



## EDITORIAL

Sadly there is no contribution from PHAON this time as KD is abroad – ECHO will be included in the January number.

I have had many messages from members who heard I had not been well and I would like to take this opportunity of thanking everyone for their thoughts and good wishes. Every day I feel stronger and will soon be back to full strength. Please note that my postal address has changed, although my e-mail address remains the same.

## 5<sup>th</sup> WDA INTERNATIONAL CONGRESS OF ODONATOLOGY

The 5<sup>th</sup> International Congress of the Worldwide Dragonfly Association will be held from 16<sup>th</sup> to 20<sup>th</sup> April 2007 at the Waterberg Plateau Park, Namibia. Host will be the National Museum of Namibia, Windhoek [[www.natmus.cul.na](http://www.natmus.cul.na)].

The congress venue will be a historic German police station at the Bernabé de la Bat Restcamp in the Waterberg Plateau Park, being situated ca 300 km north of the capital Windhoek. The Restcamp is situated at the slopes of the Waterberg, overlooking the central savannah plains of Namibia. Besides the conference facilities the Bernabé de la Bat Restcamp provides accommodation and a restaurant, so that all participants can stay closely together. The Waterberg Plateau Park, is one of the smallest Nature Reserves in Namibia (41,000 ha), but hosts a wide variety of game, including black and white rhino, different antelopes, 200 species of birds and a high variety of vegetation types.

At the Bernabé de la Bat Restcamp accommodation will be in different kinds of bungalows or – if you like to experience camping - on a camping site close to the lecture hall (if so please bring own tents). All bungalows have separate showers and toilets and most also have kitchens. All meals will be organised at the restcamp's restaurant. All participants will be able to stay at the restcamp; for those of you that like more upgraded accommodation we can book in one of the nearby Lodges.

## Programme

The congress is open to all kinds of scientific presentations concerning dragonflies (Odonata), including Morphology, Physiology, Ecology, Systematics, Biodiversity and Conservation. The organiser needs to receive an abstract of each presentation (oral, poster or informal) no later than 31 December 2006. Special topics will be:

Coping with stress: Strategies to deal with different conditions along environmental gradients.

Advances in sexual conflicts: Evolution and ecology of mating systems.

Drifting continents; small oceans; new opportunities: dragonfly phylogeny, biogeography, and phylogeography resulting from environmental changes (plate tectonics, Pleistocene climate variation).

Global wanderers and local residents: The ecological and evolutionary role of dispersal and migration.

Dragonfly morphology revisited: its relevance for taxonomy, ecology and bionomics.

Guardians of the watershed: Using dragonflies as indicators/Global Dragonfly Assessment.

We will have a 30-minute plenary talk at the beginning of each special session. Other scientific talks will be 15 minutes including discussion. Additionally, posters will be presented in five-minute short talks. Additionally we will have an Award Lecture given by the 2<sup>nd</sup> WDA award winner(s).

- Parr, M.J., 1977b. The present status of *Nesciothemis nigeriensis* Gambles, 1966 (Anisoptera: Libellulidae) in northern Nigeria. *Odonatologica* 6(4): 271-276.
- Parr, M.J. & M. Parr, 1972. The occurrence of the apparently rare libellulid dragonfly, *Nesciothemis nigeriensis* Gambles, 1966, in Zaria, Nigeria. *Odonatologica* 1: 257-261.
- Parr, M.J. & M. Parr, 1974. Studies on the behaviour and ecology of *Nesciothemis nigeriensis* Gambles (Libellulidae). *Odonatologica* 3: 1-47.

## ***Workshop in Central Finland***

### **“Behavioural Ecology and Conservation Biology in Dragonflies”**

#### **– Impressions of participants from Ukraine**

During 27-30 October, 2005 the workshop “**Behavioural Ecology and Conservation Biology in Dragonflies**” was organised at Konnevesi Research Station of Jyväskylä University, Finland. We were able to visit Konnevesi Research Station which is located 70 km north of the city Jyväskylä in Central Finland. It was a pretty long trip from Ukraine (Kiev and Odessa) to St.Petersburg (Russia) and then to Central Finland through the small Finnish city of Laaspeeranta but we very much enjoyed the lovely northern Finland landscapes of forests, lakes and stony steams and would not have wished to miss the experience.

The organizer of the Workshop was **Jukka Suhonen** (Jyväskylä University, Finland) who quietly and efficiently managed the programme and details during this Meeting. **Jukka** very kindly met us at Jyväskylä bus station and other colleagues at Jyväskylä Airport and drove us to Konnevesi Research Station. To all of us this station was a beautiful “hidden place” within huge Finnish forests and among countless islands and lakes.

We found Konnevesi Research Station an ideal place for field research of students and scientists of Jyväskylä University. There are excellent conditions to live and research: comfortable apartments, sauna, easy Internet connection, very good library, excellent possibilities for experimental work with aquatic and terrestrial animals and plants.

Between 27-29 October three plenary lectures and several other Power Point Presentations were made at the workshop and subsequent discussions were fruitful and interesting.

**Erik Svensson** (Sweden) spoke about “*Ecology and Evolutionary Dynamics of Polymorphic Animals: Insights from Lizards and Damselflies on Different Continents*”. Erik spoke about several types of polymorphism in nature: resources, dispersal and sexual polymorphism and about the properties of polymorphic species of dragonflies and lizards. In his presentation special attention was given to the blue-tailed damselfly *Ischnura elegans* with its three adult female morphs. He discussed colour morphs in such different animals as lizards and blue-tailed damselflies and concluded that both of them are differentiated in such suites of adaptive traits as fecundity/clutch size, egg size, immune function, parasite load, developmental rate and shape.

**Hannu Ylönen** (Director of Konnevesi Research Station, Finland) in his lecture gave interesting information about the history of Konnevesi Research Station which was established in 1983 between the beautiful Konnevesi Lake and a pretty stream, the Siikakoski.

**Katja Tynkkynen** (Jyväskylä University) and **Janne Kotiaho** (Jyväskylä University) spoke about the hybridization between *Calopteryx splendens* and *Calopteryx virgo* damselflies and about interspecific aggression causing negative selection on their sexual characters. The aim of the study was to understand several questions: Do hybrids between *C. splendens* and *C. virgo* occur in nature? Which were basal or maternal species for hybrids? What is the prevalence of hybrids in nature? Is there discrimination ability in males choosing heterospecific females? The surveys of nature populations in Finland showed that the presence of native hybrids between *C. splendens* and *C. virgo*. It was found that hybrids are most frequent when *C. virgo* is rare. There are indications that hybridization can be reciprocal; it is likely that hybridization is maladaptive.

**Elena Dyatlova** (Ukraine) is a PhD student of Odessa University. She spoke about interesting cases of female-limited polymorphism of dragonflies in the South Ukraine. She indicated that current dragonfly fauna is well studied in Ukraine and consists of 73 species as a whole. Elena indicated that 54 species are recorded in the South-Western Ukraine. She also indicated that the current knowledge on the existence and prevalence of different colour morphs in Ukraine is very scarce. The polymorphism occurred more often in dragonfly species described as common or locally abundant rather than in rare species. Elena found that damselfly *Ischnura elegans* is very

abundant in the SW Ukraine but female morph “*rufescens- obsoleta*” is absent in this area. Another example was discovered in the lower Danube-river: that there were two female morphs of *Calopteryx splendens ancilla*. There were females with transparent wings and andromorphs with black wing spots. It will be interesting to estimate the ratio of these two types of females in the native populations. But unfortunately, this unique damsonfly population is not so numerous in SW Ukraine.

Elena also stressed the importance of paying careful attention to the coloration of living dragonfly females in native populations. It is crucial because dried and faded specimens of colour morphs become impossible to identify with certainty.

Elena proposed to start a collaborative project to create a colour “Atlas of the European Odonata” with colour pictures of both sexes on each dragonfly species (including colour morphs and forms with distinct female variants and age variations). She has started to make a collection of scanned photos of living individuals to show correct details of “polymorphism cases”. Elena emphasized that it will be great to develop active cooperation between all European odonatologists to make the project a success. Cooperative work in different regions of Europe would be very important in compiling such an Atlas and would solve many research problems. For example, it would be very useful to collect correct current information on the ratio of colour variants in different dragonfly populations. It will also be very interesting to pay particular attention to mating processes of different dragonfly morphs and to identify their possible “functional” polymorphism.

**Esa Korkeamäki** (Finland) spoke about the project for the creation of habitats in Finland for the dragonfly *Leucorrhinia pectoralis*.

The title of a plenary report by **Robby Stoks** (University of Leuven, Belgium) was “*Combining behaviour and physiology to understand life history*”. We were given a lot of information about the results of the work of Robby’s laboratory and of his intensive field investigations of dragonflies on:

- 1) Life history plasticity under time constraints and predation risk: mechanisms
- 2) Life history plasticity under time constraints: fitness consequences.
- 3) Fitness costs of time constraints and predation risk: mechanisms.

**Stefanie Slos** (University of Leuven, Belgium) continued Robby’s topic and gave us information about physiological aspects of predator-induced stress in damselflies.

**Victor Fursov** (Ukraine) presented a lecture entitled “*Biodiversity and behaviour of egg-parasitoids of Odonata and other aquatic insects*”. He described different aquatic habitats suitable for oviposition by various water insects. The preferences of oviposition were indicated for various hosts: inside plant tissues (Dytiscidae, Coenagrionidae, Aeshnidae and others); on the surface of plants (Hydrophilidae, Gerridae and others) or on stones and other substrates. The parasitoids showed different specialization for the parasitization of host eggs under the water surface or outside of water.

Viktor underlined different features of behaviour of aquatic parasitoids. For example, aquatic parasitoids can live completely under the water for up to 15 days (*Prestwichia aquatica*). Aquatic wasps also have a unique ability to dive and swim under the water by means of their legs (*Prestwichia*, *Gyrocamp*, *Tiphodytes*, *Agriotypus*). Several species of parasitoids can swim under the water using their wings as the oars (*Hydrophylita*, *Caraphractus*, *Aprostocetus* and *Lathromeroidea*). Viktor firstly described the ability to swim underwater by means of wings for 2 species of aquatic wasps: (*Aprostocetus natans* and *Lathromeroidea silvarum*). The unique phenomenon of phoresy on egg-parasitoid *Calotelea* sp. (Scelionidae) on the body of dragonfly *Aeschna* sp. was firstly described by Carlow (1992) in Florida (USA).

Viktor showed many original colour photos with parasitoids and their hosts. Original video-scripts of swimming parasitoids were also shown.

Aquatic wasps have very wide trophic relations with their hosts.

Three 3 families (Trichogrammatidae, Mymaridae, Eulophidae) are egg-parasitoids of predaceous diving beetles (Dytiscidae, Hydrophilidae), aquatic bugs (Nepidae, Naucoridae, Notonectidae, Gerridae, Veliidae), water flies (Tabanidae, Sciomyzidae) and dragonflies (Aeshnidae, Lestidae, Coenagrionidae, Platycnemididae, Epiophlebiidae),

Two families (Encyrtidae and Trichogrammatidae) are recorded as egg-parasitoids of megalopterans (Corydalidae, Sialidae); and proctotrupoid wasps (Scelionidae) are known as egg-parasitoids of water skaters (Gerridae), water bugs (Nepidae), dragonflies (Aeshnidae), water flies (Tabanidae) and spiders (Tetragnathidae).

Viktor collected much material of aquatic parasitoids: 20 species were found in Ukraine and Russia; 20 species were collected in Japan: Trichogrammatidae – 2 species, Mymaridae – 2, Scelionidae – 2, Eulophidae – 6; 6 species were collected in Mexico.

Students of Jyväskylä University participated at our meeting and some of them presented their first results of investigations at Konnevesi Research Station during the summer period.

One of students, **Heli Suurkuukka** (University of Jyväskylä) made an interesting report about the effect of size and colour in mating success of damselfly *Coenagrion armatum*.

A plenary report by **Frank Johansson** (Sweden) was entitled "*Behavioural ecology of dragonfly larvae: from individual to community level*". Frank focused attention on the correlation of dragonflies' body size with latitude and discussed whether different ecological rules are working in the case of Odonata.

**Merja Honkanen** (University of Jyväskylä) is a student and her investigations were done at Konnevesi Research Station. The aim of her work was to study population dynamics of the dragonfly *Aeshna viridis* in centre and periphery of its range. The larvae of this species lives in small patches of the large leaves of the macrophyte *Stratiotes aloides*, a plant which offers good protection against predators.

**Göran Sahlén** (Sweden) in his report compared biodiversity of dragonflies in farmlands, forests and arid areas of different parts of the world (Africa, North America (California) and northern Europe (Sweden).

**Elisa Reservato** (Italy)'s report was entitled "*Dragonflies of riverine habitats: assessment as indicators of biodiversity & environmental integrity*". She discussed unique facts on the biology and ecology of dragonflies in Ticino Park (near Torino, Italy). This place is the important ecological corridor lying between the Northern Apennines and the Alps. In her study Elisa solved several questions: describing factors affecting species diversity and evaluating habitat preferences of dragonfly larvae in natural and semi-natural habitats. Elisa provided interesting information about her study of dragonflies in rice fields of Italy.

The well-known Finnish odonatologist **Matti Hämäläinen** is specializing in the taxonomy and ecology of Calopterigidae damselflies. He just recently published an excellent book on Calopterigidae of Thailand with an atlas of their distribution and colour photos of all species. Matti showed his beautiful photos of Calopterigidae (in natural habitats) with interesting comments on their biodiversity and conservation in the South-Eastern tropics (Indonesia and Thailand).

**Jukka Suhonen** (University of Jyväskylä), an organiser of the meeting, was the busiest person during the meeting. He made a very important theoretical report "*Habitat quality, spatial and temporal scales in conservation biology*".

Later during private talks Jukka told us very interesting information about the features of the educational system in Finnish Universities. We think that many of his ideas would be really useful and we hope to use them in our current or future educational work in Ukraine.

A main idea was to develop good creative abilities in the young generation of students. It was interesting to speculate how students could be actively involved in independent research. Students are asked to make free personal choice for future research, research that would be interesting and enjoyable for them and useful for science.

The last presentation was an excellent reply to the question "Is it possible to get general public interested in dragonflies?" **Sami Karjalainen**, the author of a nice book "Finnish dragonflies", showed his huge collection of beautiful dragonfly slides. Many of these photos were really artistic and originally published in his book. Actually, his book consists of excellent colour photos of all Finnish species, an identification guide, distribution maps, brief information on ecology, data on behaviour and even interesting folklore. About 4000 copies of this book were printed in 2002 and some are still available in Finnish academic bookstores. It is interesting that this book received a lot of attention in Finland. Almost 100 articles in newspapers and magazines have been published about it. It was widely discussed on Finnish radio programmes and Sami was interviewed on TV. He received a special National Finnish award (Tiedonjukistamisen valtionpalkinto).

Organisers of the workshop kindly arranged an interesting excursion to a small Haukisaari Island on Konnevesi Lake. We were really happy to sail to this tiny island on board a small research boat. It was an excellent day including a good lunch of local Finnish food and the opportunity of absorbing some beautiful Finnish nature.

We would like to express many thanks to the organisers of the meeting, especially to **Jukka Suhonen** and **Johanna Honkavaara** and their assistants, and also to all participants for the friendly atmosphere and high level of scientific presentations. We think the workshop "Behavioural Ecology and Conservation Biology in Dragonflies"

was very successful and that it would be a good idea to start a tradition of regular such workshops in Finland and other countries.

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## **Review**

**Dragonflies of Peninsular Malaysia and Singapore. A pocket guide** – A.G. Orr. 2005. Natural History Publications (Borneo), Kota Kinabalu. ISBN 983 – 812 – 103 – 7 (limpback). 127 pp. Price US\$10. 11.5 x 17 cm.

Odonatologists intending to visit Peninsular Malaysia and Singapore will find this attractive little book invaluable. As a pocket guide it is a model of its genre. Printed on water-resistant paper, bound in robust paper covers, liberally illustrated in colour and black and white, it will provide an essential reference tool for the field observer. The author's talents as an illustrator, ecologist and organiser are clearly evident in the presentation of the approximately 230 species treated in the book. The fauna covered comprises 10 families of Zygoptera, the largest of which is the Coenagrionidae with 33 species, and five families of Anisoptera, the largest being the Libellulidae with 75 species.

The book comprises a frontispiece, showing a map of the region covered, followed by a brief introduction which places the odonate fauna in geographical perspective and presents information about classification, structure, variation and larvae, and a check list of species treated, listing families and species (both arranged in alphabetical order). The meat of the book comprises descriptions of species arranged under suborder and family. A typical page in this section includes a handsome colour illustration of the whole animal of one species and illustrations of diagnostic structures of one or more congeneric species, thus allowing closely related species to be distinguished quickly and unequivocally. Sometimes a whole (final-stadium) larva is pictured also, to illustrate the habitus of a genus. The accompanying text describes diagnostic characters, the typical habitat of the adult and larva and the distribution outside the study area. The accompanying drawings of key diagnostic characters (typically the male anal appendages and parts of the wing venation) allow species to be discriminated with ease and confidence,