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# THE DRAGONFLY SOCIETY OF THE AMERICAS

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## JOURNALS PUBLISHED BY THE SOCIETY

**ARGIA**, the quarterly news journal of the **DSA**, is devoted to non-technical papers and news items relating to nearly every aspect of the study of Odonata and the people who are interested in them. The editor especially welcomes reports of studies in progress, news of forthcoming meetings, commentaries on species, habitat conservation, noteworthy occurrences, personal news items, accounts of meetings and collecting trips, and reviews of technical and non-technical publications. Articles for publication in **ARGIA** should preferably be submitted as hard copy and (if over 500 words) also on floppy disk (3.5" or 5.25"). The editor prefers MS DOS based files, preferably written in WORD, WORD for WINDOWS, WordPerfect, or WordStar. Macintosh WORD disks can be handled. All files should be submitted **unformatted and without paragraph indents**. Each submission should be accompanied by a text (=ASCII) file. Other languages should be submitted only as text (=ASCII) files. Line drawings are acceptable as illustrations.

T. Donnelly (address below) is the interim editor of **ARGIA**.

**BULLETIN OF AMERICAN ODONATOLOGY** is devoted to studies of Odonata of the New World. This journal considers a wide range of topics for publication, including faunal synopses, behavioral studies, ecological studies, etc. The **BAO** publishes taxonomic studies but will not consider the publication of new names at any taxonomic level. Enquiries and submission of manuscripts should be made to **BAO** editor T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. Final submissions (after review) should be made on floppy disk, as above, with illustrations in final form and preferably adjusted to final size.

## MEMBERSHIP IN THE DRAGONFLY SOCIETY OF THE AMERICAS

Membership in the **DSA** is open to any person in any country. Dues for individuals in the US, Canada, or Latin America are \$15 for regular membership and \$20 for contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are \$20. **ARGIA** is mailed Air Mail outside of the US and Mexico, and First Class in those countries.

The **BULLETIN OF AMERICAN ODONATOLOGY** is available by a separate subscription at \$15 for members and \$18.75 for non-members and institutions.

Cover: *Nannothemis bella*, drawing by Rosser Garrison

# ARGIA - The News Journal of the D.S.A.

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## IN THIS ISSUE

Mid winter is the time to organize field notes, label and catalog specimens, sort and store color slides, and recall wistfully the warmer days of summer when you stood by the edge of the pond and simply absorbed the presence of all those dragonflies. Each season has its special highlights, and we could consider having a "Bug of the Year" (with no apologies to Time magazine). If we were to do this, there is no doubt that this year's bug would be (the envelope, please) *Somatochlora*! Taa-daa! But, you ask, which *Somatochlora*? At least three species have figured large this year. Listing them by date of discovery, we have first the find by Wayne Steffens of *Somatochlora hineana* in the upper Peninsula of Michigan - and nearly at the eastern end of the peninsula at that. This is a considerable range extension and a bright note for a species thought by some to be going down the tubes. The second find was *Somatochlora georgina* in Massachusetts, found to nobody's surprise by the Massachusetts gang. The third was the find by Jim Edsall of *Somatochlora brevicincta* in New Brunswick, followed by the discovery of specimens of this species from an older collection on Cape Breton Island.

We report the death of Robert Alrutz following a long illness. He will be remembered fondly by many of our members.

We note that long before the wings flutter, the Ohio people are meeting in late March. The southeastern gang will meet in May and bring snow or a tornado to some unlucky town in northern Georgia. Only kidding, guys. We haven't scheduled a northeastern meeting yet, but the ADIP meeting will be in New Brunswick in August, date to be determined later. Keep posted.

A reminder: Don't forget to book for the July Valentine meeting. This is a popular place for tourists!

Paul Novak gives an account of our last year's northeastern meeting, which featured mucho gomphid exuviae and some neat bog bugs.

The matter of two international odonatological organizations has still not been fully clarified. There are indeed two groups, and many of my associates will be members of both. Mike May addresses some of the problem as he sees it, and I append a brief appeal from Jill Silsby for members for the World Dragonfly Association.

In the first year of **ARGIA** we attempted a more or less formal Season Summary to appear in mid winter and to summarize good finds, and results in general for the past year. The volume of interesting news, and the fact that it comes in throughout the year, has made a single summary inappropriate, but the mid-winter issue always has the bulk of this news for the year. The three *Somatochlora* stories are all given; Roy Beckemeyer summarizes his vigorous activities out on the plains, where the bugs fly right behind the rain; Dennis Paulson gives some information from Maine and Idaho; Mark O'Brien adds *Stylurus spiniceps* to the Michigan list and with the other hand removes *Somatochlora tenebrosa* (we forgive him for this because he replaces it with yet another *hineana*!); Jeff Cole recounts how he found *Argia lacrimans* in the same place that I didn't find it; and Blair Nikula tells of the discovery of *Neoneura amelia* in Texas - the third protoneurid species for the U.S.

There is really interesting news from three regularly appearing newsletters; The Ohio Dragonflyer, Ode News, and Williamsonia. I select some items from each of these; you northeasterners would all do well to subscribe to them yourselves.

We have three longer stories about foreign trips. Ken Tennesen of the Rat Pack (Los Ratos) tells of the fourth Ecuador jaunt. Ailsa and I went along this time and add a short account of our post-trip jaunt to a jungle lodge. Dennis Paulson took the most ambitious trip described in this issue - to Africa, where one sees wondrous animals and dragonflies together.

There are some shorter items, including a query by Matt Holder regarding the habits of *Lestes forcipatus*. Any *forcipatus* mavens out there?

Roy tells us of his discover of the wonders of GPS, to which I give a hearty endorsement. John Trevino has used libellulid larvae in Texas as an index of degradation of ponds. I am sure this last item will provoke some interest, and I am certain we will see more of this sort of thing.

We have a few book reviews, an update on the activities of IORI (run by Gainesville's Real Estate Man of the Year!), and a poem. We close with TRAMEA, Jackie Sones's very useful guide to surfing for bugs. If you are not wired, you should be. Cheers!

### SHORT BITS

From Ottawa comes the news that Paul Catling is working on a manual of Odonata of Ontario. Following the new Quebec book by Pilon (which I have not yet seen), this will give the growing body of enthusiasts of eastern Canada, as well as the northeastern United States, superb coverage.

Oliver Flint tells me that he has copies of the SMITHSONIAN July 1996 issue (the dragonfly article by Richard Conniff). Anyone want one? First come. . .

Steve Roble has sent me a copy of his "New distributional records for rare and uncommon Odonata in Virginia", *Banisteria*, No. 9, 1997, 33-42, with many new and interesting records from Virginia. These include *Enallagma pallidum* from the Dismal Swamp (not seen for 60 years!), and the news that *Ischnura prognata* is now found at several sites.

John Abbott's "Aquatic insects of the Big Thicket region of East Texas" (Texas Jour. Sci. 49(3) supplement: 35-50) lists 111 species of Odonata in a fairly small region of East Texas.

### ROBERT ALRUTZ 1921-1997

It is sad to report the death of Bob Alrutz after a protracted illness on 14 October of this year. Bob lived in Granville, close to Denison University, where he taught for many years. Bob drew many students into a love for insects, and especially Odonata. He was also noted for his use of dragonflies in field projects for high-school students.

### ANNUAL MEETING OF THE OHIO ODONATA SOCIETY (OOS)

Saturday, March 28, 1998 will be the annual meeting of OOS, to be held at the Museum of Biological Diversity, OSU campus, Columbus, Ohio from 9:00 to 3 or 4 P.M.. A short business meeting will be followed by various presentations - some set, others still in the works.

For directions or other information, please contact Bob Glotzhofer, as listed below. The OOS January newsletter should be out by the 2nd week of January, and will contain more particulars. OOS is an organization for professionals and amateurs which is an outgrowth of the Ohio Odonata Survey. It is open to anyone interested, but is especially applicable to Ohio and adjacent states to those concerned about dragonflies, damselflies, their distribution, biology, ecology, and conservation; as well as wetland and river topics that relate to the above. Membership is \$5/year (\$10/year Sustaining) which includes voting privileges and 3 (maybe 4) issues of the newsletter. Send checks payable to the: "Ohio Odonata Society" and mail to:

Carmen Trisler, OOS Treasurer  
Wittenburg University P.O. Box 720  
Springfield, OH 45501-0720

### SPRING SOUTHEASTERN MEETING - GEORGIA ON MY MIND

#### e-mail from Ken Tennessen

"Steve Krotzer is helping me organize the southeastern meeting. We talked recently and decided that we need to be flexible on the weekend of the meeting depending on the type of spring weather. The *Ophiogomphus edmundo* I reared 2 years ago emerged in the lab in the middle of April, after I had them inside for only about one week. Therefore we think that if we have a rather normal or warm spring, a good time for the meeting would be the weekend of May 8-10. If the spring is delayed and cool, it would be better to have the meeting later in May, perhaps the weekend of May 16 or May 23. We would contact those who indicate they will attend a

month or so before the meeting and give them the exact date.

"As for where we will stay, Steve thinks the town of Chatsworth would be best, as this is only about 30 min from the Conasauga River and has motels and eating places. We will have details for the next ARGIA."

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### THE NORTHEASTERN D.S.A. MEETING VERMONT / NEW YORK, JUNE 21-22, 1997

Paul Novak

Some of you may have been looking for a summary of the northeastern field meeting in the fall issue. I was late in preparing it, but here it is, better late than never.

The meeting was held the weekend of June 21-22 and most stayed at the Edgewater Inn in Bomoseen, Vermont. We had a good turnout and the weather was pretty decent. Nick and Ailsa Donnelly, Paul-Michael Brunelle, Allen Barlow, Richard Orr (despite major car trouble), Blair Nikula, Jackie Sones, Jeremiah Trimble, Mark Gretch, Bob Barber, Don Miller, Michael Veit, Chris Fichtel, Steve Parren, Mark Ferguson, Mary Droege, Maria Trabka, and myself.

The Poultney River, which forms the boundary between Vermont and New York was the main area of emphasis on Saturday. We split into three groups to cover the river more thoroughly. Five different stretches along the river were covered and a total list of 36 species was tallied. Although many of the species observed are more typically associated with marshes and ponds (of which there are many adjacent and nearby the river), typical river/ stream species recorded included *Calopteryx aquabilis* and *C. maculata*, *Argia fumipennis violacea* and *A. moesta*, *Enallagma exsulans*, *Dromogomphus spinosus*, *Macromia illinoensis*, *Basiaeschna janata*, *Ophiogomphus carolus* (exuvia only), *O. aspersus* (exuvia only), *Gomphus adelphus* (?; exuvia only) and *Gomphus descriptus* (exuvia only). Probably the best find on the river itself was *Gomphus quadricolor*, with adults seen in 3 places (exuvia were collected in two of the same places).

Two groups visited a nice bog/ fen area owned by the State of Vermont along Perch Pond Road in the late afternoon and were rewarded with *Somatochlora walshii*, *Dorocordulia libera*, *Cordulia shurtleffi*, *Leucorrhinia frigida*, *L. proxima*, *L. hudsonica*, *Aeshna canadensis*, *Arigomphus furcifer*, and *Gomphus borealis*.

Many of us spent some time in the lawn chairs at the edge of Lake Bomoseen right at the Edgewater in the evening, but the *Neurocordulia yamaskanensis* observed by Richard Orr on Friday evening did not reappear. A few *Arigomphus furcifer*, *Epitheca cynosura* and *Didymops transversa* did provide for a little net swinging however.

Sunday turned out to be pretty much just a travel day (after a large breakfast with much enjoyable conversation) as Paul Brunelle headed south with the Donnellys to Binghamton, and the Massachusetts contingent headed east. A few of us made a mid-morning visit to The Nature Conservancy's Shaw Mountain Natural Area where we recorded 18 species including *Lestes dryas* (new for the weekend), *Chromagrion conditum*, *Coenagrion resolutum*, *Enallagma ebrium* and *E. hageni*, *Leucorrhinia frigida*, *L. proxima*, and *Dorocordulia libera*, among others, before we also started for home.

Many thanks to Steve Parren and Mark Ferguson of Vermont Fish and Wildlife for helping us obtain the necessary Vermont permit and to Chris Fichtel, Mary Droege and Maria Trabka of The Nature Conservancy for guiding us and helping with other logistics. And thanks to all for joining us as well.

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### INTERNATIONAL ODONATOLOGY: PARTICIPATION AND PEACEFUL COEXISTENCE

Mike May

[The following is modified slightly from an email message that I sent a few weeks ago to a number of odonatological colleagues. Therefore, to those of you who have already heard all this, my apologies, and I invite you to skip quickly on.]

Undoubtedly by now nearly everyone interested in Odonata is aware of the split in SIO and the emergence of two separate international societies to promote the conservation and study of dragonflies - the International Odonata Foundation - SIO (IOFSIO) and the Worldwide Dragonfly Association (WDA). Because I've been hooked on odonates ever since Minter first showed me those *Ischnura*, and because I've been active in the SIO for quite a few years and in some of the controversies that have shaken it for the last 10, I've thought quite a lot about the implications of these changes and how to respond to them. I wanted to share some of my thoughts with you, because I think it's important that each of us who do care about dragonflies make some considered response to the situation and not just shrug our shoulders and let events take their course.

Over the past 25+ years the SIO has had an important and very positive impact on worldwide understanding of and interest in dragonflies. As you will see below, I am not unreserved supporter of either IOFSIO (this is my designation - I'm not completely clear about what acronym the organization now officially uses) or of SIO as it has been in recent years, but I certainly am a supporter of the idea that an international organization or organizations continue to have an essential role to play in odonatology and preservation of odonate species and habitats. For that reason I'm especially anxious that we in the Americas not abandon individual participation in one or both of these international societies.

Many of you probably have some knowledge of and opinion about the sequence of events that led to the current state of affairs. Suffice it to say that it has been a result in part of conflicts of personalities, but also a consequence of profound differences of opinion about how an international society should be organized, how its business should be conducted and how disagreements and disputes, if they arise, should be resolved; this is what I have in mind in referring, below, to "alternative organizational philosophies". Also part of the mix has been dissatisfaction in some quarters with the cost and with certain editorial policies of ODONATOLOGICA.

I personally find myself pretty firmly in the camp favoring the organizational philosophy of the WDA, which I perceive as being more

committed to operating by agreed on rules (i.e., a constitution) that are, nevertheless, to be implemented in a more democratic way with more adequate opportunity for expression of varied opinions on procedural, editorial, and other societal matters. I have been seriously concerned, though, about the possibility that a "political" split in the international community would be seriously damaging to the science and maybe to the future of the insects. I think I have largely resolved these doubts in my own mind, and managed, I hope, to articulate that resolution in a letter to Bastiaan Kiauta, which is excerpted below.

"I have, of course, followed with concern the recent developments resulting in and following the breakup of SIO. Initially I was inclined to view this disintegration as a serious, and even tragic, outcome for odonatology and possibly for Odonata. If the result is a weakening of international interest in the insects and of interchange among the people, it will be indeed. However, I have more recently seen that good might come of it if two viable societies emerge. They do, after all, provide alternative organizational philosophies, each of which may be ... more compatible with the preferences and beliefs of some odonatologists. Both sides of what has become an acrimonious and apparently unresolvable debate may now have a more comfortable "home". If the WDA and the SIO-Foundation can find it within themselves to avoid antagonism, and indeed to foster cooperation in the many areas in which they must fundamentally agree, then the split may prove beneficial.

"For myself, it is clear that the philosophy with which I am more comfortable is that of the WDA, and it is therefore in that society that I expect to be an active participant for the foreseeable future. I do wish to retain my membership in the SIO-Foundation, because I value the relationships developed over the years with its members, including you and Maryanne, and I find ODONATOLOGICA a valuable professional resource. Therefore I certainly do not harbor ill wishes for SIO-Foundation or have any wish to undermine it. I do not, however, expect I will be taking part in the governance or publications activities of the society."

I hope it is clear, then, that I do not wish to discourage anyone from belonging to or joining IOFSIO. It remains an organization with much to offer. In fact, given the real philosophical differences, I honestly think that, for the present, the best outcome would be the emergence of two strong, separate organizations that cooperate in areas of common concern but operate independently in areas where they don't see eye-to-eye. It's not in anyone's interest in the long run to make the relationship one of rivalry.

What I do urge is that each of you, regardless of your present or future affiliation with IOFSIO, give careful consideration to membership in WDA. It is a new and, admittedly, so far an unproven organization, but I believe it has a great deal to offer. It has the support and membership of a number of outstanding scientists in North America as well as in the U.K. and Europe. Although the journal, PANTALA, has not yet been published, my understanding is that everything is on track, financially and in terms of paper submissions, to begin publication early next year. Henri Dumont, who has edited a major international journal, HYDROBIOLOGIA, is Editor, and he has negotiated a very favorable agreement with a commercial academic publisher. A newsletter, AGRION, is being produced and is scheduled to appear twice a year. Fees are quite reasonable - e.g., approximately \$51 for a single 1998 membership with a journal subscription (which is optional); for 1997, or for next year without the journal, the fee is \$34. [An e-mail on 8 Jan. offers a lower rate: \$45 annually with PANTALA, \$17 without, with lower rates for students. Ed.]

#### COMMUNICATION FROM JILL SILSBY, SECRETARY FOF THE WDA

"Membership in WDA has been growing steadily since August, but in order to function most effectively, it clearly needs additional financial input and active participation. Please do join us. If you are interested and/or have questions, contact me or get in touch directly with the WDA Treasurer, Vicky McMillan (Biology Department, Colgate University, Hamilton, NY 13346; [vcmmillan@center.colgate.edu](mailto:vcmmillan@center.colgate.edu)).

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#### SOMATOCHLORA BREVICINCTA IN NEW BRUNSWICK AND NOVA SCOTIA!

Mainly from assorted e-mails from Paul Brunelle, assembled by Nick Donnelly

"Jim Edsall of Moncton netted a small *Somatochlora* on Wednesday, September 17th in a treed bog with small sphagnum-saturated pools in. . . New Brunswick." Thus began the saga. Paul determined it as *brevicineta*, a species known only from a limited region of muskeg in northern Quebec. Paul then sent me the specimen. I agreed with his determination but was troubled by two things: The hamule seemed much smaller than the hamule of a specimen I had from Quebec, and also, its apparent closest North American relative, *albicineta*, seemed to be more variable across its wide range than I had noticed before, with some the terminal appendages of some Washington and Alaska specimens approaching *brevicineta*. After conferring with Paul, I sent the specimen, along with one of my *brevicineta*, on to Tim Vogt, well known as our *Somatochlora* maven. He confirmed the determination, thus establishing *brevicineta* in another province, far from its original locality. Tim also noted that the hamule of my specimen was normal after all, but had to be carefully dissected out (deferring to the deft touch of Tim Cashatt, noted dissector of little things) for proper examination. But the story goes on.

Another e-mail: "Never rains but it pours. I had commissioned Raymond Hutchinson to confirm and catalogue a collection of Odonata from Cape Breton, made in the early 1980's by the Biosystematics Research Institute and housed at the Canadian National Collection, Ottawa. About 60% of that collection was misdetermined or undetermined. In the [specimen] cases, undetermined even to family, were four male *S. brevicincta* from the Highlands. This is slightly to the north of the New Brunswick locale and at considerably higher elevation (1500-1700 feet) so the record is not really a surprise, but it is decidedly annoying to suspect that some of the elusive green-eyed little devils that I pursued so unsuccessfully around the ponds in the Highlands might have been this species."

Thus in one swell foop, one of North America's supposedly rarest and most restricted odonates has been found to have a broad range!

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SOME          MIDWESTERN          ODONATA  
RECORDS FOR 1997

Roy Beckemeyer

On a spring trip intended primarily for watching wood warblers migrating through the Ozarks, my wife Pat and I spent a week in early May staying in an 1800's log cabin (updated with plumbing & electricity) on the banks of Clear Creek in Boone County, Arkansas. Along the creek and at a nearby farm pond there were a few odonates about. They included the following *Lestes disjunctus australis* (pair ovipositing into grasses beside the pond, 8 May), *Enallagma aspersum* (pair in tandem, 7 May), *E. civile* (7 May), *Ischnura posita* (4 May), *Gomphus lividus* (8 May), *G. ozarkensis* (Male and female taken separately on gravel bank along creek, 8 May), *Epitheca cynosura* (very aggressively defending territories at the pond, 8 May), *Erythemis simplicicollis* (tenerals in the grass at the pond, 7 May), *Libellula lydia* (common along the wooded paths and pastures, 9 May). I thought that these would be worth recording, as there were no odonate records listed at all for Boone County in Harp & Rickett, "The Dragonflies (Anisoptera) of Arkansas", 1977, Proc., Ark. Acad. Sci.

For Kansas this year, I have just a few County records to note Cowley Co., Stewart Creek. *Aeshna umbrosa* (10 Sept.); Greenwood Co., near Verdegriis River, *Epitheca costalis* (1 June); Scott Co., near Big Spring, *Enallagma basidens* (9 August); Sumner Co., Slate Creek, *Tramea lacerata* (9 July); Woodson Co., Sandy Creek, *Argia tibialis* (31 May).

Other than a species list published by Neva Pruess in 1967 (Proc. N.C. Branch, Ent. Soc. Amer., 22 112) that did not include counties of occurrence, and a brief note by Bick and Hornuff (Proc. Ent. Soc. Wash., 1972, 74(1) 1-8), there is nothing in print on the distribution of Odonata in Nebraska. I therefore felt it was appropriate to summarize some of my collecting records in the state this summer. Since Cherry County is quite large, I have listed collecting sites for species taken in that county. The sites are BC, Boardman Creek; FN, Fort Niobrara National

Wildlife Refuge; JVF, Nature Conservancy's Jumbo Valley Fen; SFSP, Smith Falls State Park; VCP, Valentine City Park; VFH, Valentine Fish Hatchery;) All collections were made between 10 and 18 August, 1997.

*Calopteryx maculata* (Cherry Co., BC, JVF, SFSP; Keith Co. Keya Paha Co.); *C. aequabilis* (Cherry Co., BC, JVF); *Hetaerina americana* (Cherry Co., BC, FN, SFSP; Keith Co.); *Lestes rectangularis* (Cherry Co., VFH.); *L. unguiculatus* (Cherry Co., JVF, SFSP; Grant Co. Keya Paha Co.); *Argia apicalis* (Brown Co., Cherry Co., SFSP); *A. emma* (Cherry Co., BC, SFSP); *A. fumipennis violacea* (Brown Co., Cherry Co., BC); *A. moesta* (Chase Co.; Cherry Co., BC); *A. plana* (Keith Co.); *Enallagma anna* (Keith Co.; Keyapaha Co.); *E. carunculatum* (Brown Co.; Chase Co.; Cherry Co., BC, JVF, VFH; Grant Co.; Keith Co.); *E. civile* (Brown Co.; Chase Co.; Cherry Co., BC, FN, VFH; Grant Co.; Keyapaha Co.); *Ischnura verticalis* (Brown Co.; Chase Co.; Cherry Co., BC, FN, JVF, VFH; Keith Co.; Keya Paha Co.); *Aeshna canadensis* (Cherry Co., BC; Keya Paha Co.); *A. constricta* (Cherry Co., SFSP); *A. interrupta lineata* (Cherry Co., VCP); *A. multicolor* (Cherry Co., SFSP); *A. umbrosa* (Cherry Co., BC, JV,F); *Anax junius* (Cherry Co., JVF, SFSP, VFH); *Boyeria vinosa* (Cherry Co., VCP; Keya Paha Co.); *Ophiogomphus severus* (Brown Co., Cherry Co., BC, FN, VFH); *Stylurus intricatus* (Cherry Co., SFSP); *Somatochlora ensigera* (Cherry Co., BC; State Record); *Erythemis simplicicollis* (Cherry Co., FN); *Libellula luctuosa* (Brown Co.; Cherry Co., FN; Keya Paha Co.); *L. pulchella* (Cherry Co., JVF); *Pachydiplax longipennis* (Cherry Co., FN); *Sympetrum corruptum* (Cherry Co., VFH); *S. costiferum* (Brown Co.; Cherry Co., FN; Grant Co.); *S. obtrusum* (Chase Co.; Cherry Co., JVF, SFSP; Grant Co.; Keith Co.); *S. occidentale fasciatum* (Chase Co.; Cherry Co., JVF, SFSP; Keith Co.); *S. vicinum* (Brown Co.; Cherry Co., FN; Keith Co.).

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SOME NEBRASKA ODONATA  
SPECIMENS IN THE UNIVERSITY OF  
NEBRASKA - LINCOLN INSECT  
COLLECTION

Roy Beckemeyer

When I visited Brett Ratcliffe, Curator of Insects at UNL to deliver voucher specimens from this summer's collecting in Nebraska, I took an hour to look through some of the odonates in the collection. I did not get to go through the Zygoptera at all, but hope to do a more thorough review of the specimens on a later visit. The notes I did take include the following:

*Aeshna multicolor* (Kimball Co., Lincoln Co., Scott's Bluff Co.); *A. palmata* (Sioux Co.); *A. umbrosa* (Dawes Co., Sarpy Co.); *Arigomphus cornutus* (Cuming Co.); *G. externus* (Cass Co., Cuming Co., Lancaster Co., Lincoln Co., Thomas Co.); *Progomphus obscurus* (Lincoln Co.); *Stylurus intricatus* (Saunders Co.); *Epitheca cynosura* (Antelope Co., Douglas Co., Lincoln Co., Logan Co.); *E. princeps* (Cass Co., Jefferson Co., Lancaster Co.).

A HYBRID OPHIOGOMPHUS

Nick Donnelly

Not too long before his death, Richard Forster sent me some female *Ophiogomphus* specimens from Massachusetts that puzzled him. Three were *rupinsulensis*, *mainensis*, and *carolus*, all of whose variability are indeed puzzling at times. The fourth was a truly strange female. It combined characteristics of *rupinsulensis* and *carolus*, and I believe it is a hybrid between these two species.

The post-ocular horns of this female are distinct, but they are thin and black (not thick and pale), and they are directed caudally and somewhat dorsally, rather than directed more dorsally. This thin, half spine is about halfway between the thick spine of *rupinsulensis* and no spine of *carolus*. The legs are nearly as pale as in *rupinsulensis* (*carolus* has dark legs). There is a thin dark stripe on second lateral suture (*carolus* has a heavy line; *rupinsulensis* is pale here). The sculptured top of the frons is intermediate between *carolus* and *rupinsulensis*. The size is

smaller than *rupinsulensis* and about the size of *carolus*. The dark marks on abdomen are similar to those of *carolus*, but intermediate between two species.

The hybrid origin of female odonates is far more difficult to establish than for males. I have almost given up for hybrid females of *Sympetrum*, and I have never seen what I think is a hybrid female *Macromia*. It is gratifying that hybridization can be demonstrated in this specimen.

NEW ODONATA RECORDS FOR MAINE  
AND NEW HAMPSHIRE

Dennis Paulson

From a small collection of Odonata made by Netta Smith in Maine and New Hampshire in 1997, the following appear to be new county records:

*Calopteryx maculata* - pond and stream in North Berwick, York Co., ME, 25 June, 2 males.  
*Enallagma boreale* - pond north of Waterboro, York Co., ME, 29 June, 1 pair.  
*Arigomphus villosipes* - pond and stream in North Berwick, York Co., ME, 25 June, 1 male; pond southeast of North Berwick, York Co., ME, 26 June, 3 males. This is a new record for the state.  
*Libellula incesta* - English Pond, Oxford Co., ME, 29 June, 3 males; pond 1 mi S Conway on hwy. 153, Carroll Co., NH, 29 June, 1 male.  
*Libellula lydia* - pond southeast of North Berwick, York Co., ME, 26 June, 1 male.  
*Pachydiplax longipennis* - pond at Fort McClary, York Co., ME, 27 June, 2 males, 1 female.

Borror (Can. Ent. 76: 134-150, 1944; Ent. News 62: 209-217, 1951) listed only 22 species from York County, Maine. The present collection adds 5 species to that list, but the county has still been scarcely sampled and should, from its location at the southern tip of the state, provide more records of interest.

Thanks to Netta Smith for collecting these specimens and to Paul M. Brunelle for calling my attention to the significance of the records. The specimens are all in my collection.

## NEW ODONATA RECORDS FOR IDAHO

Dennis Paulson

On a brief trip to Idaho in August 1997, I collected 3 species of dragonflies not previously reported from the state.

*Stylurus olivaceus* - Power Co., Massacre Rocks State Park, 8 & 12 August, 4 males, 7 females. Adults were common on both dates, hanging on the outer perimeter of juniper trees well above the river. Among them were several copulating pairs. The distribution of this species is surprisingly poorly known in the Northwest.

*Pantala flavescens* - Power Co., pond near American Falls Reservoir, 1 mi N American Falls, 4400', 9 August, 1 male teneral. The species was emerging from this large, shallow pond in numbers; an exuviae was collected, and other tenerals were seen. Another individual was briefly seen at Massacre Rocks State Park, Power Co., 12 August. The species is known from only scattered records in the Northwest (Washington, Oregon, Idaho, Montana), and this is the first confirmed breeding record from the region.

*Sympetrum madidum* - Power Co., pond near American Falls Reservoir, 1 mi N American Falls, 4400', 9 August, 2 males, 1 female. The species was fairly common at this locality and would be expected there from its known distribution. Idaho remains a relatively poorly known state, with only 64 species recorded from it at present. Based on the distribution of odonates in the surrounding states and provinces, it should be inhabited by more than 80 species.

## STYLURUS SPINICEPS FINALLY VERIFIED FOR MICHIGAN (ODONATA: GOMPHIDAE)

Mark F. O'Brien Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079.

Dragonflies of the genus *Stylurus* are swift-flying species usually found on rivers and large streams. Never commonly collected as adults, these riparian members of our fauna are poorly represented in most collections. Consequently, our records for species in Michigan are few

(Kormondy, 1958). To date, there are six species of *Stylurus* recorded from Michigan: *S. amnicola* Walsh, *S. laurae* Williamson, *S. notatus* Rambur, *S. plagiatus* Selys, *S. scudderi* Selys and *S. spiniceps* Walsh. All of the records except for *S. spiniceps* have been based upon specimens from known localities. However, Kormondy (1958) based his *S. spiniceps* record on Needham and Westfall (1955), which was in turn, based upon Muttkowski (1910). "Mich" was the only locality given by Muttkowski, and no specimens were recorded from institutional collections to verify the literature records. Naturally, one has to believe that the literature record could be no more than an assumption, a historical record, or in error, until the species is actually found in Michigan.

On 20 July 1997, two *S. spiniceps* exuviae were collected on a rock ca. 15 cm above the water along the shoreline of a small island in the Huron River, east of the Huron Parkway bridge in Ann Arbor, Washtenaw Co. MI [UMMZODO-1251]. At approximately 1330 hr I saw at least two adult *Stylurus* (presumably *S. spiniceps*) flying swiftly over the river, less than 25 cm above the surface.

Additional specimens, all exuviae, were collected by Elvera Shappirio: MI:Washtenaw Co., Huron River, between Scio and Zeeb Roads, 6 August 1997, 12 exuviae from rocks in river [UMMZODO-1345]. MI: Washtenaw Co., Huron River near Scio dam, 09 August 1997 1 exuviae [UMMZODO-1339].

These records show that not only is *S. spiniceps* present in the Huron River, it is moderately abundant where favorable conditions exist -- sandy-bottomed areas of medium to fast-flowing water. That no adults have been collected is indicative of the paucity of *Stylurus* adults in most collections. However, the collection of larvae and exuviae provide convincing evidence of breeding populations in the Huron River, and an indication of a moderately healthy river.

*Stylurus spiniceps* does occur in nearby Great Lakes states of Ohio (Glotchober 1995), Wisconsin (Smith et al. 1993), Indiana, and Province of Ontario (Montgomery 1967), so it should be found elsewhere in lower Michigan. The Raisin, St. Joseph and Kalamazoo Rivers should be examined for exuviae or larvae of this and other *Stylurus*.

## ACKNOWLEDGMENTS

I thank Ethan Bright (UMMZ Insect Division), for identifying the *Stylurus* exuviae. All are deposited in the University of Michigan Museum of Zoology. I also thank Elvera B. Shappirio for her pursuit of exuviae while kayaking down the Huron River. This paper is a result of the Michigan Odonata Survey.

## LITERATURE CITED

- Glotzhober, R. C. 1995. The Odonata of Ohio - A preliminary report. *Bull. of American Odonatology* 3(1):1-30.
- Kormondy, E.J. 1958. Catalogue of the Odonata of Michigan. *Misc. Publ. Mus. Zool., Univ. Mich.* 104:44 pp.
- Muttkowski, R. A. 1910. Catalogue of Odonata of North America. *Bull. Publ. Mus., City of Milwaukee*, 1:1-108.
- Montgomery, B.E. 1967. Geographical distribution of the Odonata of the North Central states. *Proc. No. Central Branch Entomol Soc. Amer.* 22:121-129.
- Needham, J. G. & M. J. Westfall, Jr. 1955. A manual of the dragonflies of North America (Anisoptera). Univ. California Press, Berkeley. xii+615 pp.
- Smith, W.A., T.E. Vogt & K.H. Gaines. 1993. Checklist of Wisconsin dragonflies. *Wisconsin Entomol. Soc. Misc. Publ. No. 2.* 8pp.

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## *SOMATOCHLORA TENEBROSA* NOT IN MICHIGAN

**Mark O'Brien**

Insect Division, Museum of Zoology, University of Michigan, Ann Arbor, MI 48109-1079.

Kormondy (1958) listed a specimen of *Somatochlora tenebrosa* Say (Clamp-tipped Emerald) from the Michigan State University collection, with the only locality data given as "Ag. Coll. Mich." [no date] [det. by E.J. Kormondy in 1956]. To date, that has been the only record of the species for Michigan. I recently borrowed the above specimen from the MSU collection, and it is not *S. tenebrosa*, but *S. hineana* Williamson. The male genitalia are very diagnostic, and I'm surprised that it was

originally misidentified. Since this endangered species has already been reported from Michigan (see Williamson 1[3]:7), this does not represent a state record.

However, the data with the specimen, "MI: East Lansing, Ingham Co.", is not what Kormondy stated. It is interesting to note his comment, "Dr. R. L. Fischer assures me that the label used indicates the specimen was collected in Ingham County." The label with the specimen is a flap from a paper triangle with the locality typed, and Kormondy's identification written in India ink. The only remaining enigma is the actual locality, date and collector, and since Kormondy's description of the locality does not match verbatim with the label presently associated with the specimen, I have to assume that it was relabeled by someone after Kormondy examined it to give a more precise locality. Based upon this species' known habitat requirements (Vogt and Cashatt 1994) and its current known distribution in Michigan (W. Steffins, pers. comm.), it is unlikely (but not impossible) the specimen of *S. hineana* came from Ingham County, MI.

Many of the Odonata specimens in the MSU collection were transferred to paper triangles many years ago, and very few if any, had their original labels transferred with them. Many of the triangles have typewritten labels which are not the originals. Specimens collected in 1899 have the same type style as the labels for specimens collected in 1940. Many of the labels for East Lansing have the date, but no collector, leaving me to believe they may have been collected by students or obtained from student collections. Pinned specimens bearing "East Lansing" labels in the MSU collection from before the 1950s often have "MICH: Ingham Co., East Lansing", and a date, but no collector. If very old, they may simply state "Ag. Coll. Mich.". These generic labels may have been from student collections, and may simply state the ownership of the specimen, rather than the collection locality.

More recently, many specimens in triangles were transferred to 3 x 5 envelopes with index cards. These specimens have had the triangle data label included with the specimen. However, the original labels that should have been in the triangles are still missing. Where and when this *S. hineana* specimen originated from is a

mystery, but at least *S. tenebrosa* has been removed from the state list in Michigan -- for now.

#### ACKNOWLEDGMENT

I thank Dr. Fred Stehr, MSU Dept. of Entomology, for access to the MSU collection and for the loan of the specimen. It now bears Michigan Odonata Survey #MOS0025237.

#### LITERATURE CITED

- Kormondy, E.J. 1958. A catalogue of the Odonata of Michigan. Misc. Publ. Museum of Zool. Univ. of Mich. 104:43pp.
- Michigan Odonata Survey. 1997. Hine's Emerald in Michigan! *Williamsonia* 1(3):7.
- Vogt, T.E. and E. D. Cashatt. 1994. Distribution, habitat, and field biology of *Somatochlora hineana* (Odonata: Corduliidae). *Ann. Entomol. Soc. Amer.* 87(5):599-603.

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### THE SECOND COMING OF ARGIA LACRIMANS

Jeff Cole

I am a recent newcomer to the study of dragonflies, my interest being only about six years old. Like anyone, sometimes I stop to consider just why it is I do the things I do. With entomology, my query is always answered by some new find or new discovery, no matter how quaint, that rekindles my interest. I remember the joy I feel when in the field amongst the insects and how much I enjoy learning about them.

My friend and collecting partner Michael Storc and I spent four short, intense days in southeastern Arizona this past July. On the third day of our trip, we stopped at a new locality for us, Garden Canyon in the Huachuca Mountains. Garden Canyon is accessible only by a road that passes through Fort Huachuca, and permission must be obtained from the base before you can enter the land. As it turned out, the military was very liberal in letting people use the land for all kinds of purposes. Because of the regulation, hardly anyone was there, and Garden Canyon seemed so much more peaceful than some of the

more popular collecting spots like Madera Canyon and Sabino Canyon.

The scenery there is reminiscent of the tropics, with thick woods covering the majority of the land. A small intermittent creek flows through the upper part of the canyon, and it is here that we came across quite a few species of Odonata. There were several species of *Argia* among the Odonates we encountered, including a large blue species that looked unfamiliar to me. I must confess I am not very good at field identifications of *Argias*, and all my poorly trained eye really saw were small purple ones, large purple ones, and large intense blue ones. I was much more excited at the time about the three female *Oplonaeschna armata* we collected, but we took *Argias* liberally because we had no idea what we might be collecting.

Back at home, I worked on the *Argias* with Rosser Garrison's 1994 paper on the United States representatives of the genus. I confidently identified both purple species, but when it came to my series of the large blue ones, I simply could not key them out. They seemed to resemble the newly described *Argia pima*, but there were distinct differences in the male caudal appendages of the two. As I often do when frustrated with a key, I thumbed through the figures in the back and happened to come across a good likeness of the specimens in hand, captioned '*A. lacrimans*'. This species had no description in the paper, and was discussed under *A. pima* as a close relative of that species not yet known from the U.S.A. I also consulted Westfall and May, 1995, and their photographs of the caudal appendages of *A. lacrimans* boosted my confidence. We collected only three female *Argias* total, and I compared them thoroughly with the figures but could not arrive at a conclusion. The mesostigmal plates were something of a toss-up between *A. tonto* and *A. lacrimans*. I immediately gave Rosser Garrison a call, and the following weekend we worked on the specimens together. We both came to the conclusion that the male series represents *Argia lacrimans*. Rosser concluded after extensive comparisons that the females are probably *A. tonto*.

This is the second record of *Argia lacrimans* from the United States. In the field, the males of *A. lacrimans* were found fairly commonly on

rocks in a small intermittent stream in upper Garden Canyon (ca. 7 miles south of Fort Huachuca, elevation ca. 1829 m. 29.vii.1997. J. Cole and M. Storck). Conditions were heavily overcast and humid. We collected from about 1:00 p.m. to 5:00 p.m. sympatric species of Odonata were *Hetaerina americana*, *H. vulnerata*, *Archilestes grandis*, *Argia plana*, *A. tonto*, *Enallagma praevarum*, *Hesperagrion heterodoxum*, *Oploniaeschna armata*, *Remartinia luteipennis florida*, *Libellula saturata* and *Cordulegaster diadema*. In all, seven male *Argia lacrimans* were collected, and I deposited three of the specimens in the R. W. Garrison collection for his continuing work on the genus and his valuable help to me in my pursuit of Odonatology.

#### REFERENCES

- Garrison, Rosser W. A Synopsis of the Genus *Argia* of the United States, with Keys and Descriptions of New Species, *Argia sabino*, *A. leonorae*, and *A. pima*, (Odonata: Coenagrionidae). Transactions of the American Entomological Society 120(4): 287-368.
- Westfall, M. J. and M. L. May. Damselflies of North America. Gainesville, FL.: Scientific Publishers, Inc., 1996.

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#### NEONEURA AMELIA, NEW TO THE UNITED STATES

Blair Nikula

Jackie Sones and I spent a few days in late April, 1997 in the Rio Grande valley of south Texas looking for birds and odonates in connection with the Texas Tropics Nature Festival in McAllen. During the morning of 25 April we participated in a boat trip on the Rio Grande, which departed from a small dock at the Riverside Park trailer park, west of Granjeno, Texas. By the time we returned to the dock shortly before noon, the sun was breaking through the morning clouds and we noticed some odonate activity developing in the area. We did not have nets with us at the time but, after obtaining permission from the property owner, we returned in the afternoon with nets in hand.

Among the odonates present were several small damselflies with extensive reddish coloration on their dorsal surface. They patrolled very low over the water, several feet or more from shore, and were very difficult to net. However, I eventually succeeded in catching two males: one escaped as I was photographing it; the other I kept as a specimen. Our initial impression was that they were a protoneurid, probably a *Neoneura*, but we had no references with us at the time and no previous experience with the genus. Upon returning to our motel later, we consulted Westfall and May's "Damselflies of North America" and confirmed that the specimen did indeed seem to be a *Neoneura*, but probably was not *Neoneura aaroni*, the only species in the genus known from Texas or the U.S. Subsequent, more detailed examination of the specimen upon our return home suggested that the specimen was *Neoneura amelia*. We sent it off to Sid Dunkle and Nick Donnelly, both of whom confirmed that it was indeed *N. amelia*, a species previously unrecorded from the U.S.!

Sid Dunkle and John Abbott visited the area on the 12<sup>th</sup> and 13<sup>th</sup> of May and captured *N. amelia* both at the Riverside Park site (a pair in tandem) and a couple of miles downriver at the Anzalduas County Park (one male collected). They saw several individuals at both sites. Thus, it appears that the species is established and breeding along this stretch of the Rio Grande.

At the Riverside Park site, the Rio Grande is deep and sluggish, with a very mucky bottom (as I discovered to my discomfort when wading out to net a *Neoerythromma*!). The water was virtually opaque and there was some sparse emergent vegetation and floating mats of brown and green algae. The habitat is thus quite different from the "rocky streams" described by Westfall and May (*op. cit.*) for the species. The *Neoneuras* at Riverside Park patrolled very low over the river surface and vanished when the sun was obscured by clouds; we never saw one perch. Other species present at the site on 25 April included: *Argia moesta*, *A. sedula*, *A. translata*, *Enallagma basidens*, *Neoerythromma cultellatum* (new to Texas!), *Epitheca princeps*, *Dythemis nigrescens*, *Erythemis simplicicollis*, *Pantala flavescens*, and *Perithemis tenera*. *Neoneura amelia* is known from at least nine states in the southern half of Mexico, but has been recorded only from Sonora in the northern portion of the country (Paulson, D.R., and E.

Gonzalez Soriano. 1996. "Odonata of Mexico, by State". Internet). However, like many tropical odonates, it is a rather poorly known species and will likely prove to be more widespread than is currently recognized.

My thanks to Sid Dunkle for confirming identification of the specimen, for providing details on his visit to the area, and for commenting on a draft of this note; to Nick Donnelly for confirming identification of the specimen; and to Jackie Sones for improving this note and for her companionship in the field.

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### MASSACHUSETTS GROUP HAS A PRODUCTIVE SUMMER

digested from ODE NEWS

ODE NEWS never ceases to amaze me. The rich area of Cape Cod, and Massachusetts generally, long neglected except for a few good years when Bob Gibbs was there, has mushroomed into one of the most active centers of Odonata study in the country. The fall issue of ODE NEWS generally has mouth-watering items which really get the juices flowing.

The biggest news this year was the discovery of a new population of *Somatochlora georgina*, and not in the locality of the population found 25 years ago by Chris Leahy, and which has disappeared. The new location is near Holliston, and Blair and group estimated they saw 20 individuals. This insect is very rare north of North Carolina, and we have a lot to learn of its habits.

Passing on to more mundane finds, they report the second capture in MA of *Coenagrion resolutum* in recent years. At the southern margins of its range, this is another irregularly occurring species, and odonatists throughout the region of New York and southern New England should keep their eyes open for it. In southern New York it has shown up half a dozen times, but I have only one locality where the population is stable.

*Aeshna mutata* is now more common than before (with more than a dozen sites), but *Nasiaeschna pentacantha* seems to have decreased this year. The first *Gomphaeschna*

*antelope* for MA were reported (hot on the heels of the first reports for RI and NY); could this insect be expanding its range, or are we better observers, or are we getting lucky?

The tropical vagrant *Tramea calverti*, which invaded the east coast a few years ago, has not repeated its spectacular occurrence. However, there was sight record at Eastham. One longs to see the actual specimen; although the narrow wing band and pale thoracic stripe are good marks, all species of the genus tend to wander.

The first NH record for *Calopteryx dimidiata* was reported (near Hollis). Finally, a hawk watcher in Duluth Minnesota reported no less than 10330 Anax junius last fall - some being taken by kestrels with which they were flying.

If you don't read this newsletter, you are missing a lot. Look for it on the web (see TRAMEA).

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### MICHIGAN ODONATA SURVEY NEWS

extracted from WILLIAMSONIA

I always have little to report from this very active group for the very simple reason that Mark O'Brien sends me much of the material separately for ARGIA (two items in this issue).

There are some other things. A somewhat arduous field excursion in the "thumb" region of Michigan turned up the second locality in the state for *Enallagma exsulans*. I have been recently going over all the old Montgomery yearly summaries for Indiana and was reminded of how spectacular and well documented the northward march of that species was in Indiana. There was a similar account for Ohio in the BAO paper by Bob Glotzhober, and we have seem similar notices for New York and Ontario. The northward progression of the range of this species is one of the notable events of our century and should be of great interest to all people in the northern mid-West and northeast.

WILLIAMSONIA closes with a long poem by Ken Tennessen in honor of his friend Patrick Hudson. Reminiscent of Longfellow, the poem makes "*Aeshna eremita*" scan nicely. Let's hear it for scientific names!

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## ECUADOR IV – WE LEARN SOME MORE

Ken Tennesen

Knowing that El Niño was having quite an effect on the Pacific slopes of the Andes, we decided that during our fourth trip to Ecuador we would spend most of our time on the eastern slopes. This turned out to be a good decision, as the weather there treated us quite fairly. Bill Mauffray, Jerrell Daigle, "newcomers" Nick and Ailsa Donnelly (this was their first trip to Ecuador) and I flew into Guayaquil on the evening of Nov. 2 (the runway at the airport in Quito was temporarily closed for repair). The next morning we picked up our two rental vehicles and a few supplies, and shortly before noon headed east toward El Troncal and then Azogues in the Andes. This first day was not greatly rewarding, although we did find the beautiful *Argia talamanca* at a couple of small waterfalls. The larvae cling to the vertical surfaces of bedrock where the water cascades down in a thin sheet. One other species of note this day was *Oxyallagma dissidens* at a small pool in a mountainous seep. These specimens, with a greenish thorax, looked quite different than ones we collected in Otavalo on an earlier trip, and this threw us off into thinking perhaps they were *Protallagma*. It occurred to me after this first day that competition for net space was going to be keen the rest of our stay. However, no one else in our party was collecting larvae, and I managed to associate a few more species with adults, although this is a very difficult endeavor when one moves from place to place almost daily and has only 3 weeks to spend!

As we traveled south the next few days we encountered two species of *Acanthagrion* (with green thoracic stripes) on which we can not yet put names. The penis of one of these is most like that of *A. obsoletum*. We found few decent streams and little sunny weather around Zamora, the most southerly extent of our travel, and so headed north through Zamora Chinchipe Province. Several interesting species found in small streams around Gualaquiza were *Philogenia raphaella*(?) and several *Argia* species, including a few of the red-eyed *A. dives*. During a light rain I collected larvae at one mid-sized stream and found 4 species of Gomphidae,

including one with antennae and labium like an *Ophiogomphus* but with an abdomen like a *Hylogomphus*. Later that day Bill had a swing at a huge light-green *Staurophlebia*, but much to our chagrin it got out of his net. North of Gualaquiza we encountered a few more of the *Philogenia raphaella*(?) plus *Polythore terminata*, several *Micrathyria* species, *Remartinia rufipennis*, *Aeshna psilus*, and other more common species. On our way north, we had to cross a large, raging river. The bridge had been torn out, and we had to cross over on a temporary, high, suspended swinging bridge. This "bridge" was long and narrow (by narrow, I mean barely the width of a small vehicle). Just getting on to this "bridge" was an adventure. Then I got about half way across when another vehicle came from the other direction. The driver would not yield and I had to back off, using my rear view mirror and with Jerrell directing me. But the effort was worth it, as we were rewarded with some good collecting sites on the other side.

The area around the Rio Pastaza (which has a toll bridge), south of Puyo, is an area I would like to revisit some day. In several small streams here we took at least 2 species of each of the following: *Heteragrion*, *Polythore*, *Palaemnema* (including one I cannot identify), *Philogenia*, and *Perissolestes*. We also got *Epigomphus obtusus* and several rare species of *Argia*. Plus one of the most interesting damselflies of our whole trip was found at vertical trickles / waterfalls in this area, a *Heteropodagrion* with dark legs (but long reddish tibial setae) and yellow cerci. Males perched with wings together, unlike most other Megapodagrionids. At nearby ponds the likes of *Telebasis carota*, *Lestes "jerrelli"*, *Idiataphe longipes*, *Anax concolor*, and *Aphylla boliviana* were flying. However, north of Puyo, along the road toward the Rio Napo, we saw mostly degraded streams.

We really enjoyed our stay in Puyo at the Hosteria Turingia, except for the "attack" on Jerrell, which I will explain. The first night there we went into the hotel restaurant for dinner, and

were "introduced" to the manager's pet, a small gray cat, which was exceptionally cute and friendly. The cat watched patiently as we ate our first course, a creamy shredded beef soup that was one of the best I've had in Ecuador. Most of us had ordered some type of beef dinner, Bill's ordering carne "empeñada" as usual. Jerrell was the only one who ordered "pollo frito" (fried chicken). When we were served our main entrees, the cat jumped up Jerrell's leg, leaving claw marks, and sped up into his lap to help itself to the chicken. He suffered several wounds, but was probably more startled than hurt. This cat was not interested in anyone else's dinner, so I named it Jerrell's Pollo Puddy.

For the next couple of days we collected in the Tena area, mainly at the Rio Sinde and Rio Chinchipino east of Puerto Napo. Some of the more interesting things we picked up were *Protoneura scintilla*, *Staurophlebia reticulata*, *Agriogomphus sylvicola*, *Progomphus formalis*, *Anatya guttata*, *Elga leptosyla*, *Fylgia amazonica*, *Oligoclada abbreviata*, *O. stenoptera* and *O. umbricola* to name just a few. It was sad to see that the Rio Sinde has been quite torn up since we were here last, mainly by removing gravel for road building. There is now a steel bridge where there was only a shallow ford. Leaving Tena and turning east toward Loreto, we drove past Mt. Sumaco, this time on a sunny day, and finally got a clear view of the volcano. From this area one can look to the east out over the upper Amazon basin. At a stream on the Loreto Road we saw *Cora jocosa*, *Polythore terminata*, *Argia variegata* (plus an *Argia* species in the *nigrior* group), several *Heteragrion* and an *Epipleoneura*.

The next leg of our journey was to the headwaters of the Amazon, especially Yasuni National Park, one of the few remaining large tracts of upper Amazonian rain forest. During the 3 days in the park we found many species that we had recorded on earlier visits, but also added about 12 species, including *Erythemis haematogastra*, *Erythrodiplax tenuis*, *Fylgia amazonica*, *Perithemis cornelia*, *Zenithoptera americana*, *Heliocharis amazona*, and *Telebasis limoncocha* and *T. rubricauda*. At one of the swamps teeming with libellulids, we were attacked by fairly large sweat bees that just would not quit trying to land on our faces. They were not blood thirsty, but would sting if pinned against the skin. I have been pestered by a lot of

insects, but these things were absolutely maddening. They actually drove Bill and Jerrell from the site. Nick and Ailsa had a great time birding, and I saw a large deer.

After leaving Yasuni, we headed back toward Loreto and then up into the eastern slopes of the Andes toward Baeza, which is at an elevation of about 2000m. We had a great time chasing *Tauriphila argo*, *Planiplax* sp., *Cannacia herbida*, and *Coryphaeschna* at ponds at the lower elevations around Loreto. Then at some small higher elevation streams south of Baeza we stalked several *Aeshna* (*cornigera*, *marchali*, a species which I have not yet identified, and the unusual *intricata*, of which I reared a female), a *Macrothemis* sp., *Mnesarete imperatrix*, *Cora inca*, *Allopodagrion* sp., *Oxyagrion* n. sp., and *Argia* and *Cyanallagma* spp. So many more odonate species are active at these high elevations when the sun is shining, and we were very fortunate on our last day, Nov. 20, to have a bright sky and warm air (at least until mid afternoon). The next morning, as we left for Quito, the sky was gray, light rain fell intermittently, and the air was cool. But at least we did not encounter a land slide on the drive to Quito.

This fourth trip to Ecuador was especially rewarding. Trying to identify species in the field was both fun and frustrating; many we had seen on previous trips but there were also a number we hadn't seen before, and the guessing game was on. Our taxonomic knowledge over the past 3 years has grown substantially, although there remain many questions. I suspect that we don't know as much as we think we do about the identity of much of the odonate fauna in this part of South America. I say this because of the difficulty and differences of opinion when it comes to putting definite names on about one fourth of the species we collected. As I study the specimens from this trip, several observations are apparent. First, there is so much more basic taxonomic work to be done in the neotropics. Besides generic boundaries being vague, some groups especially poorly known at the species level are *Argia*, *Acanthagrion*, *Mnesarete*, *Heteragrion*, *Philogenia*, *Epipleoneura*, *Micrathyria*, and *Macrothemis*. The waters are muddied by undescribed species, poorly described species, lack of reference material, and the often unknown location of type specimens. We don't know how much importance to put on

color vs. structure for diagnostic characters in some groups. And there has been too much reliance on size--part of the problem is that there have been so few specimens available for study

that not enough measurements have been recorded. Each time we go we learn a little more, but we also dig up new problems. And people wonder why study Odonata!!

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## ECUADOR EPILOGUE: A TRIP TO LA SELVA

Nick Donnelly

Our first Ecuadorian experience was a wonderful one, thanks to the generous gesture from Los Ratos, who allowed us to join them on one of their fabled jaunts. We are prepared to say that Ecuador was all that we hoped for - and even more. Ken has discussed the main part of the trip - leaving out only a description of hundreds of kilometers of bone-jarring, potholed roads, which are the most tiring that I have ever driven.

After Los Ratos departed Quito, Ailsa and I flew back to Coca for a rain-forest jaunt at La Selva Jungle Lodge. Unlike our earlier Bornean experience, this one really was in rain forest. Getting there involved a flight of an hour, followed by a three (or was it four?) hour boat trip back down the Napo River, being overcome with *deja vu* as we passed places we had been only a few days previously on the trip to Yasuni, which is right across the river from La Selva.

To get to La Selva one leaves the motor launch, walks about twenty minutes through the forest on a raised wooden trail, and is carried another thirty minutes in a dug-out canoe to the lodge. I can't describe the bliss of being transported by others after one has transported oneself for a fortnight on dreadful Ecuadorian roads!

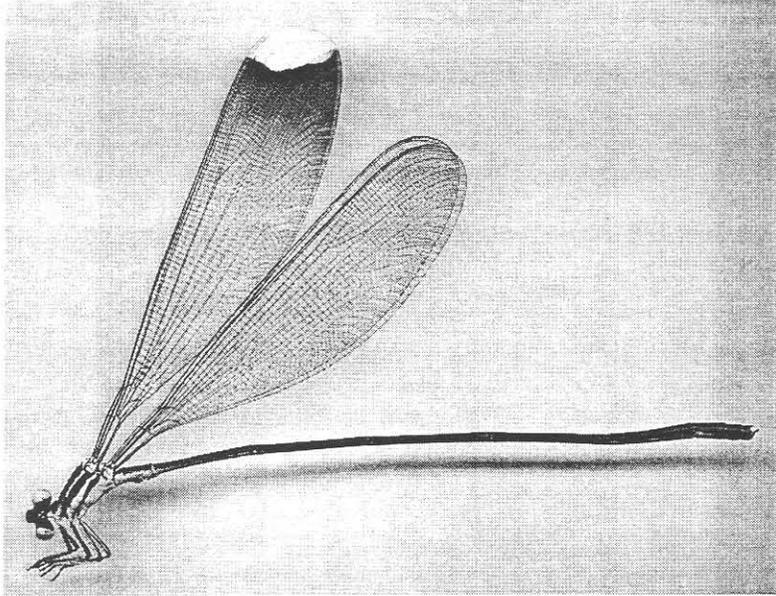
La Selva can hold about 30 people, but mercifully there were only four of us for our five days. The lodge is right on the edge of a lake, and caymans (we saw only a small one) used to be common there. The forest is accessible by trails, which are muddy enough to need rubber boots, but are not in the same class as the oozing Costa Rican forest floor I described in an earlier article. Three-foot-long earthworms crawling on the mud were new to me.

There were many good birds in the forest and around the lake, including the most spectacular small bird I have ever seen - a wire-tailed manakin. Imagine a small, inquisitive bird with

the reddest red you have ever seen on the head, the blackest black on the back, and the yellowest yellow on the belly. Wow! We also saw our first potoo, which was doing just what they are supposed to do - sitting very quietly at the end of an upright dead stick and looking for all the world like a continuation of the stick. The forest also had oodles of monkeys - four species no less! Our first ones were large marmosets called tamarins, and we soon learned to recognize their chirping calls as they went through the trees, as curious about us as we were about them.

Our finest bird and monkey watching was from the front porch of our hut. A large leguminous tree was in fruit, and the monkeys came from miles around to gorge themselves on the long fruit pods which hung from the branches. Squirrel monkeys and capuchins came in mixed troops, but the huge red howler monkeys came separately. On occasion the big bull howler would become enraged at some smaller monkey and plunge through the branches, evidently to drive away the smaller monkey. At least, that is what I think his intentions were - anyway, it worked. The real treat of the porch, however, were views of hoatzins - a large, bizarre bird which came to eat the leaves of the *cecropia* trees next to the porch. These birds have the curious habit of ruminating to digest leaves - just like feathered cows.

But what about the bugs, you are asking. In spite of much rain, we found about 30 species of Odonata in the forest. A dozen of these we did not find even right across the river, at Yasuni. There were few individuals, but some fairly memorable things. Along the forest paths we saw several huge "helicopter" damselflies - the beautiful *Microstigma rotundatum* that I had earlier taken on the Rio Chinchipino, and the more ethereal (and longer) *Mecistogaster linearis*. The large yellow spots on the wing tips of the *Microstigma* are curiously unsettling to



*Microstigma rotundatum* - actual size. The cadmium-yellow spots on the wing tips are one of the brightest sights in Amazonian forests.

the observer. The flying insect looks far less like a damselfly than a pair of small yellow butterflies fighting, and one is always startled to see that these seemingly isolated spots belong, in fact, to a single insect! I would imagine that most predators would also be confused.

Near the tiny creeks in the forest we saw alert *Polythore mutata* perched high on twigs, with their vivid white patches on otherwise clear wings. Perching in the shade nearby were the usual black and yellow *Heteragrion* (sp?), and the gray with a white-tipped tail *Philogenia minteri*, both of which are damselflies which sit with their clear wings outspread. Hanging from branches just above the water of these creeks were two species of *Perissolestes* (*pollux* and *klugi*) - long, thin, and very cryptic damselflies. Most of the libellulids seems to have been dark species, from the small *Dasythemis esmeralda* and *Micrathyria dictynna* (my first south of Mexico) to the large, black, aggressive *Orthemis cultriformis*. Dark bodies and forest life seem to go together for this family. In the forest, and a long way from water, we found the libellulid *Uracis fastigiata*, females of which have an long

ovipositor evidently designed to poke eggs into mud or some other semi-hard substrate. We have never found their larvae - do you suppose they are really terrestrial? In the creeks and around the lakes we found orange winged *Perithemis* which we all know so well from its North American species *tenera*. In Ecuador we found six species (lais, *thais*, *parzefalli*, *electra*, *cornelia*, and *mooma*), often finding as many as three of these in one place.

We have always had the custom of making a special note of what we find on the last day of a trip. On this last day we went in a tippy boat out into a lake covered with a water

hyacinth mat (and alleged to be full of caymans), then down a small river, followed by a hike home through the forest. On the lake we found abundant damselflies on water hyacinth. Two species were blue *Telebasis* (*dunklei* and *rubricauda*), and the third was *Helveciagrion chirihuanum*. Before the trip I had thought of *Telebasis* as red damselflies - at least the tip of the abdomen of *rubricauda* was bright red. There were dragonflies, too - the tiny *Nephepeltia leonardina*, a slightly larger, a still unidentified *Micrathyria*, and the beautiful red-bodied, black-winged *Diastatops pullata*. I don't know what to single out on our last day at La Selva. The small *Aphylla spinula* perched along the river? The small, dark *Erythrodiplax parvimaculata* in the forest on our walk home (right where I saw the tinamou run across the path)? Those blue damselflies which looked so alike in the hyacinth? The thin, bright red *Neoneura rubriventris* which hovered over the river in groups of two or three as we drifted past? The even thinner, dark *Epipleoneura*, which were just barely visible as they hovered in the shade? It was quite a day and quite a trip.



## DRAGONFLIES OUT OF AFRICA

Dennis Paulson

After reading so many notes in ARGIA about odonatological odysseys to Thailand, Ecuador, Borneo, and New Guinea, I decided I had to go somewhere noteworthy. I had spent 4 months in Kenya in 1959, just before I became interested in dragonflies, and, although I did collect a few there and gave them to Minter Westfall, I don't even know what species they were.

A quarter of a century ago, I received a wonderful collection of African Odonata from Elliot Pinhey, and I've always wanted to go back to the Dark Continent (a misnomer, as it's surely the brightest one) to see some of them in life and to compare the dragonfly communities of tropical Africa with those I know in the New World and Asian tropics. Of course, need I mention the other reasons why any naturalist would want to visit Africa? The mammal fauna is straight out of the Pleistocene, there are scads of big, colorful birds, the reptiles are awesome, and the scenery is magnificent. And all you have to do is brave sleeping sickness, elephants, black mambas, bilharzia, crocodiles, Cape buffaloes, land mines, malaria, and a few minor viruses such as AIDS and Ebola.

So we saved our pennies until we had about a million of them and took off for Africa in October-November 1997. Dave and Jo Nunnallee and Netta Smith and I spent almost a month in Zimbabwe and over a week in the Cape Town area of South Africa. Dragonflies, I must admit, played little part in the choice, or we would have headed for equatorial climes. We chose Zimbabwe because it's not overrun by tourists, yet it has a solid infrastructure for the traveler. In addition, its habitats are varied, from arid "thornveld" in the west to wet cloud forest in the east. We chose Cape Town for two natural wonders that I had always longed to see: the seabirds of the Benguela Current and the endemic Mediterranean-type flora that makes this small area one of the world's major floristic regions.

Now I should say at the outset that we didn't have any adventures to compare with the boys in Ecuador. Everything went smoothly; no cars broke down, no revolutions started (although they're rioting in Zimbabwe as I write), no one

became especially ill, and every day was just, well, pretty darned neat. Not everything was exactly as expected, of course. It was surprisingly cool and rainy in the eastern Highlands, with predictable negative results for Odonata, and it was incredibly hot and dry in the western lowlands, so much so that at midday most of the dragonflies headed for shade, as did we.

The wildlife in these countries, at least the spectacular component of it, is primarily in the parks and reserves, all of which are fenced. So we revised our concept of wilderness to include the huge Wildlife Theme Parks of Africa. Smaller mammals such as mongooses, baboons and vervets, squirrels, hyraxes, warthogs, and the like, are by no means restricted to parks and reserves, and we had some of them wandering around the grounds of several of our hotels. Think of running into a warthog or a baboon troop as you leave your hotel room!

Birds were diverse and wonderful. We saw/heard 398 species in Zimbabwe and 193 in South Africa, and they included lots of birds in groups that are restricted to or most diverse in Africa: ostriches, francolins, bustards, lapwings, mousebirds, rollers, bee-eaters, kingfishers, hornbills, larks, swallows, Old World warblers, thrushes, pipits, shrikes, sunbirds, weavers, and waxbills. Highlights included a Cape Gannet colony with 20,000 birds; sleek Blue Cranes, the national bird of South Africa, stalking through waving grassland; breathtakingly beautiful Carmine Bee-eaters coming in to a waterhole; a pair of Bat Hawks at their nest; flocks of scarlet bishops and golden weavers glowing in the afternoon sun; a eucalyptus grove full of huge Silvery-cheeked Hornbills; and the glossiest starlings you can imagine (you'll never feel the same about starlings after a trip to Africa).

We saw just about all the large mammals we expected: elephants galore, hippos, white rhinos, zebras, giraffes, Cape buffaloes, and many kinds of antelopes, both big (bonteboks, sables, and kudus are particularly striking) and small (steenboks and klipspringers are merely cute). We didn't do very well with carnivores but did see a few hyenas and jackals, civets, and four

species of mongooses. Elephant shrews and rock hyraxes were the most exciting small mammals we saw, both of them in orders largely restricted to Africa. Imagine if the order Odonata were restricted to one continent!

I could go on and on, but I assume you're reading this for the dragonfly stuff. If anyone is curious, I'd be happy to send bird and mammal lists, also my compiled lists of the Odonata of Zimbabwe and the Southwest Cape region, or my field records if you're really interested.

We originally thought we might not see too many odonates, as it was near the end of the dry season in Zimbabwe, and it appeared from the literature as if many species didn't begin to fly, or at least to become common, until the rains. We knew we would be heavily into birding and photography, perhaps with insufficient time for dragons. And we didn't see all that much on our first visit to a lake near Harare, although it was there that I learned that *Brachythemis leucosticta*, both the black males with their big wing spots and the brown females with their vertically banded eyes (shades of *Pseudoleon*), perch flat on rocks and the ground, so cryptic that they're invisible until they flush.

Dragonfly fever didn't hit us until we headed out of Harare for the eastern highlands. It was a hot, sunny morning, and we had stopped in the midst of the dry "miombo" woodland to photograph an imposing granite "kopje", when we saw big black and yellow dragons cruising over the roadside. We ran back to the car for our nets and managed to snag a few of them; they were *Zygonyx torrida*, a spectacular gliding libellulid that looks as if it could eat a *Brechmorhoga* for breakfast.

Although we had a lot of cloudy weather in the eastern highlands, we found great dragonflies when the sun shone. Libellulids were abundant, most of them brilliant scarlet *Crocothemis*, powder blue *Orthetrum*, and the two color modes of *Trithemis*. That genus is fascinating in that it includes a bunch of blue-black species and a bunch of fiery red species. The blue-black ones all looked the same to us, and not until we returned did I realize we had collected 3 species. In addition, we got several blue *Orthetrum* that weren't distinguished until their hamules were scrutinized under a scope. Again and again when examining the specimens we brought back, I wished we had collected more of them. At

several localities we took only a few specimens of each of these genera, so we have no way of knowing if several species in fact were present. We did try to catch every species seen at each locality.

There were a lot of uncommon species, perhaps to become more common during the rains. At one pool/stream at the edge of montane forest at the Pine Tree Inn, near Juliasdale, we took a male each of the red and blue *Platycypha fitsimoni*, the big shade-loving *Chlorolestes elegans*, and the very *Micrathyria*-like *Atoconeura biordinata*. At the same locality, our concept of familiar genera (*Lestes*, *Enallagma*, *Aeshna*, *Anax*) was broadened by taking African species of each of them. Beautiful male *Aeshna ellioti*, with brilliantly striped thorax but almost entirely black abdomen, hovered over the pond shore, but the female *Aeshna* ovipositing in abundance in the stream just below the dam all turned out to be *A. subpupillata*. The "gotta getta big one" need was satisfied here with not only a copulating pair of *Anax imperator* but also two copulating pairs of *Anax speratus*, an impressive beast entirely the color of the abdomen of *A. longipes*, and about the size of that species. We had been seeing them for several days, gasping when one flew by when we didn't have a net in hand, and we finally nailed them at this locality.

We spent a couple of days in the Honde Valley, at lower elevation almost at the Mozambique border, and it was superb for dragonflies. Red *Chlorocypha consueta*, sparkling-winged *Phaon iridipennis*, big black and yellow *Macromia monoceros*, with those beautiful emerald eyes, and black-dusted-with-gray *Zygonyx natalensis* all got transferred from the swift-flowing Nyamgombe River to net to envelope to acetone to box in the course of our stay. We stayed at the Aberfoyle Club, an old hotel in the midst of a tea plantation but with good patches of forest nearby. Surrounding the hotel were bunkers and barbed-wire fences, intact remnants of the 1979 war for independence, or revolution, depending on the viewpoint of the participants.

The rivers in this valley are gorgeous and could be waded because they weren't inhabited by bilharzia (schistosomiasis, a nasty disease caused by a protozoan blood parasite). At a backwater of one of them, we found the primitive libellulid

*Tetrathemis pollenii*, entirely powder blue with big black wing patches, and *Palpopleura lucia*, with similar colors but considerably more personality. I had always wanted to see *Palpopleura*, the Old World relative of *Perithemis*, and I got satisfaction on this trip. *P. lucia* was present at most sites, perkily perched on twig tips with depressed wings. At a given site all males would have about the same amount of black on their wings, then a few kilometers down the road all might be differently marked. Determining the cause of this variation would be a fascinating study. *P. jucunda*, a tiny and really beautiful dragonfly (I'll be bringing slides to Nebraska), was common in low sedge marshes.

We slowly made our way south in the highlands, picking up a new dragonfly here and there, but the fauna didn't change much until we turned to the west and headed out into the dry woodland again. At a brand-new dam (there aren't ponds in Africa, only "dams" caused by damming streams and "pans" caused by the flooding of low areas during the rainy season), we found dragonflies abundant in the open woods, and we caught 4 species of recognizably different *Orthetrum*. I had always read that dung beetles were abundant in Africa, with the abundance of large mammals, and they were buzzing around everywhere here, attracted by—you guessed it, cow pies! We think we must have seen one elephant-dung beetle, which sounded like a 747 going by.

With birding as good as it was, I found nevertheless that the diversity and abundance of odes caused me to revert to odonatologist at every chance. Even Dave, who was overwhelmed by the newness of just the birds and butterflies, turned into a Hagenius (Dragonhunter) just about every day. While we collected, *Netta* wandered around and photographed every odonate she came across, including species not seen by me at various sites.

We spent two days in the midst of "kopje" country south of Bulawayo, a fabulous place for rainbow-colored lizards of several families (they outdid the odonates in brilliance) and a breeding place for the rock-loving brown, mottled *Bradinopyga cornuta*, one of which we caught when it flew into our chalet. We also found a huge antlion and a member of the family Nemouridae, with extremely modified streamer-like hind wings. There is a classic old painting

that has been used on greeting cards that includes some exotic odonates and, I think, these exact two species of neuropterans!

As we made our way west, we started running into gomphids. Although we never found much diversity in this family, the huge *Ictinogomphus ferox* was common at most localities, and amazingly easy to approach. As I started running out of room in the one large box I had brought with me, we didn't take as many specimens of *ferox* as we could have. The little green *Paragomphus genei* was equally common along sluggish, muddy sloughs that didn't really look like gomphid habitat. Other noteworthy species included *Nesciothemis farinosa*, closely related to *Orthetrum* and pruinose blue except for the last 5 abdominal segments, which are black with orange stripes. Why no pruinosity on those segments, when virtually all libellulids with pruinosity have the entire abdomen covered? Perhaps to look different from the abundant all-blue *Orthetrum* species?

We found two species of *Urothemis*, the bright red *assignata* and the blue-violet *edwardsi*. Both perch on the tips of twigs—they're related to *Macrodiplax* of the New World—but *assignata* is unique in my experience in returning again and again to the same perch after being swung at and missed. I was delighted to read that Pinhey had the exact same thing to say about it. *Macromia picta* is another real sweetheart of a dragon—smaller than our American species, brightly banded, and with glowing green eyes, we saw it at many localities and always gave chase when one flew by.

We finished up our stay in Zimbabwe in the Victoria Falls area. Dragons were equally interesting there, including two species of *Olpogastra*, big showy black and yellow libellulids something like *Zygonyx* that have no equivalent in the New World. We took a trip to Kazungula, at the very western end of the country, and went out on a boat on the Zambezi River. It was not only fabulous for water birds (and crocodiles, monitors, hippos, etc.), but great for dragons. We found our only *Mesocnemis* (Platycnemididae; big pruinose gray damsel) here, as well as 3 species of *Pseudagrion* we hadn't yet seen (including *P. deningi*, our only new record for the country) and a female





## SPECIMENS TELL STORY OF MIGRATION -- BUT NO LONGER?

Dennis Paulson

In my experience, certain species of Odonata characteristically produce a brown greasy stain on their paper envelope or data card. It took me quite a while to realize that the one common denominator among the species that did so was that they are well-known for their long-distance migratory movements. I've seen badly grease-stained cards in several species of *Anax*, *Pantala*, and *Tramea*, all long-distance dispersers, and I'm convinced these individual specimens had substantial fat deposits in them. The fat facilitates migration by furnishing easily available calories while in transit, just as in birds. The neat thing about this is that not all individuals stain the envelopes, and I suspect strongly it is only those that are actually about to start or in the process of a lengthy migration. Thus just by looking at the cards in a collection, one might get a handle on several aspects of migration, including (1) determining just which species exhibit this phenomenon; (2) during what seasons does migration occur; and (3) which populations (and individuals) migrate. Anyone studying dragonfly migration should start weighing specimens captured, one of the standard ways to detect fat deposits in birds.

Unfortunately, there are two problems with this. First is that people often replace these "tacky" cards. Whenever I do that now, I always note that there was grease staining on the original card, but I know I retyped many of them years ago before I understood the significance of the grease. Second is that I wouldn't doubt that acetone removes some or all of this fat; thus our present way of treating specimens will probably eliminate this valuable source of information.

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## 1997 PUBLICATIONS ON ODONATA OF OTHER LANDS

### Reviews by Roy Beckemeyer

This year saw a series of new dragonfly publications from around the world. Even if you never expect to travel to the places covered by any of these books, you might very well find them intriguing reading. They provide a means

of acquiring a better understanding of the diversity of the world odonate fauna that can help us to better appreciate and understand our local taxa.

Let's begin with "**A Guide to the Dragonflies of Sri Lanka**", a personally-published book by Terence de Fonseka (14 Coleridge Road, North Finchley, London N12 8DE, England, Telephone: 0181 446 2936). (I learned of this book from DSA member Nayeem Hoq, who had obtained a copy in preparation for a trip to Bangladesh and India.) The author describes his effort as "...a compilation of all the information I could collect on the dragonflies of Sri Lanka..." As of late September, when I purchased a copy by mailing Mr. de Fonseka a 20 pound note (to cover the book plus postage), he had exhausted the first printing, but was in the process of making a few more. Anyone interested should contact him to determine the availability of copies before ordering.

The book is 5 and 7/8 by 8 and 1/4 inches, 223 pages, and spiral bound. The author's intent was to provide a work accessible to those Sri Lankans who might be interested in studying Odonata but who would not have access to the scattered literature by Kirby, Lieftinck, Laidlaw, Fraser and others in which the information is currently to be found. He has put a lot of information into a concise package.

The book contains a systematic list of Sri Lankan species, keys to adult and larval (where known) forms of each species, and a short description of each insect. These are accompanied by sketches that appear to have been traced from the original publications (ascribed in each case to the source, but occasionally not quite accurately), and reduced to fit the page size. This appears generally to provide satisfactory information; for the figures for which I had either original or good xerox copies of the original papers, the sketches by Mr. de Fonseka were faithful copies. Only in the larval and adult habitus drawings in which the original contained shading to illustrate color patterns were the figures in this book unsatisfactory. The figures are followed by a section on habits, which includes citations to references. Next are a series of color photocopies of photos of living adult insects (not great copies, but usable), a list of species contained in the Colombo Museum, some notes on odonate distribution in Sri Lanka, a glossary,

references, and an index with some synonymies listed. I did not check the entire species list against Bridges' latest catalog or to more recently published literature to determine whether all the nomenclature was up to date.

The author has made a conscientious effort to assemble disparate pieces of information into a quite helpful package. With some careful choices, one could easily assemble some of the original papers to supplement the less clear figures, and still have a compact (and valuable) reference to accompany a trip to Sri Lanka or the Indian subcontinent. I admire Mr. de Fonseca's effort and as one who has been working with the inter-library loan departments of several libraries to acquire copies of some of the more obscure literature on Asian odonates, I greatly appreciate what he has done.

The next publication is a smaller booklet (center-stapled format) of 78 pages devoted to the mountain odonate fauna of the Drakensberg range of South Africa. The book, "**Dragonflies of the Natal Drakenberg**" by Michael J. Samways and Gael Whiteley, is number six of the "Ukhahlamba Series" (the Ukhahlamba Field Center at Cathedral Peak provides facilities for teaching and research) published by the University of Natal Press, Pietermaritzburg (1997). The book is available in the US from International Specialized Book Services, Inc., 5804 NE Hassalo St., Portland, OR, 97213-3644, (Telephone (503) 287-3093, email: mail@isbs.com) for \$17.95 plus \$4.50 shipping.

The publication contains keys to adult males and larvae. It covers the 23 known species of Odonata that occur at 1500m elevation and above. Brief but informative notes are included as to localities at which various species are to be found. Also to be found are sketches of the larvae and color photos of the adults and some of the larvae. This would be just the book to tote along on a trek into the mountains of eastern South Africa.

The final book is a new "**Field Guide to the Dragonflies and Damselflies of Great Britain and Ireland**", edited by Steve Brooks and illustrated by Richard Lewington (1997, British Wildlife Publishing, Lower Barn, Rooks Farm, Rotherwicke, Hook, Hants RG27 9BG, England, cost is 16 pounds sterling plus 5 pounds postage for those in the US). The illustrations are fine

paintings of adult odonates, with dorsal and lateral views similar to those in the earlier "A Field Guide to the Dragonflies of Britain, Europe and North Africa", by d'Aguilar, Dommanget & Prechac which was published in its English translation (translated by Steve Brooks) in 1986. The only other field guide prior to this one that I know of for the British fauna was the Hamlyn Guide "Dragonflies and damselflies of Britain and North Europe", by Bob Gibbons (1986); it was illustrated by color photos.

This latest guide seems to be designed for converted bird watchers to some degree, as the species accounts contain, under "Description", the headings: "Jizz", "Field Characters", and "Similar Species", all familiar territory to those who use birding field guides. There are additional sections on "Status and Conservation" and on "Ecology and Behaviour" for each species. A feature I found attractive was that the species accounts were authored by various individuals, often by the person who had done a life history or in-depth study of the particular species. Thus, Mike Siva-Jothy covered the *Calopteryx* species, Phillip Corbet the account of *Anax Imperator*, and Mike Parr that of *Coenagrion pulchellum*.

The book is paperback, with a glued cover, and measures 5 and 5/8 by 8 and 1/2 inches. In addition to the species accounts are an Introduction, covering general biology of Odonata (and including a brief section on "Dragonflies and the Law"). There is a 20 page "Regional Guide" which discusses the locales and fauna of various sections of Britain and Ireland. There are two keys: a key to families of adult odonates that uses color photos, and a key to species of larvae that uses sketches. A deficiency of the key to larvae is that it uses terms such as "prementum" and "labial palp" without ever defining them or showing a sketch of an entire labium with the parts labeled. The key would be useful to those already familiar with larval anatomy, but would present problems to those new to the study of dragonflies. A bit more care would have made this key accessible to a larger audience.

Perhaps the most attractive feature of this book for most of us would be the regional information providing guidance to accessible sites where the odonates could be found. Most areas of the world (and the US) now have such guides for

birders; this is one of the first that I have seen for Odonata enthusiasts.

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### Guidebook to Dragonflies of Taiwan (Part 1)

Hsiao Yue Wang and John B. Heppner

distributed by Flora and Fauna Books,  
PO Box 1518, Gainesville FL 32604  
price \$27.50 (cloth) in US, less 10% discount  
shipping \$2 (\$3 outside US)

reviewed by Nick Donnelly

This is the first book on Taiwanese Odonata. [A catalogue has previously been published (Liefertinck, Lien, and Maa, 1984), but this contains no illustrations or keys and will be of limited use to the beginners.] The text of the book is both in English and Chinese.

The book begins with a brief but clear account of Odonata habits and life history, including a series of photos of the emergence of an unidentified libellulid (*Orthetrum* sp?). There is a clear and well-illustrated guide to morphological terms, both for adults and larvae, and a variety of larva are illustrated.

The bulk of the book is a set of pictures showing many of the common Taiwanese species. The quality of the pictures ranges from "I-wish-I-had-taken-that-one" to somewhat poor, but it is not clear whether the original or the printed version is at fault. There are some misidentified photos: Fig. 27, labeled "*Copera* sp., in tandem" shows *Coeliccia cyanomelas*. Figure 76 is not *Mnais*; but *Bayadera brevicauda*. The unidentified title page illustration is of a *Polycanthagyna erythromelas* female, which is strikingly unlike the male of the species (picture shown later).

The authors attempt to show examples of the more common species, which would be of maximum use for a beginner. However, several fairly common genera are omitted, including *Copera*, *Aciagrion*, *Diplacodes*, *Sympetrum*, and *Rhyothemis*. In spite of their great beauty, the family Chlorocyphidae, of which there are two Taiwanese genera: *Libellago* and *Rhinocypha*, are not illustrated. The rich gomphid fauna is illustrated with three genera, but five more can be reckoned to be fairly widespread. Because there are no keys or tables of identification, the beginner is likely to find

several genera which will be unidentifiable. There is no discussion of families, and the beginner will find no examples of synlestids, chlorocyphids, protoneurids, corduliids, or macromiids (listed separately here).

I can find no explanation for the title term "Part 1"; the implied Part 2 may well address some of these deficiencies.

Who should own this book? It is one of the few sets of color pictures of Oriental genera of which I am aware. Some other books on Japanese Odonata are very expensive and have beautiful illustrations, but have only the scientific names of the insects in our familiar Latin letters. Thus I suspect many odonatists will want to own this book. Beginners will find it useful but will be frustrated by the omission of so many common species.

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### Status Survey and Conservation Plan. Dragonflies.

Compiled by Norman W. Moore  
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Reviewed by Nick Donnelly

This attractive and generously illustrated pamphlet (28 pp., quarto) is printed on good paper and has excellent color photographs. Starting with a brief review of Odonata life history, it quickly tackles the perceived threats to Odonata around the world. It predictably makes the point that the tropical rain forest is the habitat with the most species, and concludes that "clearance of tropical rain forest, for whatever purpose, imposes the greatest world-wide threat to dragonflies." As a geologist with considerable exposure to these environments, I believe that this emphasis may be somewhat misplaced. I would not care to debate the possibilities of regeneration of rain forest (I believe there is good evidence that these forests are hardy), but I am worried that this emphasis, found here and in almost all similar documents, may be drawing our attention from another highly vulnerable environment: small streams and other wetlands in semi-arid country with developing agriculture. I

agree that the clearance of rain forest may extinguish species before they are found, but our experience in the United States in the last half century suggests that we could also be losing yet-unfound species (We have found about one new species per year in that interval.) as a result of ground-water withdrawals and stream degradation in the semi-arid western United States.

The pamphlet makes the good point that conservation should seek to preserve certain designated areas. This point seems obvious, but there has long been a division of opinion between those who want to target designated "endangered" species (generally birds or mammals, less frequently plants or lower vertebrates, and almost never invertebrates), and those who wish to preserve habitat. I have been told by "authorities" in the field of conservation that the public would never stand for preservation of habitats - it's species or nothing. This pamphlet goes a long way towards refuting this unfortunate belief.

The pamphlet further emphasizes the importance of continued research. Compared to birds, butterflies, and even reptiles, Odonata have received little attention. It is not surprising that several "long lost" species have been re-discovered in the last few decades, and some of them have been found to be widespread, but devilishly difficult to find. Such information is essential if there is to be an intelligent plan for conserving Odonata. And yet governmental bodies have not always acted in the best interests of this necessary aspect of conservation.

The pamphlet makes the point that blanket prohibition of collecting has several negative aspects, one of which is the little-mentioned negative effect on young people, who are, after all, the ones that should be encouraged the most. One subtle but very real effect of regulation is that its inherent clumsiness often leads ineluctably to a loss in communication between the government and their potential sources of information - the vast and growing army of amateurs. We are entering an era in which the development and use of information itself is not very well thought out, and governmental persons would do well to read and ponder the broader meaning of these passages.

The weakest section of the pamphlet seems, to me, to be the one on priorities. The authors draw up an elaborate list, presented both by taxa and by region, of "priority species". [They also present the various "Red Lists" of several countries, which collectively contain so many inappropriate species that they will probably be ignored by serious odonatists.] A quick scan of their list revealed several species which seem to me to be not at all threatened, because they can be found widely in areas that have already been extensively developed.

For example, I noted species such as *Tachopteryx thoreyi* in the US, and *Onychothemis testacea* and *Devadatta argyrioides* of Thailand and peninsular Malaysia, which are included because they are "taxonomically isolated" or "species of monotypic genera". To this I say, "So what?" These are not alleged to be endangered, and it seems to me that they are doing very well. Are they implying that species in "non-isolated" groups are less valuable or less vulnerable? This philosophical point is poorly made, and the inclusion of these lists, in the form in which they are presented, detracts from the impact of this otherwise very sensible document.

On the whole, this is an important and well presented document. Whether it will be read by the right people, and whether these people will absorb the message is not clear. I recommend that everyone with a serious interest in conservation examine obtain and examine this pamphlet carefully.

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## UPDATE FROM THE IORI

**Bill Mauffray**

1997 was a very good year for the IORI. Fund raising activities from book and envelope sales allowed me to have four new specimen cabinets completed and one more is scheduled for completion by the end of the year. Three more will be completed in the first half of 1998 making a total of 7 new cabinets. Another 5 are scheduled to be built within the 12 month period beginning in June of 1998. Each cabinet consists of 16 drawers which hold an average of 250 specimens per drawer or 4000 specimens per cabinet.

A computer was purchased and data entry to specimen level has began. Several have contracted with me to obtain data on the following states: Louisiana, Maine, Nevada, New Hampshire, Ohio, Vermont, and West Virginia. These orders for data have served as "mini grants" to hire people to input the data. The computer has been kept busy for about half the year and has already mostly been paid for by these "request for data grants". I am currently having the Ecuadorian specimen data entered to supplement a future paper.

A year round, part time assistant was hired to help with book orders, specimen loans and data entry. Michelle Faniolia, who is a staff member of the FSCA, has helped relieve me of the menial daily task of running the IORI so that I can concentrate on some taxonomy and curation. It also gave me the time to sell some real estate (my paid job!!!); and gain the recognition from the Gainesville Association of Realtors by being selected as their "Realtor of the Year" for 1997 at the annual Christmas banquet. .

During the summer, a part time assistant with Odonata interest, Laura Sirot was hired to assist in curation. This worked out very well, and allowed me to catch up on getting all of the specimens put away that had accumulated over the last few years.

The internet web site has obtained world wide recognition and is being accessed an average of 10 times a day. E-mail traffic averages 5 messages a day. A checklist of North American Odonata down to state/province level will be added soon (possible by the time you read this). This is a result of the efforts of George and Juanda Bick who have also contributed numerous hours of their time here at the IORI. And FSCA in processing, identifying and enveloping specimens. Thanks George and Juanda!!!

The 1997 DSA meeting hosted here was a great success and drew a record attendance. Thanks again for you all who participated.

With the turmoil within the SIO membership in Europe, two new groups have evolved: the Foundation S.I.O. and the World Dragonfly Association. I have offered support to both organizations and have kept an open line of communication with each. I will continue to

handle the Odonatologica subscriptions for the United States, and also the Canadian and Mexican subscriptions. For the WDA, I am assisting them in the setting up their new WEB site. I have set up a page on my web site for members of both organizations to present their views on themselves (and each other!!!)

1998 promises to be a good year. Book and envelope sales should continue to be the main source of income for the IORI. The scheduled release of the updated "Manual of the Dragonflies of North America" should offer another surge of income latter in the year. We will begin taking advance orders in the Spring, or as soon as a price is set by the publisher and the authors.

I wish all of you a happy and prosperous New year. I hope to see you all at the Nebraska Meeting. I will bring some envelopes and books to sell as usual.

Price list for books and envelopes are available on the web at [www.afn.org/~iori/](http://www.afn.org/~iori/)

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**WHO WANTS A COPY OF NEEDHAM & WESTFALL'S DRAGONFLY MANUAL?**

In a used-book store I recently found an apparently unused copy of Needham & Westfall's classic book: "A Manual of the Dragonflies of North America (Anisoptera)". This is the first printing with excellent graphic rendition and a colored frontispiece (I am told there is a later printing with inferior graphics.). There are very light discolored spots on the edges suggesting the book has been shelved almost continuously since 1955, when it was printed. I understand copies have been going at about \$85 recently. Adding in the state sales tax and postage, my cost comes to \$52. Send a check to T. Donnelly (2091 Partridge Lane, Binghamton NY 13903) and it walks.

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**ERRATA: The Dragonflies of Washington (BAO 4(4))**

At the bottom of page 78, right column, the following should be added:



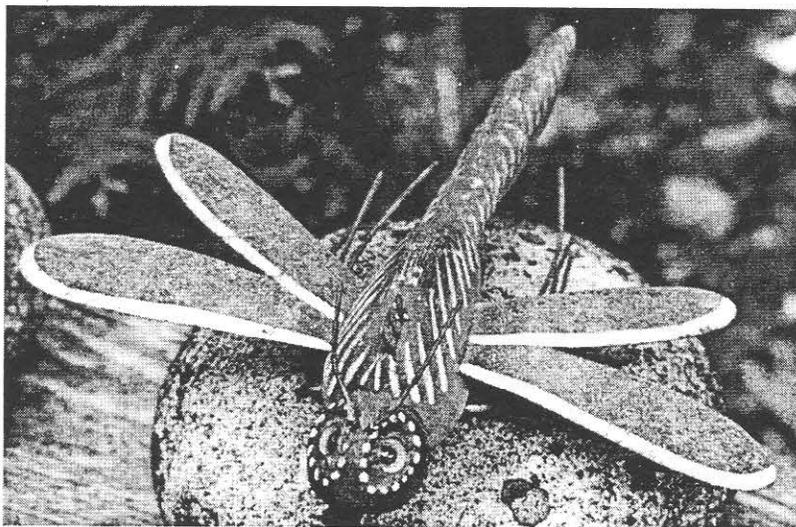
encountered include 6 *Ophiogomphus*, 3 *Gomphus*, *Lanthus parvulus*, *Stylogomphus albistylus*, *Dromogomphus spinosus*, *Progomphus obscurus*, and *Hagenius brevistylus*. Bob also created a table listing the percentage of *Ophiogomphus* found at each site:  
<http://www.hsrl.rutgers.edu/Hudson.gomp.html>

Visit Hal White's web site and learn about his odonate interests and publications. He has written at least 23 articles about dragonflies and damselflies:  
<http://www.udel.edu/chem/white>

Recent Sightings. Steve Valley has posted some information about odonate migrations along the west coast of the United States. Among many interesting reports, you can read about movements of *Sympetrum corruptum* along the Oregon coast during September 1997.  
[http://www.skipnet.com/~ore\\_dfly/migrate.htm](http://www.skipnet.com/~ore_dfly/migrate.htm)

Useful Tools. Nick Donnelly e-mailed with information about web sites that help with identifying geographical locations. One is the USGS National Mapping Information page:  
<http://mapping.usgs.gov/>

If you have any questions or comments, please don't hesitate to send e-mail to: [odenews@capecod.net](mailto:odenews@capecod.net).  
Happy odonatological surfing! J



Would you rise to this bait?  
(fishing lure; sent in by Bernie Gollop, Saskatoon)

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