



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.

5th WDA INTERNATIONAL CONGRESS OF ODONATOLOGY

The 5th International Congress of the Worldwide Dragonfly Association will be held from 16th to 20th April 2007 at the Waterberg Plateau Park, Namibia. Host will be the National Museum of Namibia, Windhoek [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 2nd WDA award winner(s).

Some general travel information on Namibia

Namibia is the most arid African country south of the Sahara. It became independent in 1991; the capital is Windhoek. Namibia has about 2 million inhabitants. The official language is English, other widespread languages are Oshiwambo, Otjiherero, some Koi San languages, Afrikaans, Portugese (in the north) and German. April is the end of the rainy season in central Namibia. However, some rains may still be expected. Temperatures to be expected are up to 35°C during the day and about 20°C during the night.

Namibia has several fantastic landscapes from the famous Fish River Canyon in the far south via the Central Sand Sea of the Namib Desert, with 300m high dunes, to the Brandberg and the Kunene River in the north and the more humid Okavango River and the Caprivi Strip in the east. The country hosts a large variety of game, including elephant, rhino, hippo, giraffe, lion, leopard, cheetah, several antelopes and zebras and about 600 species of birds. Despite being an arid country Namibia also hosts about 130 species of dragonflies.

Field trips

During and after the symposium we will have some field trips, e.g. to the S. von Bach Resort, which is situated around a large reservoir, which hosts about 40 species of dragonfly. In the middle of the symposium we will have the opportunity of a game drive on the Waterberg Plateau, where we will hopefully see black and white rhino and several antelopes.

The post congress tour will last from 21 to 26 April and will guide us to the Etosha National Park and the Okavango River. Etosha NP is one of the largest national parks in Africa hosting about 100,000 specimens of game, including elephant, rhino, lion, leopard, cheetah, giraffe etc. At the Okavango River we will visit a number of sites from the middle Kavango River downstream to the panhandle of the Okavango Delta and we should be able to observe quite a number of dragonfly species of which more than 90 have been recorded so far along the Namibian part of the river.

For further and more recent information please visit the congress website (<http://wda2007.tu-bs.de>)

Registration and contact

Registration forms and contact details are available on the congress website (<http://wda2007.tu-bs.de>)

Eugène Marais, Chief Curator for Natural History, National Museum of Namibia, Windhoek
(WDA2007 organiser)

Frank Suhling, Institut für Geoökologie, University of Braunschweig, Germany (co-organiser)

Andreas Martens, Biology, University of Education Karlsruhe, Germany (co-organiser)

Richard Rowe, Zoology & Tropical Ecology, School of Tropical Biology, James Cook University, Townsville, Australia (WDA Symposia Co-ordinator)

News of members

Rob Arnold has retired from his teaching post at Colgate University but his wife **Vicky McMillan** is still in harness. And, praise be, Rob continues with his job of looking after our Website!

Ruary Mackenzie Dodds: "The Museum team are bashing on regardless. Our attitude is that, although our plane may have crashed at the end of 2001, the crew is all intact, as is the equipment and the will to continue. All we need is a new plane. In the meantime, re-named The Dragonfly Project, we are working at Wicken Fen, running half-day "Dragonfly Safaris" and one-day Educational Courses, under the wing of the National Trust. I strongly recommend a quick glance at our website: <http://dragonflyproject.org.uk> which tells all."

Michael Samways. An article in the June Cape Times was about the incredible recovery of some of the Cape's rare and threatened endemics when invasive alien trees are removed. Michael and his department at Stellenburg University have been much involved have been doing a lot of work on them and is delighted with the progress

Warwick & Michele Tarboton: "We've had quite a spate of dragonfliers visiting this past month or two; first **Johan Abbott** and **Greg Lasley** from Texas and **Nick Donnelly** and his wife (all delightful); then I took a small group of British Dragonfly Soc members on a two-week tour (with my good friend Peter Lawson who runs such tour operations) and that included our area, the Kruger Park, Zululand and Wakkerstroom. **Peter Allen** was in the group, also **Dave Smallshire** and his partner, **David Healey** and his partner, and **Betty Smith** from Scotland. We had a lot of fun and saw about 60 species. Then **KD Dijkstra** and his girlfriend arrived and, this week, two charming guys spent a few days here from Slovenia. They were specifically after Vagrant Emperors, which they quickly found here following good recent rains and now they are off chasing dragonflies in the low veld "

A BELATED ACCOUNT OF A DRAGONFLY HUNT IN NEW ZEALAND

Ruary Mackenzie Dodds

Today is Valentine's Day, 2006. It happens to be two years – to the day – since Kari and I took off from London Airport heading for New Zealand. The memories of it are still fresh and happy, so I hope you won't mind my (finally) sharing them with you.

The official reason was to visit daughter Belinda, so any dragonfly-spotting was naturally to be secondary and superficial. But needless to say I'd done a little homework first, including getting some very helpful tips from Richard Rowe, and obtaining a copy of his book 'Dragonflies of New Zealand'.

Four days later, on the 18th of February, we were on Waiheke Island, just off Auckland. Whilst wandering through the Onetangi Bird Sanctuary that day, we came upon one of the biggest dragonflies in N.Z., a male *Uropetala carovei*, the Bush Giant, a monster with massive, petal-shaped superior anal appendages, like a v-shaped tailplane. The Maoris call this species 'Kapokapowai', which we believe translates as 'Twinkle-Water'. What a wonderful beginning!

As we headed south, our next find was a male *Xanthocnemis zealandica*, a Common Redcoat Damselfly, photographed in the river in the Karangahake Gorge, just north of Waikino. This sighting checked with Richard Rowe's book, although we noted that there is a taxonomic tangle around this genus. Sadly, being net-less, we were unable to help.

If you think that the weather is always nice in N.Z. in February, think again. We had experienced fierce gales and lashing rain at Rotorua and, now, heading towards Wellington, we witnessed the devastation caused by the storms of a few days earlier. Chances of dragonfly-hunting in the Wellington area were non-existent. I'd never experienced a train almost being thrown off the rails by the wind before. Belinda's house felt as if an elephant was buffeting it, and, in the garden, the tree-like stem of one of her giant agaves snapped off like a twig!

Richard had recommended a hunt around Arthur's Pass on the South Island, a likely spot for *Uropetala chiltoni*, the Mountain Giant, and we arrived there on a day trip from Christchurch on the 28th February. Just our luck, a day-long tropical rainstorm was in progress. Undaunted, we set out into the undergrowth. Our only reward, other than getting utterly soaked, was a glimpse of an unidentifiable, lazy-winged, café-au-lait libellulid which rose to a great height and disappeared into the clouds!

The sun did not reappear until after we arrived in Dunedin, where, by a happy accident, we heard of the Sinclair Wetlands, near Berwick, further south. Off we went on the 5th of March, to find the Warden, Johnny Macintyre reassembling his bagpipes. There is a story there but, anyway, we left him to his labours and went in search of dragonflies. And there they were lots of them. First a damselfly, a little blue one, *Austrolestes colenonis*, the Blue Damselfly, easy to identify – unlike in Britain – because there is only one blue damselfly species in N.Z.! Then we photographed a *Xanthocnemis* species, both male and female, which we again guessed to be a *zealandica*. We also got nice photographs of male and female *Procordulia smithii*, the Ranger Dragonfly. There were other species; we both thought (or optimistically imagined) we saw *Procordulia grayi*, the Yellow-Spotted Dragonfly, but we weren't able to get close enough to be sure.

The Sinclair Wetlands – which we would highly recommend – was as far south as we travelled. By this time we were in need of serious heat, and so we headed north again, back to the North Island and up about as far as one can go. In Scotland, poring over a map, we'd seen a peninsular, near the top, called Karikari. Not surprisingly, Kari had said: "Right, we'll stay there". We had intended to have a few days lounging about in the heat, but we found the area was pullulating with dragonflies, which rather changed our plans.

From our first day on Karikari, on the 10th of March, we hardly had to walk outside our room at the Reef Lodge Hotel on Rangiputa Beach to photograph *Hemianax papuensis*, the Baron Dragonfly, a fine beast; and *Diplacodes bipunctata*, the Red Percher; and, actually in the dunes, the lovely little *Ischnura aurora*, the Gossamer Damselfly.

On the same day, whilst nipping south again to Mangonui to pick up supplies, we caught sight of dragonflies at Lake Waiparohila and skidded to a halt. More Redcoats and Blue damselflies but, good news, we photographed our first *Aeshna brevistyla*, the Lancer. Then a *Hemicordulia australiae*, the Sentry Dragonfly, appeared and we got a nice picture of that, too.

The following day, the 11th, we pursued a dragonfly for what seemed like miles down a cracked and muddy track near Lake Rotokawa. We were both convinced it was a male *Antipodochlora braueri*, the Dusk Dragonfly, but we simply couldn't get close enough for an absolute identification. Maddening!

Before returning to the U.K via Auckland, we paid another hopeful visit to the Onetangi Bird reserve on Waiheke, but, this time, no luck; which only made us feel the luckier for seeing the Kapokapowai as our first New Zealand species.

As we sat on our island balcony in the sunset on our last evening, sipping wine from the Karikari vineyard (the northernmost vineyard in NZ, by the way), we reflected we really hadn't done badly. Comparatively, New Zealand doesn't have many species. I think Richard would agree that, with the best will (and weather) in the world we'd probably only have been able to see about a dozen species in the whole country at that time of year. Well, we identified and photographed nine species and ran about frantically after what we were fairly sure were two more. Not bad, we agreed. And what a delightful variety, from the huge Bush Giant to the tiny multi-coloured Gossamer Damselfly!

Apart from a brief mention of bagpipes, I've tried to stick to dragonflies more or less, but I can't resist mention of Southern Albatrosses. ... Oh, and Yellow-eyed Penguins! That Mountain Giant up at Arthur's Pass will just have to wait till next time ...

A GOOD DRAGONFLY YEAR – Jan Taylor, Australia.

In June we made another visit to see our grandchildren at their home near New York City. We collected snails in the local inlet at Larchmont and watched Green Darners, *Anax junius* flying past – why they are called green I don't know – their main impression is their fine blue bodies. There were a few Corporals, *Ladona deplanata* amongst some reeds near a drain and a couple of Black Saddlebags, *Tramea lacerata* continually flying over the water. It is interesting that there were so many dragonflies there, considering how saline the water was – sea lettuce was growing everywhere.

On another excursion we went to the lake at the Sheldrake Environmental Center – it was probably too early for Amberwings, *Perithemis tenera*, Slaty Skimmers, *Libellula incesta* or Widow Skimmers, *Libellula luctuosa*, which were much in evidence on a previous visit. But there was a lot of activity from Whitetails, *Plathemis lydia*, Common Basketails, *Tetragoneuria cynosura* and Twelve-spot Skimmers, *Libellula pulchella* and I saw some Great Blue Skimmers, *Libellula vibrans* for the first time. There were also a number of damselflies, probably *Ischnura verticalis*, *Enallagma signatum*, *Enallagma civile* and an orange species, maybe *E. signatum*.

One day we went into NYC to see the new Museum of Modern Art. While admiring Monet's huge painting of water lilies my eye caught movement outside – it was another, more ancient work of art – a huge green dragonfly flew over the Henry Moore sculptures then high up under the eaves chasing insect prey. It was a Swamp Darner, *Epiaeschna heros* – tantalizing, because this was the one species I had set my sights on photographing. (During my last visit I had found one settled specimen, but as it was against the light I needed a good flash to get a photo – but the flash had refused to work and the photo was not much good.)



Epiaeschna heros

A few days later the weather warmed up and I was sitting in the garden when my granddaughter came running to tell me there was a dragonfly caught in the fly-wired part of the verandah. I thought it would probably be a Green Darner, but when I saw it there was no mistaking that I had at last got a beautiful specimen of a Swamp Darner. I was not going to let this opportunity go by! I caught it by its wings and put it in a container in the fridge. After a while it was cool enough to bring out – I took some photos indoors to be on the safe side, and then placed it on a stem outside, and took more before it flew away unharmed. From then on it became known as Madison's Dragonfly.

The next memorable experience was on an excursion to Kalimantan in Borneo in September. We had gone mainly to see the orangutans and proboscis monkeys in Tanjung Putting National Park – we had to go by boat everywhere and when not watching the antics of monkeys, or birds, there was always the presence of dragonflies. There were many to be seen at Rimba Lodge (which I first thought was about to be inundated with flood until I realized that the river was tidal). The most obvious species were *Orthetrum testaceum*, and *Neurothemis fluctuans*. There was also the gold fluttering *Rhyothemis obsolescens*. Less frequent sightings included *Brachydiplax chalybea* and

Onychothemis culminicola. At the water's edge were some probably a kind of *Drepanosticta*. One *Macromia cincta* was seen patrolling a drain with its neon-like blue eyes. At night a Duskhawker was found settled near a light – too large for the geckos. I thought it was *Heliaeschna uninervulata*, because it had only one crossvein in the median space, but Vincent Kalkman says the animal looks much more like *Gynacantha dohrni*.

Ceriagrion cerinorubellum and a dark species,



Rhyothemis obsolescens

Going up the river we caught sight of occasional *Ictinogomphus decoratus* (or *I. acutus*) perched on the tip of broken reeds of branches sticking out of the water. Turning into a black-water river we caught glimpses of the amazing large *Rhyothemis aterrima* with black wings, flying like fast butterflies in the reeds. They are apparently very territorial, and battles frequently result in torn and ragged wings.



Onychothemis culminicola

such wonderful colours and behaviours. They are probably to be found more by mountain streams and rivers than in the coastal swampland.

The only disappointment was that we saw no members of the Chlorocyphidae, which are so diverse in Borneo and with



Ictinogomphus dobsoni

The next excursion was a camping trip to the Pilbara in northwest Australia – to the gorges in Karijini National Park and Millstream – where I hoped to complete my photos of Pilbara Odonata. I found much activity in Knox Gorge with many Rosy Skimmers, *Orthetrum migratum* and Blue Skimmers, *O. caledonicum*, Scarlet Perchers, *Diplacodes haematodes*, Black-headed Skimmers, *Crocothemis nigrifrons* and some beautiful specimens of Pilbara Tigers, *Ictinogomphus dobsoni* – a species confined to the NW. There were also many Pilbara Wisps, *Agriocnemis kunjina* and Malachite Threadtails, *Nososticta liveringa*. I already had photos of all these, but took more in digital format. We then moved on to Millstream. This is an amazing place – usually described as an oasis. Most of the

country round about is semi-arid with spinifex grass, but the Fortescue valley is underlain by a layer of dolomite. This accumulates huge amounts of water, especially after cyclonic rain. The layer is tipped so that the water flows out at permanent springs that fill the palm-fringed river pools at Millstream. This is a haven for the Odonata, but much water is now pumped out to supply the town of Karratha, so the dragonflies are being monitored to check on the health of the system.

There were remarkably few dragonflies to be seen there this time (this was probably not caused by the water being drawn off). Not a single Australian Emperor was seen. There were several damselflies, particularly Blue Riverdamsels, *Pseudagrion microcephalum*, Gold-fronted Riverdamsels, *P. aureofrons* and Pilbara Billabongflies, *Austroagrion pindrina*. One evening at sunset I noticed some Pilbara Threadtails, *Nososticta pilbara* flying high over Crossing Pool, almost hovering about 15 m over the open water, possibly catching midges (they were too far out to identify with binoculars, but by taking photos using a digital camera with a 300mm lens, I could magnify the image well enough to confirm the identification – it is amazing what can be achieved with



Nososticta pilbara

modern technology).

I was only able to add one more species to my photographs – the tiny endemic Pilbara Archtail, *Nannophlebia injibandi*, named by Tony Watson after the local indigenous tribe. The few specimens I saw were hard to find, and only stayed near flowing water for brief periods. I still lack photos of three endemic gomphids – it looks as though we may have to go there again!

Another trip is only worth mentioning because of the absence of Odonata. We went to see the crab migration on Christmas Island. This island is very remote – over 300 km from the nearest land (Java). There is also very little permanent fresh water. There appear to be no dragonflies found there – at least none are recorded for the largest permanent spring. However, every day there were about 20 Wandering Gliders, *Pantala flavescens* flying in front of our accommodation – they had probably flown over from Java or Sumatra.



Nannophlebia injibandi



Hemianax papuensis

The endnote comes from our garden in Perth, Australia, where the dragonfly ponds floating in the pool continue to attract visitors. There have been relatively few visitors this summer, Blue Skimmers, *Orthetrum caledonicum* and Scarlet Perchers, *Diplacodes haematodes* constantly present most years were almost absent. But Australian Emeralds, *Hemicordulia australiae*, Tau Emeralds, *H. tau* and Australian Emperors, *Hemianax papuensis* have been much more in evidence than previously. Many pairs of *H. papuensis* have visited and on 12 February I watched one pair laying eggs in a reed leaf trailing from the pond into the pool. I cut the tip off and kept it to see how long before the eggs hatched. At seven days the eyes were visible and the first little nymph emerged ten days after the eggs were laid.

The endnote comes from our garden in Perth, Australia, where the dragonfly ponds floating in the pool continue to attract visitors. There have been relatively few visitors this summer, Blue Skimmers, *Orthetrum caledonicum* and Scarlet Perchers, *Diplacodes haematodes* constantly present most years were almost absent. But Australian Emeralds, *Hemicordulia australiae*, Tau Emeralds, *H. tau* and Australian Emperors, *Hemianax papuensis*

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Hemicordulia tau

RETURN TO NIGERIA - Michael J. Parr

In June and July 1973, accompanied by my wife Marion, I travelled through central and southern Nigeria aiming to visit and collect Odonata in areas of the country we had not previously seen. I was shortly due to return to my post at the University of Salford after three years teaching and researching at Ahmadu Bello University (ABU) in northern Nigeria. My base at ABU in Zaria proved to be an excellent place, introducing us to a wide and varied dragonfly fauna in the northern savannah habitats.

I was especially lucky to encounter close to ABU considerable numbers of the blue and red libellulid *Nesciothemis nigeriensis*, which had been described from a single specimen by Robert Gambles about 10 years previously from a site about 350 miles (560 km) due south of Zaria. Until we found flourishing colonies of *N. nigeriensis* in the summer of 1971 at man-made lakes in the Zaria region, the species had remained virtually unrecognised since Gambles' capture of his single male specimen. Details of our studies on *N. nigeriensis* can be found in Parr (1974 and 1977b) and Parr & Parr (1972 and 1974).

Our travels in 1973 took us from the northern city of Zaria to the far south and south-east of Nigeria passing through post-war Biafra. It was here on the Obudu Plateau, very close to the Cameroon border, that we made our most exciting discovery. On a small stream in mist forest at an altitude of about 1500m I caught a single specimen of a medium-sized dark red zygopteran which mystified me. On our return to England in September 1973 I showed our collection to Robert Gambles who was very excited by the specimens of *Nesciothemis nigeriensis*, but even more so by the unknown zygopteran from the Obudu Plateau. He instantly recognised it as a *Pentaplebia* sp. (Amphipterygidae) but on comparing it with his specimens of *P. stahli* was in no doubt that our specimen was clearly

a new species, only the second in the genus. I subsequently described and named the new species *Pentaplebia gamblesi* (Parr 1977a).

Moving on to 2005: when my daughter Zoe began working for D.I.N. (Development in Nigeria), and being based in Obudu town, it seemed an admirable opportunity to revisit the area and attempt to secure more specimens of *P. gamblesi*, as well as visit her!

The area adjacent to the type locality on Obudu Plateau in Cross River State is being exploited and developed by Protea Hotels of South Africa, so that the original Cattle Ranch Hotel we knew in 1973 is now a large complex of buildings with on-going enlargement and development. The type locality of *P. gamblesi* is within easy walking distance from the Hotel, a short way down a steep valley in the mist forest remnant. The development work at and near the Hotel complex is causing the steep-sided valley to become contaminated with a great deal of silt and sand. This has changed considerably the ecology of the '*Pentaplebia* stream' from its cleaner condition of 1973. The rocky stream bed now has a layer of silty sand around the larger stones despite the fact that it is a relatively fast flowing stream.

From 13-16 December we searched the area for any signs of either species of *Pentaplebia*, including looking for larvae under stones and boulders in the streams, but without any success whatsoever. The absence of adult *Pentaplebia* could perhaps be ascribed to a seasonal effect, but the lack of larvae could not. Comparison of photographs taken in 1973 and 2005 reveals a dramatic present-day reduction of the riverine mist forest in the valleys and furthermore, intensive grazing of the adjacent grassland by Fulani cattle has contributed to the marked ecological changes which have occurred in the last 30 years or so. In the 1970's the nomadic Fulani tribes mainly lived in the northern guinea and sahel savanna zones and their present exploitation of the Obudu area is apparently fairly recent. Of course, because *P. gamblesi* is known from the single type specimen, it is quite possible that it exists in other different ecological areas and it may not be nearly as rare or limited in its distribution as seems to be the case at present.

Within the grounds of the Protea Hotel an area of forest has been protected as the Becheve Nature Reserve. At the stream running through this Reserve we took a male and female of *Nesolestes nigeriensis* (Megapodagrionidae). This is an interesting insect in that all of the other species presently in the genus are confined to Madagascar and other Indian Ocean islands. Robert Gambles described *N. nigeriensis* from specimens he caught on the Obudu Plateau in 1961 (Gambles 1970). Our specimens appear to be the first Nigerian examples of the species that have been recorded since 1961, although Graham Vick (Cameroon Dragonfly Project) has recorded it in southern Cameroon. We did not see the species during our visit to the Plateau in 1973.

One of the surprising observations (at least to me!) was the extraordinarily wide altitudinal range of the very common *Pseudagrion melanicterum*. We found it on the highest streams on the Obudu Plateau in relatively open habitats, as well as on streams and rivers in dense rain forest at only 100-300m above sea level. It appears to be an easily recognised species, but detailed morphological and genetical studies may suggest that two or more closely similar species could be involved. Another species which poses a similar problem is *Trithemis imitata*. I became familiar with *T. imitata* in northern Nigeria in the 1970's where it was a fairly common species at lakes in the guinea savanna. When I saw similar insects flying over shallow rivers in the rain forest of Cross River State I couldn't believe that they were in fact *T. imitata*. However, close examination of the recent rain forest examples and my 35 year-old specimens from the northern savanna reveals no differences. The climate and vegetation of these two habitat types are exceedingly different.

There are a few specimens which need further study but so far 25 Zygoptera and 23 Anisoptera species have been identified. One of the Zygoptera is an undescribed *Chlorocnemis*, which has also been found in nearby Cameroon by recent collection.

Nigeria is certainly not the easiest place to reach or to exist in, but the hassles one meets continually can be endured when the dragonflies and their habitats are so fascinating.

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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 streams 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*, *Gyrocampa*, *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,

obviating the need for dichotomous keys. The illustrations of larvae, often in colour, are exceptionally accurate and informative, providing exactly what the novice needs to recognise 'types', as larvae or as F-0 exuviae, in the field.

Bert Orr's book stands as a testimony to his skill (as a draughtsman and field observer) and industry. Almost 99% of species of this diverse tropical fauna are treated in this book, the absentees being the seven species of which material was inaccessible to the author at the time of writing.

Production of this eminently useful book was a direct consequence of the author's receipt of the Worldwide Dragonfly Society's award for outstanding achievement in 2005, in recognition of his book on the dragonflies of Borneo (2003), the proceeds from which he put towards the production of this field guide.

The quality and usefulness of this field guide are so high that I predict that it will be much in demand, and that a second edition may soon appear. With this prospect in mind I mention here two minor respects in which I myself would find the book easier to use. First, because there is no species index and because species are not arranged alphabetically, the user cannot locate the description of a given species within the text except by physical searching. A simple, inexpensive way to remedy this would be to put page references in the alphabetically arranged checklist. Second, to use this book in the field, one would need to open a double page flat which, with the existing tight binding, cannot be done. A ring binding, though doubtless adding to the book's cost, would meet this need.

Reference

Orr, A.G. (2003). A guide to the dragonflies of Borneo: their identification and biology. Natural History Publications (Borneo), Kota Kinabalu.

Philip Corbet. May 2006

STOP PRESS.

Within the last few days the organizers of the INTERNATIONAL CONGRESS OF ODONATOLOGY, which is to be held in **Namibia** in April 2007, have indicated that it is possible the actual venue of the meeting may have to be altered. No firm details are to hand **but** the important message is that the **dates are unchanged** and that the Symposium will definitely be in **Namibia**. Finalized details will be included in the January number of AGRION and, meanwhile, members are advised to keep checking on the Congress website:

{<http://wda2007.tu-bs.de>}

How good it will be to experience once more the friendly atmosphere always found during WDA Symposia!! (Ed)

The WDA approaches its tenth anniversary. It has its roots in Slovenia but its branches spread all over the world.

Our membership has now risen to 450 and we have members in 40 countries.