thousands of persons homeless. The Camp Fire as it was called, is the deadliest and most destructive wildfire in California history to date. This disaster is considered one of the deadliest wildfires in the United States since 1918 and is high on the list of the world's deadliest wildfires (https://abc7news.com/before-and-after-views-of-camp-fire-destruction-in-paradise/4918064/). One of our own, **Dr. John Sandberg**, was caught in that fire, but thankfully escaped in the nick of time! He lost all possessions including one of the best *Isoperla* collections of western North America. John is now getting back on his feet. He has a place new place to live and still has his position at Chico State University. John is a resilient soul and will take this difficulty in stride. Please join us in wishing John a much better 2019! **Dr. Sandberg** is well-known for his innovative research on stonefly communication and was the late **Dr. Kenneth W. Stewart's** last PhD student.

Dr. John Sandberg's former home in Paradise, California, U.S.A.

NEW AVAILABLE PUBLICATION

Kawai, T. & Tanida, K. (eds.) 2018. Aquatic Insects of Japan: Manual with Keys and Illustrations. The second edition. Tokai University Press, KanAgawa; Vol. 1: xiv + 1-790; Vol. 2: VI + 791-166$; Index 1665-1730; Japanese, Latin nomenclature, figure legends also in English. For the Plecoptera, see Shimizu et al. and Uchida & Yoshinari, below. **A full list of contributors and chapters in Latin script (courtesy of K. Tanida) is available from P. Zwick (pleco-p.zwick@t-online.de).**

RECENT PLECOPTERA LITERATURE (CALENDAR YEAR 2018 AND EARLIER)

RECENT PLECOPTERA LITERATURE (CALENDAR YEAR 2018 AND EARLIER). Papers made available after 1 February 2019 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.

Alexander, D. E. 2018. A century and a half of research on the evolution of insect flight. Arthropod Structure & Development 47 (4): 322-327.

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Perlidae): Notes, distribution, and life stages association using molecular tools. Zootaxa 4370 (4): 409-420.

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Avelino-Capistrano, F., P. Pessacq and L. S. Barbosa. 2018. Plecoptera. Pp. 119-140. *In*: Thorp and Covich's Freshwater Invertebrates, 4th Edition.Volume 3: Keys to Neotropical Hexapoda, eds. Hamada, N., Thorp, J. & Rogers, D. C.; Elsevier.

Azmi, W. A., N. H. Hussin and N. M. Amin. 2018. Monitoring of water quality using aquatic insects as biological indicators in three streams of Terengganu. Journal of Sustainability Science and Management 13 (1): 67-76.

Beaty, S. R., V. B. Holland and D. R. Lenat. 2018. *Isoperla arcana* and *Isoperla borisi* (Plecoptera: Perlodidae), two new stonefly species from North Carolina, U.S.A. with notes on the distribution of *Isoperla powhatan*. Illiesia 13 (14): 140-166.

Beermann, A. J., V. Elbrecht, S. Karnatz, L. Ma, C. D. Matthaei, J. J. Piggott and F. Leese. 2018. Multiple-stressor effects on stream macroinvertebrate communities: A mesocosm experiment manipulating salinity, fine sediment and flow velocity. Science of the Total Environment 610: 961-971.

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Bonada, N. and S. Doledec. 2018. Does the Tachet trait database report voltinism variability of aquatic insects between Mediterranean and Scandinavian regions? Aquatic Sciences 80 (1): DOI: 10.1007/s00027-017-0554-z

Bossley, J. P. and P. C. Smiley. 2018. Effects of student-induced trampling on aquatic macroinvertebrates in agricultural headwater streams. Water 10 (1): DOI: 10.3390/w10010077

Boudinot, B. E. 2018. A general theory of genital homologies for the Hexapoda (Pancrustacea) derived from skeletomuscular correspondences, with emphasis on the Endopterygota. Arthropod Structure & Development 47 (6): 563-613.

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Chen, Z.-T. 2018d. A new fossil species of *Largusoperla* (Plecoptera: Perlidae) and its evolutionary implications. Zootaxa 4442 (4): 572-578.

Chen, Z.-T. 2018e. Key to the fossil genus *Largusoperla* (Plecoptera: Perlidae), with description of two new species from mid-Cretaceous Burmese amber. Zootaxa 4450 (4): 495-500.

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Chen, Z.-T. 2018g. First tergal structures for the fossil stonefly genus *Largusoperla* (Plecoptera: Perlidae): a new species and a new tribe of Acroneuriinae. Zootaxa 4462 (2): 296-300.

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Chen, Z.-T. and Y-Z. Du. 2018. A checklist and adult key to the Chinese stonefly (Plecoptera) genera. Zootaxa 4375 (1): 59-74.

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***Leuctra albida* Kempny, 1899 (Leuctridae): Slovenia, near Planina, cave entrance to Ucina River, 15 June 2008. Photograph by Bill P. Stark**