



EDITORIAL

I am delighted with the response to my appeal for contributions to this special edition devoted to Our Beautiful Dragonflies. With contributions describing species from Australia, Tasmania, China, India, Japan, Thailand and The Philippines; Cameroon, Ghana, Kenya and Uganda; Brazil, Costa Rica and Cuba; Arizona, Arkansas and New York; Greece, Spain and Great Britain, we have a truly worldwide collection suitable for the newsletter of a worldwide association. Sadly, it is not possible to have colour illustrations on printed copies of WDA's AGRION, but it IS possible to have them on our secure website SO take a look at the next paragraph and you will see how WDA members can access this. There are many lovely photographs to be found, accompanying several of the contributions.

ODONATOLOGICAL ABSTRACTS

Members will be wondering what has happened to the copies of Odonatological Abstracts that usually accompany each issue of the Newsletter - but don't worry, they are still available to everyone! Because they cost such a lot of money to print and post, and following a suggestion made at the BGM held during the Symposium at Colgate University in July 1999, it was decided by the Board of Trustees to post them directly onto our secure site in PDF format. This has the advantage of allowing the user to view and print a document that is virtually identical to the printed copies that have, till now, been mailed to members.

At present they (AND copies of AGRION) are searchable using the "Edit/Find in Page" menu choices of Netscape or Internet Explorer but the search capability will shortly be expanded to allow a user to enter keywords in a dialogue box and search the entire web site. This means that, as issues of AGRION and OAs accumulate, a user will be able to search all issues for any combination of keywords in a single operation. We can only reiterate our gratitude to Colgate University for allowing us free access to one of their servers, and our admiration of Rob Arnold's expertise and wizardry!

We recognise that there are a number of members who do not have access to the Internet - these will not be neglected. Should any such member require a hard copy of the Abstracts, they are invited to write to the Secretary and a reduced copy of the Abstracts will be dispatched immediately. It is also recognised that, in a few cases, a member may prefer to receive the issue by mail rather than downloading and printing it from the Internet; again, a request to the Secretary will procure it but it is hoped that such requests will be minimal.

NOMINATIONS to the BOARD of TRUSTEES

In accordance with our Constitution & Bylaws all members of the Board of Trustees (apart from the Vice-president) resign at the end of the Biennial General Meeting following that at which they took up their posts - but are eligible for re-election. The election of a new Board must be completed prior to the BGM in July and nominations are therefore required now. It should be noted that Philip Corbet will, according to the Constitution, fill the position of President of the Association for the following term. Mike Parr's 2-year term as President will be over; Jill Silsby will be resigning as Secretary/Treasurer; and Vicky McMillan and Wolfgang Schneider are also resigning from the Board. Each of these Trustees will have served four years and all of them feel new blood is needed.

The following have agreed to accept nomination: Mike May (USA) as Vice President; Linda Averill (UK) as Secretary; Dorothy Gennard (UK) as Treasurer; and Viola Clausnitzer (Germany) as a member of the Board. These four have all been formally nominated and seconded. Henri Dumont (Belgium) has resigned as Editor of Pantala and Reinhard Jödicke (Germany) was co-opted to take his place. The rest of the present Board (Arnold, Ketelaar, Pritchard and Ubukata) have expressed willingness to stand again. Should you wish to nominate members other than these, please complete a nomination form.

In the event of an election being required, postal ballot slips will be enclosed with the June 2001 AGRION.

NEWS from MEMBERS

Viola Clausnitzer (Germany) writes: "I got a one year grant (post *doc stipendium*) from the DFG and will be in Uganda over Christmas and back to *Coryphagrion* in March/April next year."

Kelvin Conrad & Joanna Freeland (UK, ex-Canada). Kelvin tells me he is slowly becoming an ex-patriot Canadian, having lived here for 3.5 years and now has an all-British 1 year-old daughter. His wife Joanna Freeland holds dual citizenship. Kelvin writes: "I am presently working as an insect population ecologist at IACR Rothamsted, studying moths, after a brief period of ground beetle research. Joanna is a molecular ecologist, recently hired as Lecturer at the Open University. Together we share an interest in dragonfly dispersal, I in numbers and distances of animals moved, she in the transport and mixing of genes. My only work with odonates at the moment is as her net-slinger. Stemming from her study of Darwin's Finches, she is interested in the phylogenetics of island populations and we have been collecting damselflies for her work. I continue to analyse the data from my previous capture-recapture studies of dragonflies and damselflies, and I like to get my camera out for odonate pictures when I have the spare time."

Carl Cook (USA) Congratulations again to Carl who received the Kentucky Society of Natural History's "Naturalist of the Year" in October 2000. Carl's presentation was entitled "An Introduction to Dragonflies & Damselflies"

Matti Hamäläinen (Finland) reminds us that most of his field activity has been devoted to the "beautiful wings" of calopterygid damselflies. He writes: "Much of this affection is due to their lovely appearance but they also offer very demanding puzzles for taxonomists. We still do not even agree how to treat some of the European taxa of *Calopteryx* - species, subspecies or just variation!!"

Norman & Janet Moore (UK) celebrated their Golden Wedding in July 2000 - congratulations!!

Göran Sahlén (Sweden) is to be congratulated on his appointment as lecturer in Zoology at the University College of Halmstad on the Swedish west coast.

Michael Samways (South Africa) writes: We are busy right now capturing the dragonfly data for mapping SA dragonflies. Our dragonfly trail here in the botanical gardens is organised and will be operational this spring. I'm still busy with the SA dragonflies book, but many other tasks too!

The Australian Dragonfly Society. Deniss Reeves, Ric Natrass and Nigel Fechner are to be congratulated on starting up this Society which already has 35 members. Anyone interested is urged to contact [Ric \(Secretary\)](#)

Regional Meetings

European. This weekend meeting was held in Darmstadt in July 2000. Participants enjoyed it all immensely - the venue (Hessisches Landesmuseum), the programme of illustrated talks and the friendly atmosphere. Our thanks to Wolfgang Schneider for organising such a happy occasion.

Japanese. Hidenori Ubukata writes: "Our meeting was held in an Osaka coffee shop in the evening of 19 November 2000 - there were ten WDA members present and we discussed the plan to establish a national representative & office. When the plan is rewritten (based on valuable opinions presented during the meeting) it will be discussed further among all Japanese WDA members in the near future. Prior to closing the meeting, I passed on recent WDA news and suggested a visit to Gällivare (Sweden) for the 2nd WDA International Symposium in July 2001. Afterwards we exchanged coffee cups for mugs filled with beer and happily exchanged odonate experiences - including a story of the "rain man" who makes it rain wherever he goes to catch or observe dragonflies in Japan or in any other part of southeast Asia!

"The meeting was a satellite meeting, exoparasitic to the Annual Meeting of the Japanese Society for Odonatology which was held in the Osaka Natural History Museum from the morning of 18th to late afternoon on the 19th November. 72 odonatists (including 14 WDA members) attended. Included in the programme were three workshops as well as nine oral and six poster presentations on Odonatology. I thank the President and the Organisers of the JSO Meeting for providing me with opportunities to speak about WDA in general and its 2001 Symposium, as well as about our Regional Meeting that would be held later in the evening.

"Throughout both these meetings I felt a blossoming of the younger generation within the community of Japanese odonatists. I hope they grow well and become our odonatological leaders in the years to come."

SUBSCRIPTIONS

I am happy to say that subscriptions remain the same as they were for 2000 and I would ask you to fill in the renewal form enclosed here and send your dues as soon as possible. Sadly, many of you neglect to do this and we expend an inordinate amount of time and money sending out reminders. Subscriptions are kept as low as possible and this extra claim on our resources just can't be sustained. The Board has, therefore, agreed that a **surcharge of £1** (or its equivalent) be added to the subscription of all those whose forgetfulness necessitates a reminder. First reminders will go out at the end of February so PLEASE send in your subscriptions before then.

THANK YOU!! - and thanks to those who never need reminders

OUR BEAUTIFUL DRAGONFLIES



Steven Jones has kindly let me use his lovely drawing of a male *Leucorrhinia dubia* to introduce this special edition of **SAGRION**. The genus is widely distributed, most species favouring northern bog pools, frequently bordered with *sphagnum* moss. An endearing feature is their unwariness and, generally speaking, they are among the easiest odonates to approach. This Eurasian species is found from the UK in northern Europe, across Siberia, to Japan. In northern parts of North America, very similar species occur, such as *L. hudsonica* and *L. gracillia*. They are dainty libellulids with white faces and the black abdomens of mature males are decorated with red patches, whilst females and immatures have yellow ones.

And so to our individually chosen species. Sit down comfortably and enjoy, in your imagination, a kaleidoscope of colour and beauty.

Hordes of Anisoptera - Vicky McMillan

The most beautiful memory I have of dragonflies is that of a huge feeding swarm which I witnessed when I was perhaps eight or nine years old. At that age I was already fascinated by insects, particularly butterflies and moths, and most of my childhood summers were spent wandering around with a tattered insect net through the meadows and woods surrounding our home on **Long Island, New York**. One warm, sultry evening - the light was fading but it wasn't quite dusk - our front yard was suddenly filled with what seemed like hundreds of dragonflies of all sizes and colours, flying at all heights, some swooping right past my face, some cruising high above my head. Of course, childhood memories seem especially vivid and intense, larger than life, and each time I resurrect this memory the experience becomes more fabulous, the dragonflies even larger, more colourful, more abundant. The air seemed thick with dragonflies, every possible kind of dragonfly in the world. I didn't try to catch any; I simply stood and gazed in amazement, and from that point on, I was hooked: there was no insect so wonderful, so amazing, as the dragonfly.

THE AMERICAS

Apache Spiketail — *Cordulegaster diadema* Selys, 1868 - Sid Dunkle

My nomination for one of the world's most beautiful odonates is the Apache Spiketail *Cordulegaster diadema*. On our way to the International Odonata Symposium in Gainesville, Florida, in **1977**, Rosser Garrison guided me to beautiful Oak Creek Canyon in **central Arizona**. *C. diadema* were engaging in extended feeding flights about 2-3 m up near a stream

(on subsequent visits there I have seen males patrolling low along the stream). Rosser can attest that I went "bananas" when I saw my first male *diadema* close to, with its deep aqua-blue eyes, and cadmium yellow bands on a black velvet body. I was completely unprepared for how gorgeous they are in life, having seen only discolored museum specimens at that time. The species is impressively large, and the males have a spatulate clubbed abdomen. I took a chance that the specimen would escape, and posed one of those first *C. diadema* for a photo. I still have that specimen, and the photo is reproduced in my new book *Dragonflies through Binoculars*.

***Zenithoptera americana* Linnaeus, 1758 - Dennis Paulson**

There are so many absolutely gorgeous odonates that picking the most beautiful one is truly an impossible task. It becomes easier if you can pick a list of 10 or 20. But one of my favorites is *Zenithoptera americana*, not only because it is spectacularly beautiful but also because the first one I saw was completely unexpected, in a marsh in rain forest in lowland **Costa Rica** in 1967. The species was unknown from Central America at that time, and all I had seen were specimens with their wings closed. This is a small libellulid dragonfly with dark body and with mostly blackish wings. As I walked around the marsh in thigh-deep water, all of a sudden there was a brilliant blue flash in front of me, something like a microminimorpho butterfly. As my eyes followed it, I realized it was a dragonfly! I stalked it, trembling like a leaf, and finally caught it, realizing as I held it that it was a *Zenithoptera* but I had had no idea how scintillating it was in life. The upper surface of the wings reflects blue exactly the color of a morpho but, interestingly, this dragonfly genus includes species that are among the very few anisopterans that often perch with their wings closed, perhaps hiding that give-away color from predators and showing it when another male appears.

But there's a down side to the story. Those were the days of ethyl acetate killing jars, and the dragonfly soon reposed in my jar, along with specimens of several other new records for Costa Rica and even two undescribed species. It had been a fantastic day in the field. The jar was held in a leather holder on my belt, and when I returned to the field station, I discovered the jar was gone! Apparently it had jostled out of its holder at some point as I made my way through the forest. I retraced my steps for hours that afternoon and the next morning and never found that jar, not surprising, as I had trekked overland. I was crushed to the maximum, knowing there was every chance I might not see some of the species in that jar again, tropical odonates being as they are. But the story had a happy ending; with diligent searching, I was able to find every species again. So while I consider *Neurobasis chinensis* exquisite, *Diphlebia euphaeoides* spectacular, *Rhyothemis resplendens* awesome, *Rhodopygia hinei* brighter red than I could imagine, and *Nannophya pygmaea* too cute for words, I would put *Zenithoptera americana* at the apex on the scale of dazzling beauty--perhaps because of my first experience with it.

***A Mecistogaster smarter than me!* Marcel Wasscher**

One day in 1990, in a savannah forest in **Surinam**, I finally captured a male *Mecistogaster* - one of those giant damselflies with a wingspan of 13 cm. From a piece of paper I folded an extra large papillot (triangle) and carefully laid him inside. On return to our base camp, I had to show my companions just how beautiful these incredible insects are. My treasure (probably *M. marchali*) lay there on the opened out papillot and, being careful not to move any part of the body, I placed my fingers on his wings. It was so still I thought it had passed away due to a combination of the heat and the discomfort of its folded paper prison, so I lifted my fingers to show more clearly the insect's full beauty. After a few seconds it lifted its wings and threw itself up from the paper. My captured fairy was escaping and, with slow wingstrokes, he left me, flying at a height of half a metre above the ground towards the open forest. Not only was he more beautiful but also smarter than me!

***Scapanea frontalis* Burmeister, 1890 - Peter Allen**

Cindy and I had a great trip to **Cuba** in April/May this year (2000) and I was proposing to send a report for *AGRION* in due course. The funny thing was that we saw a dragonfly species which I thought was the most beautiful that I'd ever seen and I was going to mention the fact in passing. And then the July *AGRION* arrived with Jill's request for people's ideas of their most beautiful species. Some coincidence!

The species in question is *Scapanea frontalis* which we nicknamed "The Ghost"; it is a trithemistine libellulid with a swollen tip to the abdomen, giving it a gomphid shape. It's ground colour is blue-black but the thorax, first three and last four abdominal segments are pruinose very pale powder blue (almost white) and there are white patches on each wing near the pterostigma. Males hold territories in dappled areas on wooded streams and have a delicate, fluttery, *Calopteryx*-like flight. The combination of pale coloration, habitat and flight made us think "GHOST" - not that I've ever seen one!!

Two beautiful odonates from Brazil - Rosser Garrison

The most beautiful South American zygopteran that I have ever seen is also probably one of the best known. Described in 1842 by Pierre Rambur, examples of this small species often grace an insect drawer along with many other exotics such as morphos and metallic woodboring beetles. I am talking about the small polythorid, *Chalcopteryx rutilans*. Though this is only one of four in the genus, *C. rutilans* is probably the most beautiful. The thorax is black with red thoracic stripes. The hyaline fore wings differ in shape from the tennis racket-like hind wings. They are completely iridescent with metallic reflections of orange and blue. Seeing spread male specimens in a collection does not truly convey the exquisite combination of colors in these insects. I first met with this species at a narrow partially shaded stream in Rondonia State, **Brazil** in November 1989. Males were denizens of the shade but they often flew in the sunlight reflecting brilliant shots of iridescent

orange. In an instant, the metallic disappeared as the damselfly perched on a twig. The most sustained occurrence of beauty was seeing a male or two hovering directly in front of an ovipositing female. A few females were seen ovipositing on a large damp log across the shallow creek. Males which had mated with females hovered within a few inches of the female; the fore wings beating while the hind pair remained outspread and stationary. The metallic reflections, largely of orange, but also of green and blue, gleamed from their wings. This episode of riotous color made me think I was seeing fiery orange jewels reflecting from the deep recesses of the green jungle.

The most beautiful anisopteran would most likely be the little libellulid, *Fylgia amazonica*. They are small largely black species with the distal half of the abdomen brilliant blood red (abdomen all red in subspecies *lychnitina*) and with the upper surface of the compound eyes ivory white. I have seen this species in the rainforests of **Venezuela, French Guiana, and Brazil**. Males sit on the tips of leaves overhanging largely shaded pools. In a second, they are gone with what seems to be the speed of light. But at a moment's notice, they are back at the same perch. In the dappled sunlight, the intense white of the eyes is an unexpected sight when males are in flight or perched on a leaf.

AUSTRALASIA

Cordulephya pygmaea Selys, 1871 - Ian Endersby

With the advent of television the results of contests are announced by reading out a list of contenders and then a glamorous assistant brings forward an envelope containing the winner's name. Because **south-eastern Australia's** more temperate climate doesn't produce the brazen beauties of the tropics we should extend the analogy by expecting our winners to show some intellectual interest also. With that in mind which can we nominate from **Victoria**?

A strong contender must *Hemiphlebia mirabilis*, that tiny iridescent green damselfly that hides amongst the reeds with the male signalling to females with enlarged white anal appendage flags. We still remember Jill Silsby's scream of delight when she saw the signpost to Wilsons Promontory National Park, site of the holy grail. We have to acknowledge that it is no longer a Victorian endemic, with populations having been found in Tasmania, but its wing venation and phylogenetic position still raise heated debate.

A dull grey specimen of *Austrolestes annulosus*, seen on a cold blustery day, hardly justifies a vote until you realise that it is a fine example of thermoregulatory coloration. Dark in the cold to take on black-body heat absorbing properties, but becoming brilliant blue in the heat of the afternoon to then minimise heat stress. So, some intellectual interest in the morning and great beauty in the afternoon - a worthy contestant.

Recognising that small is beautiful, another damselfly warrants consideration, *Xanthagrion erythroneurum*, even the Latin name conjures a palpitation of the heart. A male with red eyes, thorax and proximal abdomen, the remainder of the abdomen black with two bright blue distal bands, and relatively common. Perhaps that commonness will count against it in the final score. If local rarity and distinctive coloration are the criteria then with *Austropetalia tonyana*, split from *A. patricia* and named for Tony Watson, I sense a winner. Large and colourful with red splotches along the costal wing margin, and with semi-aquatic larvae living in the splash zone of waterfalls to add that bit of scientific zest, it must be sitting quietly confident of winning.

But the winner is -- *Cordulephya pygmaea* -- from an **Australian** endemic subfamily. Perhaps its major claim to fame is that it is a corduliid that perches with its wings along the abdomen as in the bulk of the Zygoptera. It arrives late in the season having spent its larval stage in streams and rivers. If you had seen it, like I have, perched on the vertical white trunk of a eucalypt, then you would have voted it a winner too. Sitting at right angles to the sun to maximise thermal input gives it the necessary bit of science to qualify for a vote. But that very posture caused the sun to cast greatly magnified shadows of the wing venation on to the white bark. The effect was a small corduliid with apparent wings three times its body length, with the venation in perfect detail - a round of applause with a halting speech of acceptance should follow.

The Reed "Butterfly" — *Rhyothemis graphiptera* Rambur, 1842 - Jan Taylor

My only encounter with this amazing species was some years ago at Millstream in the Pilbara Region of **northwestern Australia**.

Millstream is a paradise for dragonfly enthusiasts – it is in the middle of a semi-arid region of rolling spinifex-covered hills and red iron-stained rocks, hundreds of kilometers from any other major aquatic habitat. The spinifex tussock grassland is usually bleached white, highlighting the strata of iron ore. Millstream lies in the valley of the broad Fortescue River basin, between the Hamersley and Chichester Ranges. The river only flows after cyclonic rains, but the valley is underlain by a layer of dolomite which stores the water. The rock strata are tipped so that the aquifer spills out at Millstream in clear, warm, limewater springs, filling huge river pools. Deep Reach is the largest pool – it is 2.5km long, 100m wide and up to 14m deep. Chinderwarriner Pool lies on the main spring and is a beautiful crystal-clear pond 250m long and three metres deep. It is filled with water lilies. The pools are flanked by Millstream Palms, Cajeput trees, white-barked River Gums and West Australian Coolabahs. The water is a valuable resource and has been tapped to supply the town of Karratha, 100 km away and it accounts for my presence there. The dragonflies of



Photo by Jill Silsby

Millstream are unique, and what better way of monitoring whether the water extraction is affecting the Millstream environment than by monitoring them?

The Odonata of the area were studied by Tony Watson years ago and, of the thirty-three species recorded, ten were endemic to the Region, including several new to science. One is the beautiful *Nososticta pilbara*, which hovers motionless in the shadows with only its yellow thorax visible – the black body and dusky wings lost in the shadow. There are three other endemic damselflies, while the endemic Anisoptera include the striking yellow and black *Ictinogomphus dobsoni*, which settles on reed tips overlooking the open pools. The little *Nannophlebia injibandi* rests high over flowing water and is named after the indigenous people of the area. Another notable species is *Antipodogomphus hodgkini*, named after Ernest Hodgkin at the University of W.A., Tony's supervisor at the time.

I spent several glorious days, checking on the species seen in different habitats – counting *Nososticta* along a stream, observing *Ictinogomphus* and *Antipodogomphus* exuviae on lily pads (they must be able to emerge and expand their wings on the level), finding huge numbers of *Nannophlebia* and *Austrogomphus* exuviae on stones around flowing water, seeing my first *Crocothemis nigrifrons*, and learning to separate the endemic *Agriocnemis kunjina*, which is red before developing its white pruinescence, from the tiny *A. argentea*.

It was not until I went to visit the last of the string of river pools that I came across *Rhyothemis graphiptera*. It was a shallow pool with a few tall reeds growing twenty metres away, out in the middle of the open water. Here I saw what looked like butterflies flying and settling on the tips of the reeds – there were several of them, all active, flying with a fluttering motion, and settling daintily on the tips, so as to show their wings to best advantage. They looked easy to catch but when I waded out I found otherwise – the fluttering flight is all deception – they saw me coming long before I could get near and even when I got close enough, I found they were very good at avoiding the net. This is presumably a necessity for animals with such a conspicuous display. When I eventually caught one, I could see it was a remarkably attractive species. It had red-brown eyes and a glossy black body, splashed with ochre, but it was its wings which drew my attention. The veins stood out in bright gold, forming an intricate lacelike filigree, while the wing membrane was suffused in amber and dappled with what, at first, appeared to be shadowy patches. When brought into the sun these patches sparkled with iridescent gem-like colours – amethyst, sapphire blue, ruby red and orange according to the angle of the light.

R. graphiptera is found only in **northern and eastern Australia, New Guinea and nearby islands**, where it has a wandering habit, like some other members of the genus, so finds its way to isolated lakes and ponds. A monitoring programme was put in place at Millstream, using Odonata as environmental watchdogs to make sure the flow of water is maintained into the pools and delta. However, this will all be in vain if the engineers have their way: there were plans on the drawing board to dam the Fortescue River at Gregory Gorge which would have flooded the vibrant oasis of Millstream turning it into a boring reservoir. The project was veto'ed, but can always be reinstated as the demands for water increase.

Archipetalia auriculata Tillyard, 1917 - Norman Moore

In the Australian winter of 1972 I was doing some work on the pollution of irrigation systems for CSIRO. This enabled Janet, our daughter Helena and myself to travel widely in Australia but we never got to Tasmania. I particularly wanted to visit the island to see its marsupial predators, some of its 16 endemic birds and to study *Archipetalia auriculata* in the field. This is a rather primitive dragonfly belonging to the Neopetaliidae, a small Gondwana family whose surviving members are only found in mainland Australia, Tasmania and Chile. I am always interested to observe the behaviour, and particularly the territorial behaviour, of dragonflies belonging to families which are new to me.

Our chance to visit **Tasmania** came in **1988**, when Janet had got the Phyllis & Eileen Gibbs Travelling Fellowship to study land nemertines in Tasmania and New Zealand and I had been invited to give some lectures in New Zealand. I learnt as much as possible about *A. auriculata* from my neighbour Allen Davies, armed myself with Piers Allbrooks's very useful handbook on Tasmanian dragonflies and we set off for Tasmania. We arrived at Hobart on January 3rd 1988 and our first port of call was the boggy area to the east of Cradle Mountain in the Cradle Mountain/Lake St. Clair National Park in the northwest of the island. We left Hobart on a good road, but in the lake district of central Tasmania it lost its tarmac and it was difficult to believe we were still on the Lake Highway. But we were and, late on January 5th, we arrived at our hut on the Ranger's station. We saw our first native cat before we bedded down for the night.

We woke to a wonderful view of the craggy basalt heights of Cradle Mountain. Tempting as it was to climb it, we instead searched the peaty bogs to the east for *A. auriculata*. Quite soon I found a male patrolling a 24 m seepage. It pursued another male, but not very fiercely. Later I saw a female taken by a male before they disappeared from view. The large brown-red spots on the costal borders of the wings, characteristic of all neopetaliids, were striking. I am not sure the species is the most beautiful dragonfly I have ever seen, but none has given me more pleasure. That evening we went to the Lodge for our evening meal and we ended a wonderful day watching Tasmanian Devils and native cats (Eastern Quolls) which were eating scraps put out by our hosts. The native cat is a beautiful spotted creature; by contrast the Tasmanian Devil has huge jaws in an outsize head and hideously lives up to its name. We were delighted to see both of these very special marsupial predators.

Next day we searched many different habitats nearby but only saw one more *A. auriculata*. We did however see three Tasmanian bird endemics - Tasmanian Native Hens, Black Currawongs and Green Rosellas - and we met a delightful Tasmanian Echidna which was fluffier and less spiky than its mainland counterpart.

We moved on to do a survey of a small part of the very wild uninhabited World Heritage Area bordering the Gordon River. It was wonderful country, and Janet found a fine worm, but completely unsuitable for *A. auriculata*. Our next chance of seeing the dragonfly was at Wombat Moor in the Field National Park, 72 miles west of Hobart. January 13th was an extraordinarily wet day; Wombat Moor, like Cradle Mountain, is over 1,000 m high and so it was very cold. The small pools in good sphagnum bog looked very suitable for *A. auriculata* but the weather certainly was not. It was much too cold for a dragonfly to fly: the only hope was to find a perching *A. auriculata* and I was extremely lucky to find a female hanging up in a dead "tea bush" and I photographed it with rain drops covering its surface. Nearby I found a male *Synthemopsis gomphomacromioides*, another very local Tasmanian endemic, also hanging up in a bush. Two days later we had to leave Tasmania for New Zealand. My appetite for neopetaliids had been whetted: it took us to Chile in 1991.

ASIA

Cyrano unicolor Selys, 1869 - Jill Silsby

I have picked this chlorocyphid, out of all other beautiful odonates because, not only is it a very lovely damselfly, but the place in which I saw it was close to what is probably the most unsavoury and malodorous spot in Asia! The contrast between the beauty of the species and its unpleasant surroundings could hardly have been greater!

It was in January 1995 that we found ourselves, for the second year running, enjoying a holiday in **The Philippines** visiting our daughter and son-in-law. Mt. Makeling is the highest mountain on the island of **Luzon**. It is a Nature Reserve with the aim of preserving one of the few remaining areas of rain forest on the islands - and it is a nature lover's paradise. At the foot there is a large area in which shallow, fast running mountain streams end in waterfalls and deep forest pools; euphaeids abound. From the foot there is a partially tarmac'ed road, that winds its way round the mountain sides up to the top - and at about the halfway point we had been told of a very steep, slippery track

off to the right that led down to some 'mud springs' where, according to a group of hiking Slovene students we had met in 1994, it was possible to see "albino dragonflies" (according to Matti Hämäläinen they were in all probability general *Risicnemis serrata*). It wasn't even easy to find the start of this track and, to us old fogies, it was virtually impossible to get ourselves down it - as we had discovered the year before! This time, however, we were fortunate enough to have son-in-law Peter's driver with us and Joven was a big, strong man with an enormous enthusiasm for learning new things. With the help of a strong supporting arm, Ronnie and I both managed to slither down some 400 feet ending on a small flat plateau, very reminiscent of paintings depicting Jurassic times. The stench was horrific and it was only just possible to see through a thick cloudy mist to the other side of the flat ground. In the centre there was a hot, bubbling pond expelling clouds of steam and a terrible sulphurous smell! There was not an odonate (let alone an "albino dragonfly") in sight which was hardly surprising, but there was an incredible looking Filipino lady, dressed in layers of long, flowing and very colourful skirts and shawls: she was oblivious to us as she cast live chickens into the centre of the seething spring, chanting in a high-pitched voice as she did so - what FUN we dragonfly hunters have!! Joven was mesmerized and he told us later that she was a very well known witch who dedicated herself to making daily offerings to the god who lived on the top of Makeling. He had long had an ambition to meet the lady and, practising Christian that he was, to receive her blessing! Ronnie and I couldn't get away quickly enough and we ploughed our way towards the sound of running water some 25 yards away round the corner.

We found ourselves in another world. Though the stench still assailed our nostrils and there were traces of mist, primary rain forest lay all around and a fast-running, very clear stream bounded over rocks and pebble substrate. Branches of trees bent over the water and narrow shafts of sunlight streamed through the canopy. It was indescribably beautiful and, to make our relief complete, there were damselflies flitting around. At first I thought they were dragonflies as their flight was more anisopterous than zygopterous and they were quite sturdy looking insects. Only males were to be seen and they were flying fast and strong over the surface of the water, pausing to rest every now and then along the top of an overhanging branch. Luckily Joven, in addition to helping Ronnie and me down the khud-side, had managed to transport camera, net and binoculars as well so that I was soon able to get a good close look.

From typical chlorocyphid 'snout' to the tip of his anal appendages, the length was a fraction over an inch (3 cm); the narrow, folded wings protruded at least a quarter of an inch beyond the tip of a broad, flat abdomen. The whole of the head, thorax and abdominal segments 1, 2, 3 and 10 were pitch black as were the pterostigmas and all the veins on the wings; the upper surface of segments 4 to 9 were bright crimson red, each divided by a thin black line. He was strikingly unusual, very beautiful and I had no idea what he was! I photographed him and the result can be seen in my soon to be published (by CSIRO in Australia) "*Dragonflies of the World*". On our return to the UK, I sent a specimen to Matti Hämäläinen who was able to identify it for me. *Cyrano unicolor* is a Philippine endemic and also occurs in a totally black form. I'm so glad we saw the form we did!



Photo by Jill Silsby

In search of beautiful wings — *Vestalis melania* Selys, 1873 - Matti Hämäläinen

In the previous issue of this newsletter the editor listed *Neurobasis luzoniensis* as my choice for "the most beautiful odonate", probably because I once characterized this Philippine species in a publication as "one of the most colourful of all dragonflies". She was partially right, since calopterygoids are my favourite odonates, and the species of the genus *Neurobasis* fascinate me particularly. It is a pleasure to see them in the field and I have repeatedly tried to photograph males clapping their wings or gliding, with colourful wings open, close to the water surface - nearly always with frustrating results. Luckily a video camera makes things easier. Generalizing, the Caloptera damselflies can be divided into two groups:

- those which have multicoloured body and hyaline wings.
- those which have uniform metallic coloured body and colourful (or at least strongly iridescent) wings.

There are, of course, exceptions from the rule in both directions. For example, in the oriental chlorocyphid *Aristocypha iridea* beautiful wings and colourful body are both present. No wonder that in his "Fauna of British India" (1934), F.C. Fraser described it as follows: "The fully matured insect [male] is probably the most beautiful of all dragonflies if one considers the combinations and harmony of colouring, together with the delicacy and artistic nature of the design in the hind wings". I have seen this species in the field many times in Thailand and agree that it is very beautiful.

Besides *A. iridea* I have so far seen and observed some 70 species of South-East Asian Caloptera damselflies in nature. There are many beauties among them, but my choice for the "most beautiful odonate" is not any of them. It was found in another, easier, way at home.

I admit that the standard (at least in US) practice of placing odonates wings closed in transparent envelopes has its undisputed benefits in saving storage place, in building uniform museum collections and in keeping loosened body parts together. Also 95% of specimens in my own private Caloptera collection is being kept wings folded in plastic envelopes. But, however old-fashioned it may be, I have not been able to resist the temptation to pin and set some samples, especially of those calopterygids, euphaeids and chlorocyphids with colourful wings. [I wonder how a collection of papilionid butterflies would look, if all specimens were enveloped and kept in a shoe box?] It is not only question of aesthetic values but, for taxonomic work, it is often necessary to see the upper side of coloured odonate wings. Species of the genus *Neurobasis* are good examples of this.

A real surprise was inevitable and I got one when I relaxed the wings of an enveloped male specimen of the **Philippine** calopterygid *Vestalis melania* from Mindanao and spread them open for the first time since its capture 12 years ago. The enveloped specimen, kept wings folded, really looked like its name "*melania*" suggests, the underside of the wings as well the whole body being uniformly blackish. But **oooooh**, when spread, the upper surface of the wings revealed a beautiful dark blue shine, which is striking even in normal room light, but becomes really fantastic when sunshine hits the surface obliquely. Without hesitation, the mature male of *Vestalis melania* is my choice for the rank of "most beautiful odonate".

The female of *Vestalis melania* has nicely coloured wings, though not as striking as those of the male. In sunshine, the opaque parts sparkle with violet and subhyaline parts with greenish iridescence.

The blue shine in male wings is even more intensive and rich than in the famous Bornean *Matronoides cyaneipennis*, which I have seen at Mount Kinabalu. In its beauty, the *V. melania* male clearly beats its Indonesian congeners *V. lugens* and *V. luctuosa*, the dark wings of which sparkle bluish much more modestly.

Vestalis melania was described by E. de Selys Longchamps in 1873. Unfortunately the type specimens (male and female) from Luzon were teneral. In teneral males, the wings do not yet show the brilliant blue colour on the upper side, but are "dark smoky gray throughout, a little iridescent" as Selys described. Had he had blue winged mature males available, we would surely have another name for this fine insect instead of the rather gloomy "*melania*".

V. melania is a fairly common stream species in the remaining forest areas of Mindanao, Basilan, Dinagat, Samar, Leyte, Panaon, Catanduanes and Luzon. However, in Luzon it seems to be restricted to the southern peninsula and to the eastern mountains up to Aurora province in north.

There are long series of *V. melania* specimens, taken from different islands and localities, in the huge Philippine odonate collection accumulated by Roland Müller between 1985 and 1997. I am still working on the calopterygoid species.

Since the enveloped specimens hide their secrets, work on *V. melania* will necessitate setting a considerable number of specimens. So far I have spread only 15 males and 5 females from different islands. However, even this small sample has revealed much variability in the upper surface of wings. In males from Luzon and Mindanao, the surface reflects rich dark blue, but wing bases sparkle with green. In Samar males, most of the wing surface reflects violet or greenish sparkle, only the tips being dark blue. In Dinagat males most of the forewing surfaces reflect blue while the hindwings show green. Some males from Mindanao have an extra green portion in one of the fore- (or hind-) wings, and so on.

Part of this variability is individual or age dependant, but clearly also some geographic trends exist. All specimens from Basilan and Dinagat are smaller in size than those from Mindanao. Males from Mindanao have proportionally broader wings than males from Luzon. And females also show obvious geographic variability, the extent of subhyaline area in wings varying greatly.

Undoubtedly, the advent of some 100 pinned *V. melania*, all with neatly spread wings and grouped in long rows by different islands, will be a great aesthetic sight, at least to me, but obviously a real nightmare to future museum curators, if the "pinphobia" spreads also to museums outside America.

Finally, Roland Müller, who has seen *V. melania* many times in nature in Mindanao, Samar and Luzon regards it definitely as the most beautiful odonate he has seen in the Philippines. He has taken photographs of both sexes. Best of these is a photo of a female with her wings partially open showing the fine violet iridescence. Unfortunately, the males have closed wings in the available photos. In the internet edition of this newsletter you can see a few images taken from set specimens. Please, imagine how much more they sparkle in life, when flitting by in full sunshine. I still hope to see my favourite alive in its natural surroundings but, unfortunately, recent (September 2000) news from southern Philippines, does not tempt me to go there.



Male: photo by Matti Hämäläinen



Female: photo by Matti Hämäläinen

Globe Skimmer — *Pantala flavescens* Fab., 1798 & other favourites - Hidetaka Natsume

This is the first time I write something for WDA's AGRION since I became a member in 1998. "My favourite dragonfly" is very difficult to select since there is no dragonfly which I do not like.

First of all, I think WDA's *Pantala flavescens* is very lovely. This species has been always with me since I was born (a long history I know) and has always had a place in my personal memories. It is one of the dragonflies which can be seen always, every year, at most places, when its time comes. For example, I caught it on a **Thailand** beach during our honeymoon. It flew next to my car when I was driving through **Australian** mountains. Even in **UAE (Dubai)** they were my personal friends when I was working over there, in spite of it being one of the hottest climates in the world. In southern parts of the Arabian peninsula, dragonflies could only be seen in the winter months - namely December through February, when the temperature became a little lower.

Then, to shorten my list of contenders, I pick on Aeshnidae. Generally, I like their appearance (especially shape of the head and bright green or blue eyes) and their behaviour. In **Japan** most of them are active only before sunrise and after sunset. It means that it is not so easy to see them in daytime. Whenever I see *Anaciaeschna martini* or *Polycanthagyna melanicter*, I remember childhood days when I was so often scolded by my mother because of being late coming home. I am now living in Hokkaido (northern island of Japan) having recently moved here from Tokyo, and a new aeshnid has just been added to my collection. It is *Aeshna mixta* which is very beautiful to me with blue and green markings on black (male). This is one of the few to be active in daytime. I am happy to see them fly over the ponds in Sapporo city, even though, at the same time, I feel a little sorry because it means the dragonflies' season is near to its final stage for this year.



Aeshna mixta Photo by Jill Silsby

E-Mail: [Residence Office](#)

Chlorogomphus papilio Ris, 1927 - Keith Wilson

For the last three years I have been part of a team investigating the remaining forest areas of tropical **China**. During the course of these surveys I have encountered many interesting and beautiful dragonflies. Perhaps the most charismatic is *Chlorogomphus papilio*, which was described from Guangxi from a single female. Needham (1930) described a male collected from Emeishan, Sichuan. He commented, "this is one of the largest of living dragonflies, and one of the handsomest". Needham only had a single male to examine. Perhaps if he had seen the female he would have described it as one of the most beautiful. My first impression on seeing a free flying female at close quarters was of a huge birdwing butterfly so this dragonfly is aptly named. Its appearance is mainly black with the basal two thirds of the wings coloured black, with a large creamy golden spot as the central base of the hindwing, and the tips of the both wings are also black. The wings of the males are not as broad or as extensively coloured as those of the female.



Photo by Keith Wilson

Before I began participating in surveys of southern China I was under the impression this was an extremely rare dragonfly. It is in fact not uncommon in north Guangxi and north Guangdong. The oviposition sites can be found in the shallow, broad, boulder strewn, lower stretches of rivers draining high, forested mountains, with a summit height typically 1200-1900 metres. These streams are usually located in secondary forest areas but can be amongst farmland. Some of these streams are slightly organically enriched from farm and village wastes without apparently causing any harm to the larval populations of these splendid dragonflies. Adult males patrol huge stretches of river, looking for females. A circuit may take 10-15 minutes. Their huge broad wings enable them to cover large distances with little effort. Females lay eggs in riffle stretches of these large spate streams, pausing briefly to dip their abdomens to dislodge a few eggs before moving on. The female has a body length of around 80 mm; well short of many of its congeners and much shorter than many other southern Chinese Anisoptera. With a hindwing length of around 67 mm it doesn't have the largest wingspan (approx 5.5 inches) in tropical China either. However, it is a bulky and powerful dragonfly, which has the broadest wings of any dragonfly I have encountered. The maximum width of the female's hindwing exceeds 33 mm!

Like most other chlorogomphids these insects can be seen soaring at great altitude over forested ravines and around the tops of high mountains throughout the day and towards dusk. Given the large highly coloured wings it is easy to pick out

male and female *Chlorogomphus papilio* amongst its relatively clear-winged congeners. The puzzle is why these female dragonflies are so brightly coloured and why they are more extensively coloured than the males?

Reference Needham, J.G., 1930. A manual of the dragonflies of China. *Zoologia Sinica* 11(1): i-xi, 1-344, 2 figs, 20 pls.

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The Oriental Rock-dweller — *Bradinopyga geminata* Rambur, 1842 - Vincent J. Kalkman

When hearing the words 'most beautiful Odonates' one is tempted to think of an enigmatic, colourful species. But when I think of the dragonflies which are special to me, I realise that my affection for them is often more related to their special habitat or to that particular sunny day when I saw a species for the first time. The story below is an example of this: how a rather dull dragonfly made a strange entrance in my life.

I spent January 2000 together with three friends birdwatching in **NW-India**. After visiting Bharatpur with its multitude of Siberian White Cranes and Ranthambhor with its remote chance of seeing a tiger, we decided to go cultural. And so, in the morning of the 19th of January, we arrived at the entrance of one of the largest gravestones in the world. Although the Taj Mahal itself is made of pure white marble, the entrance building is made of brick-red sandstone. The entrance itself has a dome-shaped roof which has a three-dimensional pattern emphasised by painted white lines. It was this pattern which attracted my attention and made me raise my binoculars. My eye was caught by a part of the dome where the paint had flaked off, and in this part there was a dragonfly.

Is anything more annoying than an unknown dragonfly sitting out of reach, six meters above you? A second look revealed that what I had first thought to be one dragonfly was in fact about sixty dragonflies. All of them sitting on a slightly tilting, unpainted, shaded part of the wall, with their heads pointing upwards. They were strikingly evenly spaced, all less than twenty centimetres from each other, occupying no more than two square meters. Through our binoculars we could see that these dragonflies belonged to the Libellulidae and we could see that their dull-grey abdomens were adorned with poorly defined darker markings and that they had bicolorous pterostigmas.

The frustration of this unfinished encounter was soon forgotten when we passed through the entrance building and saw the splendid white sensation of the Taj Mahal for the first time. But even here a dragonfly sitting on the marble soon distracted our gazing at the building: a quick snatch of the hand and the individual was caught.

Back home the species was easily identified as *Bradinopyga geminata*. This species is common in a large part of the Orient where it breeds in all kinds of habitats, even including metal-drums (Corbet 1999). It therefore seems possible that the individuals we saw originated from the concrete ponds in front of the Taj Mahal. All three species of *Bradinopyga* are well known for their habit of perching vertically against rock. This behaviour plays a role in thermoregulation. But January isn't very warm in the northern part of India, so cooling off probably didn't play a part in this case. When perched against a rock, their cryptic coloration makes the dragonflies hard for predators to detect. This might explain why the individuals were sitting against the wall. It however does not explain why they were so nicely grouped together. Kumar (1973) states that in northern India *B. geminata* emerges in October and only returns to the water as late as February. In between they hibernate, only being active on sunny days. So it's likely that the individuals we saw were in fact hibernating. A possible explanation for their grouping could be that the part of the ceiling where the paint had come off was one of the few places with the right background colour or microclimate for *geminata*. In a short note Fraser (1944) describes the nocturnal behaviour of *B. geminata*. Over a period of twenty days *B. geminata* was seen resting on the ropes of a sunscreen between 6.20 p.m. and 6 a.m. In his note it is also stated that there was plenty of other shelter in the surroundings. In the Fraser case, the background colour didn't seem to play a role.

So at the end of this short story, their cosy behaviour remains a bit of mystery. But perhaps that is in accordance with the strange (and wonderful) setting of this encounter.

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AFRICA

The Twister — *Tholymis tillarga* Fabricius, 1798 - Kate Miller

This interesting libellulid is widespread in **India, China, Japan** and other eastern countries, **Australia**, and in most countries in **Africa**, so one is quite likely to have the pleasure of finding it. The species has many subtle charms for me.

The male's red abdomen is about 32 mm long. The forewings are clear but, near the centre of each hindwing there are two slightly overlapping oval spots, each about 6 mm across, one smoky brown, the other violet-white. Females are the same size, with orange bodies and clear unmarked wings. The insects are not active over water in bright sunlight. They are seen over water only in the dim light of dawn and dusk, and then the males fly and hover over the lakes and slow-moving rivers in which they breed. As they hover, the pattern on their hindwings shows up, the four oval spots appearing like little spheres poised in the air, the fast-beating wings becoming invisible; the waxy waxy ovals glow in the dimness, perhaps reflecting ultra-violet rays.



Photo by Jill Silsby

At Hunters Lodge Hotel, Makindu, **Kenya**, hovering has been observed to begin in the morning a few minutes before sunrise and continue for about half an hour. In the evenings a delightful performance could be watched from the cool hotel terrace situated close to the pool (a slow-moving dammed river). Hovering began about two hours before sunset and continued until complete darkness had descended, some 15 minutes after the sun had set. Each male held a territory of 15 to 50m of the bank and he did so by flying along the bank and hovering furiously at either end of his patrol, and over any floating leaves which females might consider suitable for oviposition. Speed of activity increased as the light dimmed and the oval white marks on the wings were still visible for some minutes after there was too little light to reveal the insects themselves. When darkness was complete, every insect suddenly left the water.

At some stage during the males' activity, individual females suddenly appeared, flying rapidly down the middle of the pool. The male in whose territory a female found herself would speed out to grasp her, and tandem-formation and a short airborne copulation usually followed. Soon after copulation a female started to lay eggs, the male guarding her by hovering above, sometimes so closely that their wings clashed together. The female hovered about 10 cm above a floating leaf, now and then rapidly swooping down to touch it with the tip of her abdomen. Each time she swooped down she reversed her position through 180° before repeating the performance. She continued to repeat these figure-of-eight twisting and hovering movements for about five minutes. The insect's English name refers to this twisting behaviour.

At the tip of the abdomen the female carries a neat structure resembling a basket which can contain about nine eggs at a time, precisely grouped in two slanting rows, and eggs are laid in these groups. The eggs emerge from the ovipositor covered with glue which becomes sticky when wetted so that, as soon as they touch a wet floating leaf, they stick firmly instead of falling into the water (to be immediately eaten by little fish which wait hungrily under the leaves). When she has finished egg-laying, the female vanishes into the darkness, leaving a neat patch of several hundred eggs packed together on the leaf, all arranged in groups of nine.

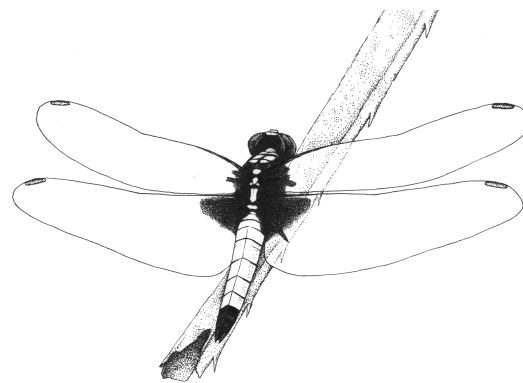
Sky-blue Skimmer — *Cyanothemis simpsoni* Ris, 1915 - Klaas-Douwe B. Dijkstra

Cyanothemis simpsoni is not a species that passes by anonymously in publications. It entered the odonatological stage by the hands of Friedrich Ris (1915), who wrote: "This is one of the most remarkable Libellulidae seen by me" and, as monographer of the family, Ris was the man to know. After discussing its unique venation he continues: "The colour-system is, perhaps, still more extraordinary: a very common pattern, sky-blue and black, is obtained, not as in all other known cases, by pruinosity but by pigmentation." Nine years later, Lacroix (1924) kept it short and simple (in French): "Magnificent odonate, rare." With only museum specimens to go by, neither author could have imagined the vivid glare of this azure skimmer. Jean Legrand and Guy Couturier (1985), discussing the dragonflies of Tai Forest in Ivory Coast, went on to say (in French): "In our opinion, the most beautiful libellulid in the fauna under consideration, sadly the radiant blue disappears rapidly after death."

Jochen Lempert (1988), in his study of rain forest dragonflies in **Liberia**, showed that the creature's behaviour was also unusual (in German): "Reproductively inactive females also stay near water. They were not found near the oviposition sites, but sat on sunny places in bank-side vegetation, from where they made hunting, drinking and bathing flights. Conspecific males and females were chased off." Lempert links this behaviour to the favoured prey: "That the females obtain their food directly by the water probably explains why dragonflies formed an important part of the prey spectrum." Among the recorded victims were species of the genera *Phaon* and *Orthetrum*. The oviposition site is also interesting: "Mats of floating matter, such as leaves, fruits and branches, dammed up by obstacles in the stream." Finally Graham Vick (1999) added to the enigma: "Several males perching on bushes bordering a sluggish meandering lowland-forest stream were extremely wary and difficult to secure."

After having read these words of praise, I longed to see this muse of odonatologists myself one day. My departure for **Ghana** last April was the prelude to fulfilling that wish. After a long drive, we reached the Ankasa rain forest in the extreme south-western corner of the country. As the sun was setting and dusk crept in, we walked down to the river. It was a stroll of first impressions. Dark-winged demoiselles (*Sapho ciliata*) fluttered over the water, while a small cascader (*Zygonyx flavicosta*) raced up and down the rapids. A choir of birds, frogs and cicadas tuned in for nightfall. In the last light my eyes caught the sight of brilliant blue perched on a rock in the torrent. In the blink of an eye it had vanished again. I knew what I had seen, but I could not believe it. As the jungle chorus sang, I fell asleep, wondering if the sky would land before my eyes again tomorrow.

The next day came alive in the sun. Dark demoiselle wings now flashed with iridescent purple. Males of *Oxythemis phoenicos cosceles* perched atop sunny leaves, overseeing their riverside kingdoms, their bright red legs gallantly astride on the throne. *Gomphidia gamblesi* and *Phyllogomphus aethiops* zoomed past. Threefold jewels (*Chlorocypha glauca*, *mutans* and *luminosa*) added more hues to the display of bright colour. And there was blue. Several *Cyanothemis* males had taken up posts along the river (and indeed, a few females were also hanging around). Most perched high up on sunny branches overhanging the water. They proved to be extremely volatile. Males chased each other fiercely, over extensive time and distances. The merest manoeuvre of a net made them move up a few metres. Several disturbances sent them dashing into the canopy. Capturing an individual was threatening to become an exercise of frustration and, eventually, dismay. When the prize is shy, a quick reaction to a split-second chance is generally more rewarding than a patient pursuit. When a male swooped down onto a fallen tree before me, I launched a crashing slash. The treasure was mine.



A male *C. simpsoni* at the Afia River, Antwikkwa, Kakum NP, Ghana (19 April 2000). Note the bold trail down dorsum, including the enlarged occipital triangle. (Drawing by K-D. B. Dijkstra from a photo taken by Eric F. Thomassen)

C. simpsoni is a robust dragonfly, rather like *Libellula* in build. The male is largely black, including the eyes. A trail of gleaming cerulean lacquer runs dorsally from the peak of the snout to three-quarters down the abdomen. This includes the greatly enlarged occipital triangle, which almost wedges the eyes apart. Ebony triangles mark the bases of the hindwings. The female is strikingly unlike her partner, being brown with bold yellow markings. In the field, her behaviour, build and wing-marks are the only give-aways of her association with the glossy gentlemen. I was unable to witness any reproductive behaviour, although the species turned out to be quite common in Ghana. Most small rivers with calm sections and plenty of sun were bejewelled with their presence. The male's glowing lustre fades on death, turning to sallow blue enamel. But the relic remains an eye-catcher, even when it is no longer a stunning sapphire, shimmering in the sun.

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An Abiding Magical Moment — *Rhyothemis fenestrina* Rambur, 1842 - Phillip S. Corbet

Some experiences with dragonflies remain in the memory, undimmed for decades, as a source of delight and inspiration.

On the morning of 3 September 1957, while employed in Uganda as a medical entomologist, I visited a patch of montane rain forest at Katabi with a colleague to test a net designed to catch mosquitoes resting near the ground. It was very hot as we worked in a clearing beside a huge *Piptadenia* tree which dominated the scene. Our mosquito net was a success, but this is not what I remember so vividly about that morning.

We were treated to a spectacle of arresting beauty in the clearing, as more than a hundred immature adults of the delicate rhyothemine libellulid *Rhyothemis fenestrina* soared and fluttered in aggregations from 3 to 10 metres above the ground. Species of this genus have a greatly enlarged anal area in the hind wing, enabling adults to float with consummate ease on currents of rising air; and this is what these dragonflies were doing, meanwhile foraging on small flying insects.

The specific name *fenestrina* alludes to window-like translucent patches that decorate the otherwise dark wings. These patches, combined with the reflective texture of the wings of immature adults, made each dragonfly glisten as it fluttered and glided in the sunlit clearing.

I witnessed such flights of *R. fenestrina* on other occasions afterwards, but none retained such a special place in my memory as that first magical experience at Katabi.



Photo by Jill Silsby

Mock Emerald — *Olpogastra lugubris* Karsch, 1895 - Viola Clausnitzer

During the European Regional Meeting in Darmstadt Jill Silsby confronted us with the idea of writing something on the subject of "my most beautiful odonate" for AGRION.

Well, she writes in the July edition of Agrion that it might be difficult to make a choice. It is not only the difficulty of choosing between dozens of "most beautiful ones", but also of determining the influence of memories, nice occasions, emotions, etc. on one's decision. The first capture of a rare or strange (but not necessarily most beautiful) dragonfly might have a top position. There are different reasons to insist, why a special species is called "most beautiful". As a child I always insisted that the Marabou Stork is the most beautiful bird on earth - simply because I felt so sorry for the poor fellow, which always got the label "ugly" or even "most ugly" whenever spotted.

Back to dragonflies: my immediate choice of the most beautiful dragonfly in Darmstadt was *Olpogastra lugubris*. First of all I like the name - *Olpogastra lugubris* - which always sounded a bit mysterious to me, even before knowing the species itself. Further the thoracic marking of



Photo by Jill Silsby

this species is very special: citron yellow leopard-like spots on metallic green (no stripes, as is more usual). This colouring, in conjunction with the swollen basal segments and the wasp-tail like constriction from the 3rd abdominal segment (which is close to being ridiculous), the slightly curved down abdomen together with size and behaviour make *Olpogastra lugubris* an extraordinary dragonfly. (It should be mentioned as well, that I had just returned from **Kenya**, where I had a good time with dragonflies in coastal rain forest - and the river, where *Olpogastra lugubris* was common, was a very beautiful spot as well.)

All together *Olpogastra lugubris* is a striking dragonfly, which, in my opinion, deserves the honour of being called "most beautiful". Well, I was sure about my choice, until Klaas-Douwe Dijkstra showed a slide of *Cyanothemis simpsoni*.

EUROPE

Sympetrum sinaiticum Dumont, 1977 - Reinhard Jödicke

My favourite dragonfly is *Sympetrum sinaiticum*. You may argue, it is simply a *Sympetrum* and that is so BUT, to me, it is a very special one which makes it most beautiful. Can you imagine a situation in which a European odonatist collects a dragonfly species in Europe which, for two long weeks, remains unidentifiable? This happened to me when I recently made a trip into **Spain**. Although well equipped with a microscope and all European classification keys, the problem continued to haunt me until the thought crossed my mind that it might be a subspecies of the Asiatic and North African *S. decoloratum*.

The next surprise evidenced itself when I made a visit to the Brussels museum and compared my Spanish material with the types in the Selysian collection: I found there was no comparison! SO I started an extensive investigation of museum material and literature which helped clarify the taxonomic and nomenclatural features of a group of different *Sympetrum* taxa, all of which are extremely similar to each other. One species out of this group was my Spanish *S. sinaiticum*! In museums I studied conspecific material collected in northern Africa and northwestern Arabia and, in Spain, I studied the exuvia, phenology, habitat requirements and reproductive behaviour.

Maybe, my attachment to *sinaiticum* would have been only a short episode, as short as my period in Spain, if an opportunity had not presented itself to study dragonflies in **Tunisia**. In this fascinating country *S. sinaiticum* is confined to the northern edge of the Sahara where we rediscovered the population in the famous Tozeur oasis. I made only a few one-day visits to Tozeur, but this was sufficient to give evidence for an interesting seasonality: emergence in early May and oviposition not before early October, but continuing at least until March. Thus *S. sinaiticum* has an extremely long adult life span in northern Africa. It survives the long, hot summer by means of an adult aestivation which lasts about six months. In the summer season the species was recorded in the desert, far away from any oases.

It is crazy, but I pine to see this dragonfly again. Now October is here and it is a good time of year to return to southern Spain and take some photos of my beautiful insect. I have to look for flight tickets.

Ischnura elegans (Vander Linden, 1820 - Mike Parr

Beauty, of course, means all things to all men (and women) and, in the case of dragonflies, it can refer to behaviour as well as colour, pattern and form. Quite often the commonest species of insects are incredibly attractive but tend to be overlooked and neglected in favour of rare species. The common butterfly known as the Peacock (*Inachis io*) in Britain would be raved over if it were scarce, and there are many other similar examples.

My choice of the ubiquitous *Ischnura elegans* as the most beautiful dragonfly is undoubtedly coloured by my first early study of this species in **1964**. A mark-recapture study revealed to me for the first time the astonishing range of colours and patterns displayed by this *Ischnura*, which reflect sexual differences, female polymorphism and aging. The main thoracic colour of the male changes as an individual matures from brilliant apple-green to blue green and finally to turquoise, always with a metallic black abdomen bearing a sky-blue 8th segment. The tri-morphic females exhibit a bewildering range of greens, pink, orange, blue, violet and browns, with black markings. Young adults marked one day, when seen the next may have undergone a dramatic colour change as they progress towards to sexual maturity. Furthermore, this species is 'beautifully' different from many other species, females spend much time close to the water, oviposit alone and may show considerable aggression to other conspecific individuals, both males and females. So the next time you have an opportunity to examine this species (and other *Ischnuras*) look at it closely. Small can be beautiful.

Notes on a sighting of *Lindenia tetraphylla* (Vander Linden) by Lake Volvi, Greece in July 2000

Mark H. Champion (communicated by **Philip S. Corbet**)

On 17 July **2000** at about 14.00 h Local Time (close to noon Solar Time), while returning from a bird-watching and general holiday in **Greece**, I stopped at Lake Volvi (39.18N, 22.15E) some 50 km east of Thessalonika. At a small village, Loutra Volvis, a network of dusty tracks led to the water's edge. In an area recommended for bird watching I stopped. While watching species of Shrike and Scrub warbler in the typical scrub habitat that ran down to the lake, I spotted large numbers of a species of gomphid. The weather was very warm and sunny (shade temperature ca 34°C) as it had been for several weeks previously, with a slight breeze. It was at the time of extensive fires in west-central Greece and Albania.

It soon became apparent that the gomphids were *Lindenia tetraphylla* (Vander Linden), identification being made relatively easy by the large foliations at the tip of the abdomen. I counted 20 of these dragonflies in an area of approximately 10 x 10 metres. Continuing my walk for about 1 km, I found that numbers were fairly constant along the track. I estimated that in the distance I had walked there were about 200 individuals of this species. All that I saw were black with broad yellowish

bands on the abdomen, indicating that they were mature. They were spending their time foraging over land about 20-50 metres from the water's edge. Occasionally an individual would alight on a small stone on the track, apparently to bask. Interaction among individuals was negligible. I did not notice any adults over the water; so probably they were not there in significant numbers.

Lake Volvi is a large freshwater lake, moderately deep at its eastern end and for the most part having a narrow reed fringe. It is part of a two-lake system involving Lake Koronia, which is much shallower and had large expanses of dry mud in July.

Mark H. Champion, 225 Poolstock Lane, Wigan, Lancs WN3 5JE

Notes added by **Philip S. Corbet**

Schorr et al. (1998) review the ecology and distribution of *Lindenia tetraphylla*, reporting seven records from Lake Volvi, more than from any other locality listed; most observations of adults cluster around July from Greece, an important area for European populations of the species. Butler (1993) found larvae in Lake Volvi. The evident maturity, and the high density of the adults seen by Mark Champion and the virtual absence of interaction is consistent with its being a foraging aggregation, although one might expect such aggregations to occur at times of day other than when reproductive activity normally takes place, which is probably close to noon (Schorr et al. 1998). Perhaps the very warm weather (interrupting reproduction near midday), or temporary availability of abundant prey, caused this behaviour. One cannot exclude the possibility that the individuals seen by Mark Champion were foraging during interrupted migration (see Schneider 1981), although they may have been residents of Lake Volvi whose reproductive activity had been suspended.

References cited: Butler, S. (1993). *Kimminsia* 4(1): 6.

Schneider, W. (1981). *Entomologische Zeitschrift* 91: 97-102.

Schorr, M., Schneider, W. & Dumont, H.J. (1998). *International Journal of Odonatology* 1(1): 65-88.

UBIQUE

Favorite Dragonflies in Thailand and the USA - Roy Beckemeyer

Having just this year (2000) completed my first trip to Asia by spending part of January and February in **Thailand**, I thought that I should choose a favorite odonate from that exotic locale as well as one from the good old USA. Thailand has long been on the list of places we want to see that my wife and I keep. We love Thai food, and have had the good fortune to have lived briefly in Seattle, where there seems to be a Thai restaurant on every corner. In our home city of Wichita, Kansas, the Thai restaurants are not as numerous, but every fall for many years, the Asian community in the city has held an "Asian Festival" at which folks from nearly every Asian country are represented. There are booths featuring home-cooked food and Thai and Malaysian foods are always prominently displayed. As it turned out, we found Thailand delightful in all aspects including food, pleasant and friendly people, wonderful architecture, and the scenery and wildlife.

As you can undoubtedly tell, it is difficult for me to keep this discussion on the subject of dragonflies (I haven't even begun to talk about the incredible birds, mammals, and butterflies that we saw) but I guess I will have to try. I am unable to choose one odonate as my favorite, so will list a pair of them for Thailand (one Anisoptera and one Zygoptera). Both are widespread Asian species rather than Thailand endemics.

I knew from the beginning that my trip would be a success odonatologically if I saw *Neurobasis chinensis*. I have been fascinated with this calopterygid ever since seeing it pictured on the frontispiece of Tillyard's "Biology of Dragonflies". My first and only attempt at depicting an odonate in stained glass is of this species (the panel is hanging in the window of the office where I am typing this). I know the species, having been described by Linnaeus, is common, widespread and well-known, but it is an incredible sight to see its hindwings flashing that marvelous green colour like a spotlight. Breathtaking the first time one sees it and, for me, every time thereafter as well!

My favorite anisopteran from Thailand is another common species, but one that also makes you gasp with delight the first time you get it in focus in a pair of binoculars: the shockingly pink and red libellulid *Trithemis aurora*. Not satisfied with having a fluorescent pink abdomen and RED, RED eyes, its wings are highlighted with a deep red basal patch set off by red



Neurobasis chinensis

Photo by Jill Silsby



Trithemis aurora

Photo by Jill Silsby

veins. Even the hard-core birding twitchers on the trip with us would take their binocs off the birds for a while to get a close-up look at this incredible bug.

I have a lot of species of Nearctic odonates that I hold special in some way, so this was even more difficult than choosing favorites from Thailand, but I finally chose one: *Progomphus obscurus*. It is certainly not one of the prettiest gomphids, not the rarest, not the naggiest; it is actually just one of many species in the family but it is special to me mostly because it was the first odonate I knew by its binomial name. Way back in 1978, I was taking a course in "River Ecology". At the time I was quite interested in trout fishing, which led to aquatic insects, and I was actively collecting and learning to identify mayflies, caddis flies, stone flies, and other miscellaneous orders - the latter category including odonates. In the process of collecting, I scooped up a bucket of sand from the **Arkansas River** which flows near our home, and dumped it into an aquarium. A couple of months later a number of *P. obscurus* larvae crawled from the water and emerged. These were the first dragonflies I had seen emerge from their exuviae, and the first I had associated with their larvae and identified to species. Several of the larvae, exuviae, and adults ended up in my insect collection, and are now the oldest specimens in my odonate collection. So I guess I could say this species is my favorite because it is my oldest odonate acquaintance

***Rhinocypha aurofulgens* Laidlaw, 1931 & others from Australis, New Guinea, Africa & Sulawesi**

A.G. (Bert) Orr

When I was five years old, my most beautiful odonate was *Diphlebia lestoides*. I lived on a dairy farm in **Queensland** - 176 acres of crumpled hills green with kikiyu grass and dark clumps of remnant rainforest. A quarter mile below the house ran a little creek, already bubbling and gurgling a few hundred yards from its marshy source just beyond our boundary. There were whirlygigs, water striders, wild ducks and an impressive rocky waterfall. On every pool and riffle hovered a couple of *Diphlebia*. These dark winged monsters with bodies of brightest caerulean blue were the helicopters of my childish imagination, where in dreamy war games they lorded over the fleet of of gyrinids, notonectids and nepids below. If sentiment alone were the gauge of beauty I don't doubt that *Diphlebia* would remain my favourite. But in 1971 I travelled to **New Guinea** collecting Lepidoptera, truly gorgeous Lepidoptera, great birdwings and gaudy jezabels. Significantly, I returned with two odonates - *Neurobasis australis* and the bright blue *Rhinocypha tincta*. Later expeditions produced similar results; from **Africa** I returned with *Pachycypha calligata*; from **Sulawesi** with *Neurobasis kaupi* and *Rhinocypha frontalis*. By the time I reached **Brunei** in 1990 to take up a post as lecturer in biology my passion for the Calopteroidea, particularly chlorocyphids, was well primed.

In the small enclave of Temburong, the Universiti Brunei Darussalam maintains a field station deep in pristine forest on the banks of the Sungei Belalong. The station is reached by an hour's journey by longboat. The forest is perhaps the grandest in the world, and the trip upstream under giant overhanging trees dripping with liverworts and ferns, up rapids and over cobbled shallows is magical. When the water is low every fallen log is adorned by *Euphaea impar* flashing their blue-green wings in the sun. Brilliant green *Neurobasis chinensis* dance over the water, and mysterious Anisoptera appear and vanish unrecognized. In the primary forest around the station fifty species of Odonata have been recorded, including seven species of chlorocyphids which sit on fallen trees in the shallow rapids where they fight, court, mate and oviposit, sometimes spending their entire life on a single log.

Chlorocyphids come in many patterns. Some are quite plain, others as gorgeously decorated as a piece of Faubergé jewellery. In many, the males have an intriguing courtship dance during which they swing back and forth like a pendulum, flashing their white legs at the perched and frequently preoccupied female. In others, the wings bear brilliant metallic flashes which appear to have a semiotic function in aggression and courtship. Choosing a favourite is not easy but, if I try to single out a particularly engaging creature, my imagination always fixes on the brilliant metallic winged *Rhinocypha* endemic to Borneo.

This leaves two species: *R. aurofulgens* and *R. cucculata*. *Cucculata* is a particularly ornate creature with bright lateral blue streaks on the abdomen and a violet dorsal mark on its tail. Its wings underneath bear the most brilliant metallic subapical greenish copper patches, and its dilated legs are pale powder blue. It is most often seen in territorial disputes where it cocks up the apex of its abdomen displaying the violet flag and flashes its wings at its opponent. The two males ascend slowly head to head breaking off and returning to repeat the performance time and again. Courtship is a vigorous, chaotic affair of flashing legs and wings in a crazy parody of the tidy, regular pendulum dance of other chlorocyphids. *R. aurofulgens* is made on similar, but less extravagant lines. The flattened abdomen is pure cerulean blue above, the wings tipped with metallic patches of shimmering golden orange. Unusually, the legs are quite black, and the face is half encircled by a U-shaped blue band like a huge clownish grin. The territorial contests of *aurofulgens* are just as in *cucculata*, with abdomen cocked, and in the sunlight the orange flashes of the wings are visible from 100 yards away. But courtship is quite different. *Aurofulgens* has abandoned the pendulum dance altogether. Instead, having discovered a female ovipositing at the water's edge on a fallen log, the male lands directly in front of her. He then displays, first fluttering his forewings and bringing them forward, then the hindwings. At the highest pitch of intensity he lifts his brilliant blue abdomen and gathers both wings forward in a fan, quivering them in a shimmering orange peacock-like display. If the female remains quiescent throughout this performance he mounts her immediately. If not the process is repeated until the female acquiesces or flies away. *R. aurofulgens* is a commoner species than *cucculata*, but the sight of the males of either species facing one another and describing copper patterns in the sunlight as they rise and descend over the water in the still reaches or backwaters against the deep green of the forest is mesmerizingly beautiful. To choose between the two is indeed difficult, but I confess to a preference for *aurofulgens*, mainly because the novelty and elegance of its energy-saving courtship display give it a special appeal. CRC TREM,

ENS, Griffith University, Nathan, Q4111, AUSTRALIA - [Email](mailto:bert@griffith.edu.au)

SWEDISH WDA SYMPOSIUM

A reminder that the 2nd WDA Odonatological Symposium is being held in Gällivare, Sweden beginning on July 21st. Full details can be found on the [Symposium Website](#)

Registration forms can be downloaded from this site and should be in the hands of the Organisers by the end of March.

Those desiring to attend but who are unable to access the internet should write directly to

Dr Goeran Sahlen, Dept. of Systematic Zoology, Evolutionary Biology Centre, Norbyvagan 9, S-75236

A BIG WELCOME AWAITS EVERY PARTICIPANT

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REVIEWS

All about Dragonflies. Kiyoshi Inoue & Kôzô Tani 2000. Revised edition. In Japanese; English headings and subheadings. Tombow Publishing Co., Osaka, Japan. 168 pp. ISBN 4-88716-112-3 C0645. Retail price ¥3600 plus overseas postage by Printed Matter Air Mail ¥1400. Copies obtainable from the first author at 5-9, Fuminosata 4-chome, Abeno-ku, Osaka 545-0004, Japan, or by [Email](#). Payment acceptable only by International Postal Money Order.

The value of this notice is limited by my lack of familiarity with the Japanese language. Fortunately the authors have provided English equivalents to headings and subheadings throughout, thus allowing English-speaking readers to obtain information and much added pleasure from this beautiful and elegant book.

After a list of contents and an introductory notice come 15 short chapters, each lavishly furnished with photographs, mainly in colour, and many containing tables and line drawings. The arrangement of subject matter is both ecological and systematic. After the first two chapters, which treat water quality of habitats and Odonata on a world basis, three chapters, occupying about a third of the book, present all species of Japanese dragonflies under three main categories – species in standing waters, running waters and brackish waters. Each of the first two categories is divided into habitat types, such as (for running waters) headwaters, trickles, upper reaches and so on. The species characteristic of each habitat type are illustrated, as adult and usually as larva, and briefly described. The grouping of species under habitat types, which are also beautifully illustrated, constitutes a major strength of the book.

Other chapters treat life cycles, in which various categories of voltinism and their exponents are distinguished, conservation and human impact, dragonfly behaviour, captive rearing, collecting and preserving specimens, and identification. The pictorial keys for identification are distinctly user-friendly and unlikely to daunt even the most timid of odonatologists. A chapter which I found a very welcome feature of the revised edition is the one describing the families of Odonata (on a world basis) in which a distribution map for each family is accompanied by a brief account which cites a few representative genera or species. The book ends with a chapter listing museums, insectaria, literature and research groups and societies, and two more indexes, added in the revised edition, to scientific and Japanese names.

Japanese odonatologists are favoured with a dragonfly fauna of exceptional size and variety. Their good fortune has now been greatly enhanced by the availability of this splendid book, which will enable them to identify what they see and to

place their observations in ecological perspective. And, as for non-odonatologists, they will be in danger of losing that status once they have this book in their hands!

Philip Corbet.

Dragonflies of the Natal Drakensberg. Michael J. Samways & Gael Whiteley. 1997. Ukhahlamba Series No. 6. This little book, with its 32 colour photos, many excellent line drawings and exceptionally clear and concise text is a must for anyone travelling in southern Africa, particularly those who succeed in getting above 1500ft in the beautiful Natal Drakensberg. The price is Rand 45 (a mere **£4.50**) and it can be ordered from:

The University of Natal Press, P/Bag X01, Scottsville 3209, South Africa. ([Email](#))

"New" odonatological journal from Japan - Martin Schorr

Anyone interested in Japanese odonatology profits from the journal TOMBO. Reading the Odonatological Abstracts in Odonatologica it is clear that there are other journals in which odontologists publish the result of their studies or observations. Regrettably in most cases these publications are written in Japanese, a language not common to most of us and the papers are published in journals that are not available in any of the western libraries.

Therefore I was more than surprised to get information on an English written journal on Japanese odonatology that covers these small, scattered publications on dragonflies. In March 2000 number 10 of the "Digest of Japanese Odonatological Short Communications" was released, with translations of a lot of small, but not at all minor papers on Odonata. Those interested in this more than welcome journal should contact:

Naoya Ishizawa, 1644-15, Yamaguchi, Tokorozawa City, Saitama Pref., 359-1145, Japan

Terence de Fonseka - Nahil de Fonseka

Terence was born on 6th September 1919 in Kalutara, Sri Lanka, and was the second in a family of six children. His birthplace was called "Palm Beach" which is situated about 25 miles south of Colombo, by the sea. His father was an advocate in the legal profession. He was educated at St. Peter's College, Colombo and University of Colombo, where he obtained a degree in Zoology. He joined the Ceylon Civil Service in 1945 and retired in the 1970's. He emigrated to England in the 1970's and worked in the Department of Health until 1984.

He had been interested in dragonflies as long as I can remember; this means that it is at least from the 60's. I used to accompany him in Sri Lanka, when he went to the countryside to take photographs of dragonflies. Sadly he died before he was able to see the final version of his book "Dragonflies of Sri Lanka".

His interests included reading, particularly about science and relativity, computers, music and playing the piano; he loved to tend his small garden in Finchley, delighting in growing all manner of fruits and flowers and was particularly proud of his orchid collection.

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WDA has its roots in Slovenia, but its branches spread all over the world. Our membership, as we go to print, is 243 and we have members in 33 countries.