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# ARGGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF THE AMERICAS

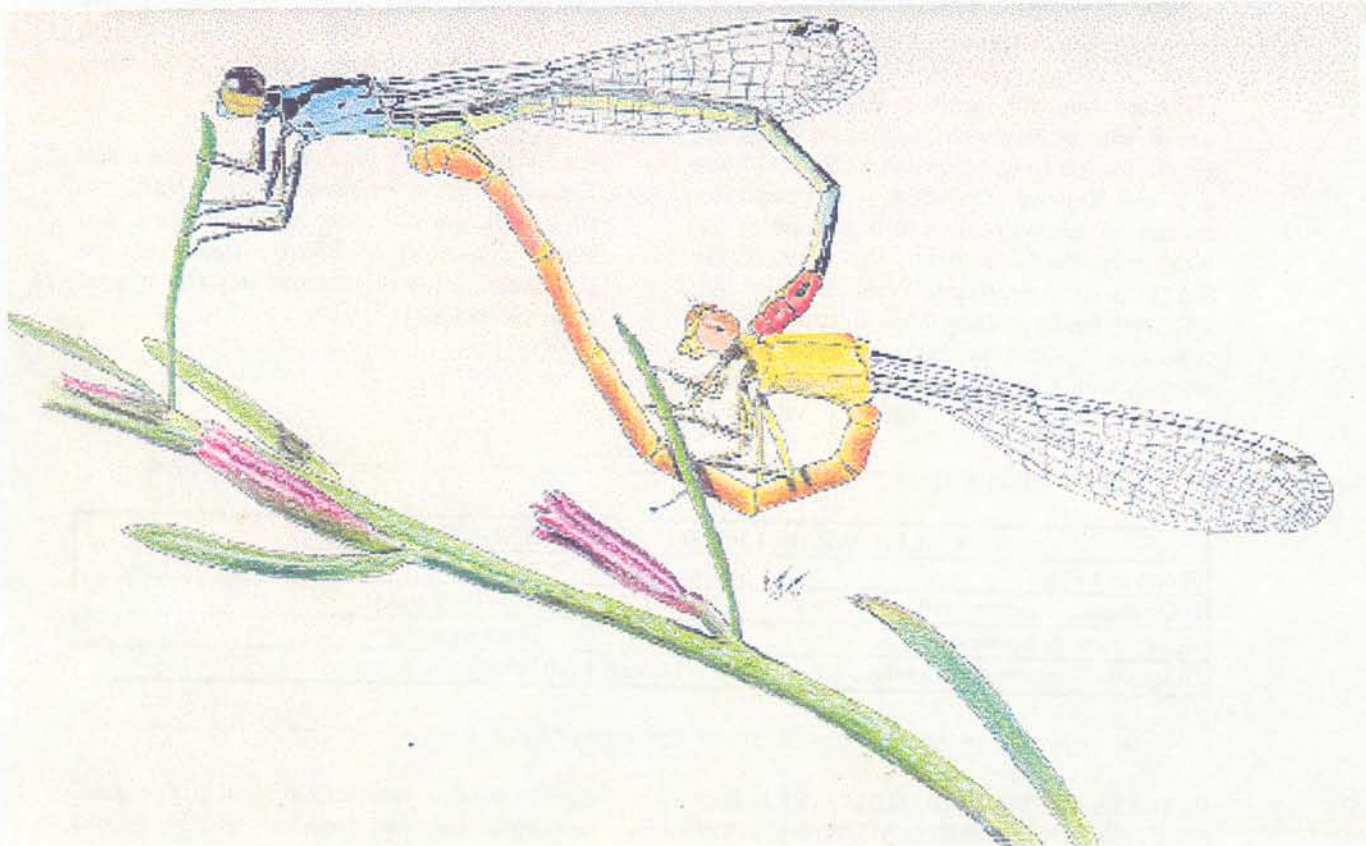
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# ARGIA - The News Journal of the D.S.A.

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## IN THIS ISSUE

What a strange year this has been. One of the mildest winters on record has been followed (in the northeast) by one of the wettest and most dismal springs. There has been so much rain (and genuine destructive tornadoes in Binghamton, where everyone knows we can't have such things) that we haven't gotten into the field very often. Not surprisingly, we have done precious little field work this year. I look forward to a hot, dry Nebraska meeting, followed by the ADIP meeting in New Brunswick.

The annual Southeastern and Northeastern meetings proved to be rewarding trips this year. The southeastern trip had haze instead of its traditional snow, and the northeastern trip dodged rain storms and floods. Both trips turned up notable species and were highly successful.

My most dragonfly-intensive day this summer was a trip to Hamilton to discuss the 1999 Symposium on Dragonflies that Vicky McMillan and Janet Rith are organizing. I had originally announced this symposium as a function of the WDA (Worldwide Dragonfly Association). In fact, it is an independent event, although the WDA will hold a meeting in conjunction with the symposium. This promises to be a superb meeting, with a large number of foreign visitors. Because many DSA members anticipate

attending this symposium, at Valentine we will discuss having the DSA meeting next year in conjunction with this event..

Inspired by the note in a previous issue of odonates being used to assess environmental impact on Texas lakes, Jerrell Daigle discusses the fairly elaborate scheme used in Florida to measure impact on their lakes. Sadly, many oligotrophic lakes which provided much of the beauty of the state are now nutrient rich, simply because so many people just had to live by them so as to enjoy this beauty.

Because contributions are scanty for this issue, I have continued my series on the history of Odonata study in the New World. This series has also become an excuse for scanning in some photos of the great men of the field. I have borrowed many old photos for future issues; happily the later great odonatists lived when photography became a part of our life.

We have a series of regional notes - from Stuart Tingley in New Brunswick, Steve Valley in Oregon, Ginger Carpenter in Rhode Island, and Mark O'Brien in Michigan. Based on this information, at least someone has had a good season somewhere.

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CALENDAR OF UPCOMING MEETINGS AND TRIPS		
Group and Place	Date	Contact
DSA annual; Valentine NB	17-24 July	Roy Beckemeyer
ADIP; New Brunswick	7-9 Aug.	Paul Brunelle
Dragonfly Symposium, Hamilton NY	11-17 July, 1999	Vicky McMillan

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## RESULTS OF THE SOUTHEASTERN DSA MEETING IN GEORGIA, MAY 15-17, 1998

**Ken Tennessen**

The purpose of our meeting in northwest Georgia was two-fold, to try to find if

*Ophiogomphus edmundo* occurs in this state, and to amass as many records as possible for Bill Mauffray's project on Georgia county records. The reason we suspected that *O. edmundo* might be in Georgia is that I had reared two individuals just north of this area in Tennessee a couple years ago. We met in Chatsworth, late on May

15, a bright, sunny day with promise of good weather for the next few days. Some participants arrived with some new county records already -- the biggest surprise was that Bill, who drove up from Florida and took the long way to get to Chatsworth, had already found *O. edmundo* in northeast Georgia! Optimism abounded -- we picked the right weekend to meet.

A small crew assembled Friday night to strategize: Jerrell Daigle, Steve & Mary Jane Krotzer, Bill Mauffray, and myself. We had made plans to meet Sat. morning with several U.S. Forest Service personnel who were familiar with the streams of the area. This turned out to be an excellent idea, as Keith Wooster and Rex Rymer from the Chatsworth office, and Cindy Wentworth from the Blairsville office, showed us a great time and some beautiful streams in the Cohutta Wildlife Management Area. At the Conasauga River, in the Alaculsy Valley, we saw habitat that looked suitable for *Ophiogomphus*, but the sky was filled with a heavy haze caused by the extensive fires in southern Mexico. The only gomphids we saw were a few *Gomphus lividus* and *G. exilis* in an adjacent hayfield, although Steve and I dug up some full-grown larvae of *Stylogomphus albistylus* and a very small *Ophiogomphus*. We checked a couple of other localities without any more luck, but did get a number of new records for Murray County. We all had fun showing Keith, Rex and Cindy some of the Odonata, such as the large, metallic green *Calopteryx angustipennis*, and learning more about the area and the wild flowers from them.

Saturday evening Minter Westfall arrived, and we had a very enjoyable dinner with him. Also visiting were John Heppner and Howard Weems, who were in the area with another group collecting Lepidoptera and Syrphidae. We concluded that the conversation was much better than the Italian cuisine, which was supposed to be veal parmigiana, but was more like spaghetti covering an obviously frozen, breaded veal cutlet, baked at roughly 2,000 degrees F. To add to our woes, the weather outlook for Sunday was, yep, more haze.

To our pleasant surprise, Sunday morning greeted us with a partly cloudy sky, devoid of haze, as a mild cold front was pushing the haze to the south of us. We had breakfast, and planned to revisit the Conasauga River in the Alaculsy

Valley. However, Bill had to head for Louisiana, and the Forest Service folks took the day off. So that left the burden of finding the elusive *O. edmundo* to Jerrell, Steve & Mary Jane, and myself. And a capable small crew this turned out to be on this bright sunny day. We saw approximately 6 males that morning, flying over shallow riffles and landing on rocks, although it appears that the population occupying this portion of the Conasauga is quite small. We recorded at least 15 other species at this site (including *O. mainensis*, a new state record) for Bill's project. I plan to try to estimate populations of *O. edmundo* on various stretches of the Conasauga next year by conducting exuviae searches in late April or early May, provided heavy spring rains do not create high flows after emergence. This year the river was at least 10 feet above normal levels in places due to extremely heavy rainfall in late April, undoubtedly washing away the exuviae. Anyone want to help?

We voted to hold the 1999 Southeastern Meeting in western Tennessee, an area that is very poorly studied. The meeting dates will be sometime in late May, as many species should be flying at that time. Details will appear later this fall in ARGIA.

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**NORTHEASTERN MEETING IN MAINE - GOOD BUGS IN SPITE OF THE WEATHER!**

**Nick Donnelly**

The intrepid northeastern group continued its lamentable tradition of picking a wet weekend for its meeting on 20-21 June in Fryeburg, Maine. The aim of the meeting was to explore the little studied Saco River, a very sandy river with a substantial population of *Progomphus obscurus*, and who knows what else.

As most of you have been aware, it has been a strange year - a mild winter in the Northeast followed by horrendous rains. Nevertheless, thirteen people gathered in Oxford to try to break the hex: Carol and Oliver Flint, Sue and Mike Thomas, Nick and Ailsa Donnelly, Peter and Jeremiah Trimble, Jackie Sones, Blair Nikula, Stuart Tingley, Paul-Michael Brunelle, and Mike Veit



- Paper Sessions
- Canoe Trip through Nine-Mile Swamp
- Observing and Collecting Trip to Rogers Environmental Education Center along the Chenango River
- Hiking and Collecting Trip along the Finger Lakes Trail on the Otselic River
- Informal Presentations

Saturday, July 17 to Tuesday, July 20:  
Post-Congress Tour I. to the Adirondack Mountains in upstate New York.

Wednesday, July 21 - Sunday, July 25: Post-Congress Tour II. to Minnesota.

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## THE USE OF ODONATES TO ASSESS LAKE QUALITY IN FLORIDA

**Jerrell Daigle**

The Florida Department of Environmental Protection is currently analyzing and sampling Florida lakes for aquatic macroinvertebrates, especially dragonflies and damselflies. We have devised a draft "Florida Lake Bio-Recon Field Sheet" to be used when sampling. Our protocol and data sheets are loosely based on the modified EPA "Rapid Bioassessment Protocol II" by Plafkin, et al. 1989.

Chemical and physical measurements are taken at each site. In-situ measurements of dissolved oxygen, pH, temperature, and specific conductance are taken using Hydrolab or YSI multiprobe meters. Such data can be used to determine the ecological requirements of such aquatic macroinvertebrates as clams, caddisflies, mayflies, midges, and most importantly, the dragonflies and damselflies. We expect to use such creatures as biological indicators of lake water quality and to predict any future trends through routine lake monitoring.

The "Lake Bio-Recon Field Sheet" list assigns a point value to taxa groups and specific species. A high score indicates a clean lake and a low score usually means a polluted lake. In general, the clams, mayflies, caddisflies, dragonflies, and damselflies have the highest point values. Examples of these groups are the clam, *Elliptio buckeyi*; the mayfly, *Hexagenia limbata orlando*;

the caddisfly, *Cernotina truncona*; the dragonfly, *Didymops floridensis*, and the damselfly, *Enallagma sulcatum*. All of these species occurring together indicates a pristine, oligotrophic sand-bottomed Florida lake.

A slightly more productive or mesotrophic lake with some detectable nutrients such as nitrogen and phosphorus may comparatively have *Villosa* sp., *Stenacron* sp., *Leptocerus americanus*, and the odonates *Aphylla williamsoni*, and *Lestes vigilax*.

A severely polluted, eutrophic lake like Lake Apopka can have little or no diurnal oxygen at night and Chlorophyll a values over 160 ug/l during the day. Such a lake has fingernail clams, *Caenis diminuta*, *Orthotrichia americana*, and the odonates *Pachydiplax longipennis*, and *Ischnura ramburii*.

We are in the process of developing a separate metric rating for all the species of Florida dragonflies and damselflies as pollution indicator species for lakes and streams. We have 113 breeding species of dragonflies and all but 5 species indicate clean water. In lakes and ponds, *Erythemis simplicicollis*, *Pachydiplax longipennis*, and *Perithemis tenera seminole* indicate very low dissolved oxygen levels and high levels of organic pollution. *Libellula lydia* and *Orthemis ferruginea* indicate low dissolved oxygen levels in streams.

As for the damselflies, we have 44 breeding species in Florida, the vast majority living in clean water. Only 6 species have been taken in lakes, ponds or streams with little or no nighttime diurnal oxygen levels plus high organic pollution levels. They are *Ischnura hastata*, *I. posita*, *I. ramburii*, *Enallagma civile*, *E. pollutum*, and *Telebasis byersi*.

We hope to have this metric and the "Lake BioRecon Field Sheet" finalized and approved for FDEP and public use later this year. If approved, further modifications may result using additional field data so this process of fine-tuning will result in a good, workable tool for biological assessment of Florida lakes.

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## THE HISTORY OF ODONATA: THE FOURTH PHASE

Nick Donnelly

The fourth phase of Odonata study in the New World is dominated by two towering figures; Philip Calvert and Friedrich Ris. Before passing on to these two, however, I should mention two additional contributors during this period. **William Forest Kirby** (1754 - 1850) was a zoological assistant at the British Museum with a major interest in lepidoptera. In the field of Odonata he is noted mainly for his **Revision of the subfamily Libellulinae** (1889) and for his **Synonymic Catalogue of Neuroptera Odonata** (1890). The first was the original attempt to group the many genera of libellulids in a natural scheme; however, his views bear only a slight resemblance to the Ris scheme which followed.

The Catalogue is remembered mainly for Kirby's introduction of the name *Coenagrion* to resolve a problem which had originated half a century earlier, which was the meaning of the older name *Agrion*. Fabricius had introduced this name in 1775 for the European species *virgo*, which is a familiar jewelwing there. However, Leach (1833) used the name *Calopteryx* for the same species, and other workers tend to follow this incorrect usage, reserving *Agrion* for other damselflies. This incorrect usage was adopted shortly by a major cataloger, Burmeister (1839) and by Selys in his **Monographie des Libellules d'Europe** (1840). Kirby recognized that this incorrect usage created an ambiguity, and his solution was to create a new genus *Coenagrion* for what had previously been called *Agrion*, since restricted to a fairly compact genus. Most people have followed Kirby, but only grudgingly, because this usage upset the law of priority.

**Robert M'Lachlan** (1837 - 1904; his name has also been spelled Mc and Mac) was one of the disciples of Selys and, specialized in neuropterous orders, and also in the Trichoptera, for which he is better known than for his work in Odonata. He contributed 27 species to the New World list. One of these, the spectacular Central American damselfly genus *Thaumatoneura*, he found as an unlabeled specimen in a junk store. Not knowing the origin of the species, he presumed that it had to be Oriental because of the type of pin that was used. M'Lachlan was also very interested in the spectacular polythorid

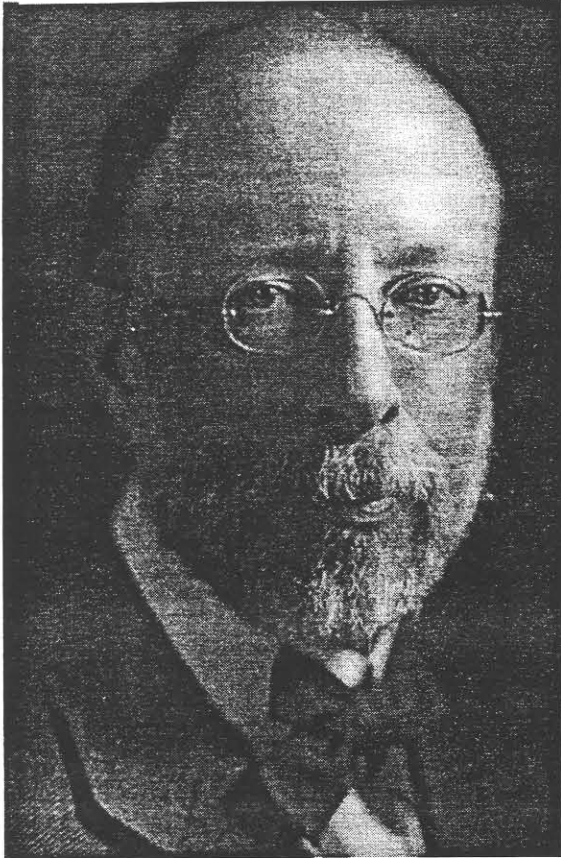
damselflies and named several species in this group.

**Philip P. Calvert** (1871-1961) was the son of a Philadelphia lawyer. He attended a Friends school (as Thomas Say had previously done) and continued at the University of Pennsylvania, receiving his PhD in 1895. He traveled in Europe and befriended several of the influential entomologists there and in the United States. His first major paper was his **Catalogue of the Odonata (Dragonflies) in the Vicinity of Philadelphia, with an Introduction to the Study of this Group of Insects** (1895). This was the first local faunistic paper in the US and centered on New Jersey, where Calvert enjoyed the riches of the famous Pine Barrens. The paper is especially significant as being the earliest US paper with an introductory section discussing the morphology, biology, and immature stages of Odonata. I have a copy filled with his own handwritten marginal notes. I have seen another similarly annotated copy, and I wonder how many copies filled with his writing there are?!

I recently browsed through Calvert's collection logbook, which is preserved at the FSCA in Gainesville. The young Calvert collected all sorts of things: mollusk shells, minerals, bird's nests, butterflies, etc. The first odonate (*Anax junius*) does not appear until a few years and several pages into the book. As you might guess, odonates came to dominate the later part of the catalog!

Calvert was an vigorous collector in his younger years. He especially enjoyed long bicycle trips from Philadelphia to the Poconos and the Catskills, adding many species to the odonate faunas of these states.

Developing a taste for tropical Odonata at an early stage, Calvert wrote three of his longer early papers (**Odonata of Baja California** (1895), **Odonate Genus *Macrothemis*** and its allies (1898), **Odonate from Tepic, Mexico** (1899)) on tropical odonates. This interest led to an invitation to prepare the "Neuroptera" (Odonata with a brief mayfly section) section of the monumental **Biologia Centrali Americana**,



Calvert looked exactly like this when I met him in 1956. The photo is dated 1929.

which was published in London in parts between 1901 and 1908. This book remains the essential work for any Neotropical Odonata student, and it established Calvert's reputation. During this same period he was invited to study Holland's large collection of odonates at the Carnegie Museum, and this led to the **Contributions to a Knowledge of the Odonata of the Neotropical Region, Exclusive of Mexico and Central America** (1909). Although he also contributed many short papers concerning North American species, he became most thoroughly identified with the Neotropical fauna. In 1909-1910 he spent a sabbatical leave in Costa Rica, slightly shortened because of an earthquake which destroyed Cartago but left him and his wife Amelia uninjured. One of the most valuable observations from this trip was the larval habitat of the giant "Helicopter" damselflies, which he found was in the leaf axils of bromeliads which live abundantly on the limbs of forest trees. (I was amused that in his year in Costa Rica he only

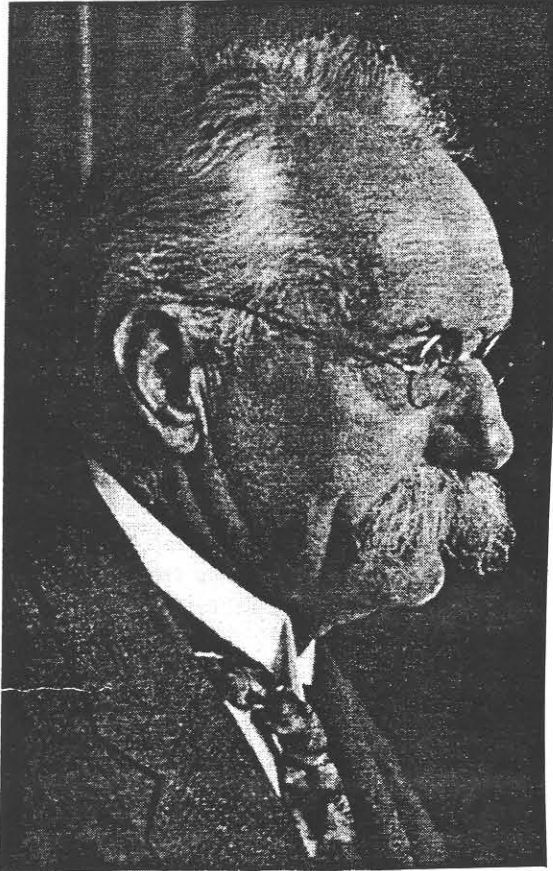
saw two snakes; I found two in my first four days there in 1962.)

Calvert in his later years remained quite sharp and was as helpful and kind in the last years of his life as his first. I talked with him in 1956, and he recalled a question I had raised several years before concerning the genus *Dythemis*. "Ris got it right" was his terse comment. The 218 species of New World odonates he named are a minor part of his total contribution to the study of Odonata. his final major paper was **Monograph of the New World members of the Genera *Aeshna* and *Coryphaeschna*** (1956), an essential paper for this difficult group.

**Friedrich Ris** (1867 - 1931) was born in Glarus, Switzerland. In his youth he chased butterflies over the Swiss hills and developed a life-long love of natural history -- with much guidance from a local woman taxidermist and naturalist. He became a physician and practiced first as a surgeon and later in a Psychiatric hospital in Rheinau, which he directed. Although one of his eyes (at the age of 40) had been blinded in an attack by a patient, he was able to enjoy a long career as an entomologist.

Ris may have been one of the most important global odonatists. As he stated in a letter to Calvert,

"The Americans conspicuously limit their investigations to the inhabitants of their own two continents; Laidlaw, Fraser, and Lieftinck have never touched American materials [Fraser later took a small shot at South American Odonata]; Morton has his great love for the Palaearctics; Schmidt is hesitating, also with Paearctic sympathies [but he did publish on Chile and Peru]. So it may sometime appear that my own work, rambling over the five continents, must necessarily be somewhat superficial. Nevertheless I think I shall continue in the old way, partly from real interest in the whole, which interest I can only temporarily concentrate on one geographic unit; partly from a feeling that there should be at least one representative of the older generation, who tries to be able to give (with due allowance for time and other limited possibilities) an answer to any single question that might be put to him on dragonflies of any part of the world - thus continuing (perhaps



Ris later in life. Legend has it that he would only be photographed from the right after he lost his left eye.

as a kind of 'glacial relic') the traditions of Selys and McLachlan. If my hope of realizing some day a new catalogue is not vain, the necessity of continuing the studies on the universal line is, of course, imperative."

(written one year before his death).

Ris is considered to be one of the last major Odonatists who did his work in museums rather than in the field. In fact, as a young man he traveled widely as a ship's doctor, visiting North and South America and the Far East. He accomplished some collecting ashore, as I discovered recently when I examined some specimens of *Macrothemis tessellata* in his collection in Frankfurt and found "leg. F. Ris" written on the triangles.

After the death of Selys, a group of European odonatists gathered and divided among themselves the task of monographing Selys's vast

collection in Bruxelles. Only two authors produced published products of this collaboration. Ris's stands as probably the finest single monographic work on the Odonata. This is, of course, the encyclopedic work *Die Libellulinen*, which was published in nine fascicles between 1909 and 1919. These fascicles, which have always popularly been known as the "Green Monsters", provided thorough descriptions of Libellulidae of the vast Selys collection in Bruxelles, but they differed strikingly from Selys' own monographs in being abundantly illustrated, and in having keys throughout. (The Cordulines and Aeschnines were completed by Rene Martin (see below) but were comparatively superficial and earned a considerably less distinguished reputation. The "Calopterygines" and the "Gomphines" (genera only) were to have been published by René Martin, also. He submitted the manuscripts, but, as he wrote to Calvert, "They will appear, I am told, when the price of paper and printing ink will permit". The "Agrionines" were to have been done by Friedrich Förster; I have no knowledge of what happened to this work. It should be noted that the Selysian legions, here given in quotes, refer to groups of families, and the two damselfly works would have covered the Zygoptera completely. The last Selysian monograph finally appeared in 1953: Fraser's work on the Australian Gomphidae.)

Ris's major regional interests were in eastern Asia and New Guinea, but he published a major work on Neotropical Odonata: *Libellelen aus der Region der amerikanischen Kordillere von Costarica bis Catamarca* (1918), which stands to this day as the most complete account of the Odonata of Colombia, and is vital for studies of the odonate fauna from Costa Rica to Argentina. Unfortunately this was published in Germany during the first World War, and almost all original copies were destroyed. He also published several shorter papers, mainly on South America. His 108 New World species were a major contribution to the Odonata of the New World.

Ris's major importance comes from the care and precision of his descriptive work, which were well in advance of workers that preceded him and have not been matched by many of his successors.



Some important European entomologists appear during this period, but their impact on the New World was minor. **René Martin** (1846 - 1925; 23 species) was a French odonatist mainly interested in several parts of the Old World, and, in his later years, Chile. Martin moved to Chile a year after World War I but only survived five more years, publishing little of importance during this time.

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## MORE SOMATOCHLORA BREVICINCTA

**Stuart Tingley (e-mail)**  
tingley@nbnet.nb.ca

As some of you may already know, I discovered a sizeable population of *Somatochlora brevicincta* on Thursday, June 25 at a bog in north-central New Brunswick. I have just put on-line specimen scans of two males, one a dorsal view and the other a lateral view. They can be viewed at <http://ode.net/odes/specimenscans.html>

Other species flying at this bog last evening included *Aeshna sitchensis* and *Somatochlora cingulata* (the latter hawking over the bog and adjacent road). *S. albicincta* was also nearby.

This discovery of *Somatochlora brevicincta* in New Brunswick follows on the collection of a single male at the New Scotland Bog, N.W. of Moncton, in the southeastern corner of the province by Jim Edsall on September 16, 1997 (not Sept. 17 as previously reported in *ARGIA*) and the discovery of four previously undetermined specimens which had been collected on Cape Breton Island, Nova Scotia in the early 1980's.

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## NOTES FROM RHODE ISLAND

**Ginger Carpenter (e-mail notes)**

*WILLIAMSONIA LINTNERI* - I wanted to pass on an observation that I made recently. I've never really seen this before. I was working in a *Williamsonia lintneri* wetland last week, and it had been pouring rain all morning as it has been for the past two weeks. Just about as we got on the wetland (it was still very gray and drippy) I

spotted a mature adult male *lintneri*, perched about six inches off the water at the edge of the wetland. He was obviously alive, with full adult color, but clearly not able to fly (I assume due to the awful rain and cool temps). His wings were folded up over his back, and they were covered with heavy rain drops on the bottom surface. Not too much later, the sun came out and I happened to be watching him. After a few minutes, he spread his wings in the sun and soon began wing-whirring. Do you know if dragonflies typically fold their wings up over their backs when in heavy rains? I would guess that it makes sense, preventing the upper surface from being exposed to the pelting rain.

**AESHNA MUTATA EXUVIA? REQUEST FOR HELP!** - One other note....at a different *lintneri* site, I picked up an exuvia that had been floating in the water (incidentally, right near a patch of Spatterdock). It's not in very good shape (antennae missing, abdomen broken) but I have keyed it to the genus *Aeshna*. I would like to say it's *mutata*, given the early date and the proximity to *Nuphar*. But I don't have an intact exuvia or larva to compare my specimen to. Does anyone have a spare or one that I could take a look at? *Aeshna mutata* is relatively rare in RI and tracked by our Natural Heritage Program, so naturally I would like to be able to confirm my suspicions. Hope you can help.

**NEW STATE RECORDS** - Also a quick update on the RI Atlas project: in the first month, we have added 4 new species to the state list. Nothing unexpected, but very exciting nevertheless: *Argomphus villosipes*, *Epitheca spinigera*, *Libellula julia*, and *Ischnura kellicotti*. I've got a crew of 10 or so VERY enthusiastic collectors (all beginners, by the way!) who are scouring the RI countryside with net in hand. It's been fun, but a ton of work cataloging all the specimens.

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## NOTES FROM MICHIGAN

**Mark O'Brien (e-mail notes)**

**SOMATOCHLORA WALSHI IN SOUTHERN MICHIGAN** - Well, after having crummy weather for the past week or so, I had a chance to go out to the tamarack bogs off Embury Rd (Washtenaw Co.) on Sunday. I caught 3



My first day was a complete washout, as I stood in the river and watched dragonfly after dragonfly pass by me, just out of reach. I tried every possible way to get within netting distance and failed every time - they turned out to be much smarter than me!

To be honest I had become frustrated, so I packed it in for the day. I have netted every species of ode that I have seen, with little or no effort, and I had now found a species that was next to impossible to net.

I returned the following day, my interest sparked, and once again I stood in the river like a complete dummy and came up with nothing. On my sixty mile trip home I began to develop an attack plan - I determined to return the next day. This bug was going to be in my collection!

Day three found me dressed in full turkey hunting camo clothes and chest waders, with a 10" diameter net extended out to 10 feet, the handle wrapped in camouflage material. Not one bug was to be seen when I arrived early in the

morning; the first one appeared around 10 a.m. I waded into the river, picked a shallow area he was cruising over and knelt, with my net fully extended and a string attached to the bag bottom, allowing me to pull back on it and keep the bag out of the water. I positioned the net just above the surface of the river.

My arms got sore as I watched this smart bug flying back and forth just out of reach. Then one made a grave mistake, and was heading right for the net bag, one quick swoop and he was mine.

The following day I had to return and see if this method would work again, plus I needed another specimen for donation to the University of Connecticut. My system worked, providing me with a great day afield and two more of these elusive Arrow Clubtails. I might add that it is tough to out-smart an old tom turkey, but I now know there is at least one dragonfly out there that's smarter.

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## BACK TO THAILAND AND MALAYSIA - FARANGPO 98

Nick Donnelly

**Thailand** - Early this year we received the welcome news that Brother Amnuay Pinratana had recovered sufficiently to invite us on another trip to Thailand. At Brother Amnuay's suggestion, Ailsa and I picked early May and decided to continue on the Malaysia, where we had found wonderful odonates last year. We were accompanied in the Thailand portion by our son Malcolm, who had proven years before in Australia and Fiji to be a formidable field person.

With regard to dates, we should have heeded our own advice, acquired slowly but surely in many previous trips to the tropics: it is very dangerous to plan on field work during the beginning of the monsoon season. Although the first showers of the monsoon make this one of the most delightful and productive periods of the year, the onset of monsoon rains is notoriously unpredictable everywhere (except possibly for India). As it turns out, we were early this year, and not a drop of rain had fallen on the region of Mae Sot, which is about halfway between Bangkok and

Chieng Mai, and directly on the Burmese border. This part of Thailand was hot hot hot and dry dry dry; even the paddy fields were crumbly lumps of dried mud with small clouds of dust lingering over them when faint breezes stirred. Not a promising start.

Field work is more than collecting - it is also sleeping, eating, and generally taking in the rich variety of local life. I have discussed eating in earlier articles. Simply put, the food in Thailand is probably the most delicious and interesting in that I have experienced - and obtainable even in the most modest hamlet. Sleeping was a bit different this trip. At nights we stayed at government rest houses or Catholic schools, whose dormitories were empty because of the school holidays. In these places we slept, Thai style, on wooden floors of houses, padded only by a thin woven mat.

Bathing was done in bathrooms that were dominated by a huge concrete tank full of water.

A shower consisted of dipping in a bowl and pouring it over yourself. One of these bathrooms prompted the following comment to my family: "I have good news and bad news. The good news is that those ugly things crawling on the floor of the bathroom aren't leeches. The bad news is that they are maggots." (Actually they were crane fly larvae.)

Brother Amnuay took us, along with several companions including his old comrade Mr. Somnuk, first down to a vast deserted, forested part of Thailand that has become a huge wildlife preserve. This reserve is accessible only during the dry season; when the rains come the powdery road into it turns into a quagmire made all the more impassible by two-foot-deep elephant footprints; apparently not even a jeep could make it in. We saw only a few animals, but the sight a group of three civet cats crossing the road will linger with us for a long time. These "cats" are otter-sized mustelid relatives that are thin and elongate, with the physique of a kinkajou. We also glimpsed briefly a tree shrew on the road; this is your basic cartoonist's small animal with a pointy snout.

But we didn't come only to see animals - we came to find odonates. The "centerpiece" of this reserve is one of Thailand's many waterfalls, named the Tee Sor Lu Waterfall. The name is the Karen (the local hill tribe) word for "waterfall", so the name is redundant. Happily there were odonates flying around the pools below the falls and on the spring-fed streams in the vicinity. It was nice to find old favorite damselflies such as *Coeliccia poungyi*, with its yellow-tipped abdomen, and *Rhinagrion mima* - the deceptively fat megapodagrionid which we no longer instantly think is a very slender gomphid when we first spot it. The new damselfly for me here was *Protosticta medusa*, a platystictid (*Palaemnema* relative) with extraordinary "bearded" superior appendages which inspired the specific name.

The following day we visited a stream at a hill-tribe village a few miles away. Because the rains hadn't started we took only a few teneral gomphids of one species: *Leptogomphus gestroi*. Another platystictid, *Protosticta curiosa*, was fairly common, and I found my first male of one of the elusive *Macromia* species of the Orient: *M. flavocolorata*. However, the catch was

somewhat disappointing, and we headed back to the border town of Mae Sot.

On the way back we lingered at a stream along the road at what passes for a small truck stop. There was little here at first, but persistence paid off. I found *Caliphaea thailandica* among the more common (and similar) calopterygid *Mnais andersoni*. Ailsa found yet another platystictid - *Drepanosticta anascephala*, living, untypically for the family, in well lighted places high above the stream. The feature of this stream was yet another *Chlorogomphus* (a new species), which flew along the stream like an arrow shot from the bow. I don't know how I managed to net a female; I hardly saw it coming. Mr. Somnuk also took a female and later that day found a male on another stream.

We arrived back in Mae Sot cheered by our rather few but good finds. We now headed for our last collecting place - a stream several miles from town near a Catholic School which was to be our temporary home. This last stream was a beauty and full of odonates, even in this terribly hot season. The damselflies were fairly ordinary but the dragonflies. . . Ah, the dragonflies. Having seen so far only teneral *Leptogomphus gestroi* (which was also common here) we were delighted to find two species of *Gomphidia*, the common *abbotti*, and the scarcer *perakensis*. Ailsa took a *Phaenandrogomphus asthenes* on a small pool and Somnuk took a female *Asiagomphus* (probably *personatus*) and a teneral male *Burmagomphus arboreus*. My "bug of the day" was a teneral male *Phyllothemis eltoni* - a species (and genus) described by Fraser without illustration. Having studied the type in the British Museum only a few weeks previously, I knew instantly what it was. It is probably a record for Thailand.

But the most "fun bug" was the large *Epophthalmia frontalis* - another of those oversize *Macromia*-like creatures that fly strongly up and down streams. This has a brownish abdomen and its body is somewhat translucent as it flies overhead - as it prefers to do.

**Malaysia** - Our short, hot trip to Mae Sot produced many notable records (doubling the list of provincial records according to Matti Hämäläinen), but it was time to move on. A

short flight to Kuala Lumpur and an easy rental car drive took us to Taiping in a day. It was somewhat rainy, and humidity replaced the blistering heat of Thailand.

We collected in a few localities not visited last year. In one stream in a rubber plantation Ailsa found a female of *Macromia callisto* and I took a mature male of *Phyllothemis eltoni* (when it rains, it pours.). The southern subspecies of *Orthetrum pruinosum - schneideri* - was another peculiar and welcome find.

At another locality, the old hill station high above Taiping called Maxwell's Hill, we found a gorgeous place but few odonates. At tiny trickles along the road we found a few specimens of *Drepanosticta fontinalis* and *D. silenus*. There were few other odonates, but the birds were spectacular, including a fabulous view of the Great Hornbill, which is the most primitive looking large bird we have ever seen. Along the roads we saw Crimson Sunbirds, Silver-breasted Broadbills, and Lesser Racquet-tailed Drongos - almost enough to make you put your net down for a few minutes.

In last year's most productive place, we added several new things, such as *Macrogomphus thoracicus* ( a huge black gomphid with striking yellow markings!) and *M. parallelogramus*, and an *Onychogomphus* like *circularis* that we can't name. A favorite stream of last year produced three different species of *Libellago*, the very small, beautifully marked chlorocyphid damselfly that acts like a wasp. *L. lineata* and *aurantiaca* were old friends, but we also found *stigmatizans*, a darkish species with characteristic pale head and thoracic markings.

It was tough to concentrate on bugs at this place. As was the case last year, troops of agile long-tailed macaques passed nearby in the trees, and paraded along the telephone wire, apparently curious not afraid of us at all. A gibbon swung in to inspect us and gave us our closest and best look ever at this magnificent beast - surely the acrobatic king of the monkey world.

At a small pond along the road we found a single, tiny *Agriocnemis* female that I could not name. Returning a second day, we failed to find it at all. About to give up, I noticed some hundred meters up the road a place where the

road was wet, even though it had not rained for several hours. Walking up, I found that there was a very tiny seep next to the road, and that there were depressions about the size of a water buffalo hoof print that had grass growing in about a centimeter of water. This is where the bug lived, and I took a few males. It is *Agriocnemis nana*, a tiny, mainly blue, species. Lieftinck once called this species the smallest damselfly in the world, noting that it is significantly smaller than *A. pygmaea*, which Tillyard had called the world's smallest. This had interested me, because I once made the same claim for *Ischnura acicularis* from Guatemala, using the same comparison. When I returned to Binghamton I immediately compared the *A. nana* and *I. acicularis* (now *I. posita acicularis*). They are the same size exactly, and are tied for the title of "world's smallest".

On this same day we almost caught what may have been close to the world's largest odonate. On our favorite stream, we missed it twice (one flew by me on the stream looking like an attack helicopter trying to catch me, and Ailsa had one land on her hand while her net was lying nearby). At the time we thought it was a *Tetracanthagyna* or *Heliaeschna*, but we will have to return to nab one to know for certain. It would have been cool to take the largest and smallest at the same place on the same day! There is always something to come back for.

We finished our Malaysia trip with a brief visit to Tanah Rata, in the heart of the Cameron Highlands. Our main objective there was to sample once again the world's finest banana pancakes (with ice cream), but we had scores to settle on the hiking trail to Robinson Falls, where the gloomy weather nearly skunked us last year. This year we found many more *Calicnemia rectangulata*, that peculiar black and red damselfly Ailsa found last year, and took for the first time *Drepanosticta marsyas*, yet another platystictid (making this a six-platystictid trip).

**A Digression on Size.** Our experience of the last day near Taiping leads to the question as to why there is a world's smallest or largest. Or, put another way, what are the physical limits on size, either large or small, in odonates? This question came to me in the field that hot day and was coincidentally reinforced shortly after my return when an e-mail from Jeremiah Trimble and





ago from near Rio Bobonaza at Puyo, Ecuador. Selys did not name a holotype and another specimen was named as lectotype by Kimmins. For many reasons, I would like to examine the Ecuador specimen as part of my research on *Heteragrion*. If you have any information on it, please let me know. Thanks!

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**TONY WATSON'S AUSTRALIA BOOK AVAILABLE**

e-mail note from Dennis Paulson

I just learned from a friend that Patricia Ledlie has copies of Watson et al's Australian Dragonflies on sale for \$30 (originally \$75). If any of you don't have this fine book and think the price is right, the web site for ordering it is:  
www.ledlie.com

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**LOOKING FOR GEORGIA RECORDS:**

**Bill Mauffray**

For the last several years I have been accumulating Georgia Odonata records. I solicit any data that anyone might have to county level. I plan on publishing the list first on the WEB than after a period of critique and fine tuning, putting it in BAO. I decided to try this method, since it seems like many recently published lists have resulted in a flurry of questions regarding the validity of certain records plus additions immediately after the lists appeared in print form. You cannot go back and edit your paper once its on paper. By publishing a preliminary list on the WEB, I hope to have it fine tuned before publishing on paper. I solicit your Georgia data plus comments about this approach in publishing. please e-mail me at [iori@afn.org](mailto:iori@afn.org)

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**DOT MAP UPDATE**

**Nick Donnelly**

Since my previous communication on the Dot Map project, several people have responded. Kathy Biggs has supplied a spreadsheet on California Odonata. Janet Rith gave me a

publication on Minnesota Odonata. Sandy Garrett passed along a computer file of Paul Harwood's data on West Virginia Odonata, and another summary list by Hassan for the state. George Bick passed on a Georgia list which he generated. I have obtained a copy of Trogdon's PhD list of Tennessee county records.

Several other people have responded with information, support, and/or indications that they would contribute in the future. Thanks to you all!

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**CORRECTION: AUTHORSHIP OF POEM IN PREVIOUS ISSUE**

from an e-mail by Philip Corbet

In **ARGIA** (Volume 10(1), on pages 29-30 is an entry (the poem "Dragonfly Love") that requires correction in the next issue. The poem is in my view magnificent and a fitting inclusion in **ARGIA**. But it is not by me; nor do I remember having submitted it.

The poem is by the distinguished, South-African-born poet, William Plomer (1903-1973), whose name is pronounced "plumour" as in "rumour". I came across the poem many years ago, and have included extracts of it in my forthcoming book "Behavior and Ecology of Dragonflies", due for publication early in 1999.

[My apologies - I print 'em as I get 'em, and I don't check authorship of poems. Ed.]

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**CORRECTION: WEB ADDRESS FROM LAST ARGIA**

from an e-mail by Ethan Bright

Unfortunately, there's an error in the web address in **TRAMEA** (**ARGIA** 10(1)) written on page 30:

<http://insects.ummz.lsa.umich.edu/MICHODO/test/Home.htm>  
THIS should be:  
<http://insects.ummz.lsa.umich.edu/MICHODO/test/Home.htm>  
(z instead of x).



[The WEB is great, but it is also unforgiving. Ed.]

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### NOTES FROM ODONATOLOGICA

Bastiaan Kaiuta has asked me to pass on the information that the journal **ODONATOLOGICA** is now listed in Current Contents /, Agriculture, Biology, and Environmental Sciences.

Also he has asked American workers to note that there is now a shortage of manuscripts for forthcoming issues, and he would be very happy to receive contributions.

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### DRAGONFLY TEE SHIRTS

**Hal White (e-mail)**

I received this note from Jeff Ballard, an undergraduate at U of Del who I knew in the 70's,

"I read your article in **ARGIA** about "DRAGONFLY" magazine by the National Science Teachers Assoc. I work for the firm which provides order fulfillment for the NSTA (we have thousands of the mags. in the warehouse). The really great thing about this is they have created a superb dragonfly tee shirt as a marketing item for the magazine (buy the shirt, get a sample copy of the mag.) It has a multi-color image of *Erythemis simplicicollis* on the front and the word "Dragonfly" on the left sleeve cuff. I paid (I think) \$ 13.00 each (shipping would be extra). I have no idea if this sort of thing is old hat to the ode community, or if it would be of service to get the specifics from NSTA and send them off to **ARGIA**. Your opinion would be appreciated."

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### MISCELLANEOUS NOTES

Oliver Flint (Smithsonian) has copies of the July 1996 issue of SMITHSONIAN, which had the dragonfly article by Richard Conniff. He also has reprints of papers by the Curries (Rolla and Bertha) who wrote several important papers in the early years of this century.

Nancy van der Poorten tells me that the Walker volumes are now in the process of being printed, and that they will be mailed out in early to mid August.

The latest word is that the Pilon volume on Quebec Odonata will be printed in September of this year.

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### REQUEST FOR INFORMATION - STOCKING DRAGONFLIES IN PONDS

I commonly receive letters and e-mails requesting information which is beyond my experience. Several people have requested information on rearing of dragonflies. I don't mean a few specimens being reared for taxonomic purposes. I mean stocking ponds. Several people have requested that someone in the Society advise them on how to start a dragonfly pond. Or even how to rear large numbers of dragonflies. I recall a few years ago a town in Maine tried (or said it was going to try) to import dragonflies to help control mosquitoes. Can anyone out there help these people?

## BACK ISSUES OF ARGIA AND THE BULLETIN OF AMERICAN ODONATOLOGY

The editor is able to provide back issues of **ARGIA**. Please contact T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. The present price schedule takes into account the different costs of duplication of each number of **ARGIA**. In the event that an issue becomes exhausted, then xerox copies will be sent. **Prices are \$2.00 per issue; these do not include postage; see below.**

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Business address: c/o T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903

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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.

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

Cover: Pastel drawing of *Hesperagrion heretodoxum*, (pair in copula). This drawing has been used on a very lovely tee shirt for an insect fair. -- by Rosser Garrison

# ARGIA

Binghamton, New York

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