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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 are best transmitted as attachments to e-mails, but can be submitted on floppy disks. The editor prefers MS DOS based files, preferably written in Word, Word for Windows, WordPerfect, or WordStar. **All files should be submitted unformatted and without paragraph indents**. Line drawings are acceptable as illustrations.

T. Donnelly (address above) and Jim Johnson are the editors 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 as e-mail attachments or on floppy disk, 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 $20 US for regular membership and $25 US for institutions or contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are $30 US.

Dues should be mailed to Jerrell Daigle, 2067 Little River Lane, Tallahassee, FL 32311

The **Bulletin Of American Odonatology** is available by a separate subscription at $20 US for North Americans and $25 US for non-North Americans and institutions.

Front cover: Finding the Ouachita Spiketail, *Cordulegaster talaria*, was the prime goal of the Arkansas meeting. Photo by Giff Beaton.

In This Issue

What a spring this has been! The dizzying pace of four field excursions has put 6000 miles (and a new set of tires!) on my vehicle in two months. Three excursions are described below — the recent Northeast meeting will have to wait for the next issue. Steve Krotzer describes the Kentucky portion of the national meeting and Ellis tells how much fun we all had on the post-meeting trip. Dave McShaffrey also writes on his experiences on the marvelous trip to Tennessee.

We drove back from the Northeast meeting in a driving rain. The next three days produced nine inches more, and the worst flooding here. Ever. Did Noah's Arc have dragonflies? (And maybe just one female Citrine Forktail?)

Our society is getting its planning act together bit by bit. We have already scheduled the National meeting next year (in Arizona) and both the northeast and southeast meetings. Be there.

Jim Johnson raises a question that has troubled several western workers — whether ***Lestes stultus*** (Black Spreadwing) deserves to be considered a species or is only a color phase. Steve Krotzer adds the rarely seen ***Stylurus potulentus*** (Yellow-sided Clubtail) to the Alabama list. I have added a note about a side trip to southern Indiana where I succeeded in rediscovering a population of intergrade ***Epitheca***, a half century after they were first found.

Hal White has added some new state records — ***Gynacantha nervosa*** (Twilight Darner) from Delaware, and from his (and our) friend Clark Shiffer the news of ***Enallagma anna*** (River Bluet) in Pennsylvania. It is about time that someone looked at those species that are increasing their range dramatically. ***Enallagma anna*** must lead the pack, but there are some others worthy of research in range extensions.

Paul Brunelle describes the very long time that it took a ***Cordulegaster maculata*** (Twin-spot Spiketail) to emerge. I experienced something like this with an ***Aeshna umbrosa*** (Shadow Darner) in my backyard pond. It became cloudy and cool and I thought the darn thing would never complete its job and fly. But it did and they do . . . .

François Meurgey gives an updated list of odonates from the French West Indies. Suddenly this area has become hot!

David Trapero Quintana and Leonardo Pareta Cruz tell us of a museum collection in Cuba. Who would think to look for odonates in a small provincial museum full of historical and artistic items?

Jennifer Wykle tells of one of the recent entries to state surveys. West Virginia is now taking its place among the well-surveyed states, thanks to her considerable organizational efforts.

Rosser Garrison continues to do a marvelous job untangling the Neotropical fauna. Jerrell Daigle lists his recent projects.

One of the joys of noodling around in museums on rainy days is finding tidbits from the old masters — in this case, Bill Mauffray finding a note from Philip Calvert. Ken Tennessen describes this note and gives us a poem from Calvert, no less.

A brief, anonymous, article summarizes what we have all learned to love — Jerrell's inimitable way of telling his friends where to find dragonflies . . . .

The New York Times recently carried a brief article on the fascinating project that Martin Wikelski of Princeton has been carrying out. Imagine putting teeny radios on Green Darners and following them around. But, it works!

Ken Tennessen seeks Odonata papers for a bibliography he superintends. John Heppner seeks copies of Odonatologica for his library.

Not in this issue, but of interest, is the news that John Michalski has written an article on New Guinea odonates for "Paradise Inflight" the in-flight magazine of the airline Air Niugini. Jon he writim book long lik-lik jobese. (John has recently been writing on New Guinea damselflies.)

Now here is something for you to think about. The WDA (World Dragonfly Association) is holding its next meeting in Namibia. You heard that right. Even if the dragonflies are no more than superb, there are all those magnificent animals and birds — and on and on . . . .

Splendor in the Bluegrass — The 2006 DSA Annual Meeting

Steve Krotzer

Mary Jane and I rolled into Cave City, Kentucky shortly after lunch on 9 June 2006, looking forward to the beginning of the 17th DSA annual meeting. Shortly after checking into the Quality Inn, we ran into another early arrival —Jerrell Daigle, doing a few leisurely laps in the pool in quintessential Floridian style!! We joined Jerrell at the pool, along with Bob Glotzhober, David Fitch, Nancy Rideout, and George Harp. It was great to already be able to renew old friendships and to make new acquaintances, one of the high points of any DSA gathering.

Several other folks who had also arrived early in the day had been in the field doing some preliminary collecting/photographing (imagine!). Their initial assessment was that the streams were beautiful and water conditions were excellent, but there weren't a whole lot of dragonflies at the water — perhaps due to a cool, wet spring. Friday night, a spontaneous group meal was organized at the Sahara Steak Restaurant in Cave City, after which everyone returned to the hotel lobby to pick up an information package that our hosts for the meeting, Ellis Laudermilk and Carl Cook, had thoughtfully provided, and to do some more socializing.

On Saturday morning, the entire DSA contingent of about 60 folks, representing 25 states and Canada, gathered at Caverna Elementary School for the business meeting and presentations. After Ellis and Carl welcomed everyone to Kentucky, the meeting "officially" kicked off with the presentations of the buttons, this year depicting Carl Cook, net in hand, taking a ride on a giant male ***Gomphus crassus***, his own odonatological Pegasus. I think this year's button might win the award as the best button ever!

The proposal to hold the 2007 annual meeting in Springerville, Arizona was officially voted on and accepted, and initial proposals to hold the 2008 and 2009 meetings in Oregon and Missouri, respectively, were also introduced. Bill Mauffray updated the group on the status of all things IORI, and John Abbott and Bob Dubois both had publications available for sale at the meeting.

The highlight of the morning had to be the special tribute to Carl Cook. As one of the founding fathers of the DSA, as well as its first president and ARGIA editor, Carl has surely influenced us all, and it was only fitting that he be officially granted Honorary Membership status in his own "backyard". Ellis Laudermilk and Mary Jane Krotzer coordinated the tribute as a surprise to Carl, and I think it worked! To begin, Ken Tennessen, Nick Donnelly, Jerrell Daigle, and Ellis shared stories of favorite times spent in the field with Carl; then, an iMovie created and narrated by Mary Jane, filled with photographs of Carl and his friends and colleagues, and accompanied by some of his favorite Kentucky bluegrass music, was shown; and finally, I had the honor of presenting Carl a plaque, complete with a beautiful line drawing of an ***Ophiogomphus*** larva courtesy of Ken Tennessen, conferring upon him Honorary Membership in DSA. It was a special moment for a very special man.

After a break for lunch, we reconvened at the Elementary School for the afternoon presentations. Although there were fewer talks this year than previously, the subject matter was varied and the speakers all did an admirable job of keeping the audience interested and finishing on time! Charlie Muise led off with "Utilizing citizen sci-

The annual meeting attendees. One person was "Photoshopped" in later. You know who you are! Photo by Giff Beaton.

ence to study the odonates of Great Smoky Mountains National Park" and shared with us some of the benefits, as well as potential pitfalls, of using volunteer groups to conduct odonate surveys. Next, Dave McShaffrey discussed "Reversible temperature-dependent color change in ***Anax junius***". Nick Donnelly highlighted a couple of fascinating examples of a favorite topic of his in "What is a species? Odonate problems involving hybrids, intergrades, subspecies, and plain old variation". Nick's right — we still have much work to do.

Jessica Ware shared some of her doctoral research with the group, presenting "A molecular phylogeny of the Libelluloidea". Jessica is studying both morphological and molecular data in an attempt to clarify relationships within this large group — good luck, Jessica!! The presentations were concluded with two contributions from John Abbott. John first led us on "A photographic tour of South African Odonata", where we got our fix of exotic odonate "eye candy" for the weekend; then, he conducted a very informative workshop on his fabulous Web site, OdonataCentral, leading us on a virtual tour of the site and showing us many of its powerful and very useful features.

After dinner Saturday night, some meeting participants took advantage of an opportunity, arranged by Ellis, to take a special after-hours tour of Mammoth Cave, the longest known cave system in the world. Others took Carl up on his offer of a tour of his personal collection and research facility, known in these parts as "The Bug Works". Still others returned to the hotel lobby to socialize, study specimens, review photos, or bemoan the fact that they were in a dry county.

Sunday morning dawned sunny and mild, and everyone seemed eager to hit the road as we gathered in the parking lot for the group photo (only one person was late and missed the photo, and you know who you are!) After dividing into several smaller groups, participants visited a variety of streams and ponds in the general vicinity of Mammoth Cave. One group went to the Little Barren River and then on to Hundred Acre Pond, accompanied by a film crew from Kentucky Educational Television. Others explored areas within the National Park including Sloans Crossing Pond, the Green River, and a small pond behind the Hamilton Valley Research Center. Additional localities visited during the day included Metcalfe County Park Lake, East Fork of the Little Barren River, and South Fork of the Little Barren River, where Carl Cook was first introduced to odonates at the age of ten.

Although some of the sites might not have had overwhelming numbers of dragonflies, the diversity was quite impressive, with over 50 species documented. At the stream sites some of the species collected/photographed included ***Gomphus crassus***, ***G. fraternus***, ***G. quadricolor***, ***G. lineatifrons***, ***Hagenius brevistylus***, ***Stylogomphus sigmastylus***, ***Ophiogomphus rupinsulensis***, ***Dromogomphus spinosus***, ***Macromia illinoiensis***, ***Basiaeschna janata***, ***Calopteryx maculata***, ***Hetaerina americana***, ***Argia tibialis***, ***A. fumipennis violacea***, ***A. sedula***, and ***Enallagma exsulans***. At the pond sites ***Lestes eurinus***, ***L. rectangularis***, ***Enallagma aspersum***, ***E. basidens***, ***E. signatum***, ***E. traviatum***, ***Ischnura kellicotti***, ***I. hastata***, ***I. verticalis***, ***Arigomphus villosipes***, ***Epitheca princeps***, ***E. cynosura***, ***Celithemis elisa***, ***Libellula cyanea***, ***L. pulchella***, ***L. semifasciata***, and ***Tramea carolina*** were among the species encountered.

After a full day of activity, everyone gathered at the South Fork Little Barren River at Sulphur Well for a catered barbecue dinner. Everyone had a great time exchanging stories from the day and compiling a group species list. Unfortunately, any thoughts of a dusk ***Neurocordulia*** roundup were nixed by the sudden onset of a very impressive southern thunderstorm, which elicited a few murmurs of "Donnelly Effect" before chasing everyone back to Cave City.

The weather was uncooperative on Monday morning, cloudy and cool. One large group opted for a tour of The Bug Works, while several other groups, undeterred by the less than optimistic weather forecast, set out for the day. The small pond at the Hamilton Valley Research Center was a particularly popular destination, and Ellis brought a reporter and photographer from the Lexington Herald-Leader newspaper here, as well (and DSA got excellent front page coverage the next day!). The best way to find dragonflies this morning was to explore the adjacent fields and, when one was discovered hiding among the grasses, the photographers in the bunch descended on the unfortunate insect like the paparazzi on a teenage pop star! One male ***Arigomphus villosipes*** in particular was so befuddled by all the attention, he was still in the same spot an hour after the photographers had left. For the net-wielding crew lining the pond, the occasional ***Anax longipes*** female would make a foray through the area, apparently taking advantage of the absence of males to oviposit in peace. Between ***longipes*** appearances, those wading the pond's edge stayed busy by trying to avoid the huge, fast-swimming leeches that were in constant pursuit of feet and legs!

The cloudy weather persisted through most of the day before clearing off nicely late in the afternoon. The species seen were largely the same as those encountered a day earlier, although perhaps in fewer numbers, due to the less than favorable conditions. Everyone seemed to enjoy

themselves, however, as evidenced by the festive atmosphere at the final group dinner, held at the Ponderosa Steak House in Glasgow. Bryan Pfeiffer made a special presentation of a set of mysterious "giant" ***Sympetrum*** hamules to Nick Donnelly, and Carl and Ellis were acknowledged for all the hard work they put in to ensure that the meeting went smoothly.

The following morning was a whirlwind of good-byes, checking out, more good-byes, loading the vehicles to continue on to the post-meeting trip or for home, and yet more good-byes. The three days of the meeting had flown by, as they always seem to do. Before long, it will be time to begin planning for the 2007 meeting in Springerville, Arizona, and I for one will be there. Hope you will be, too!

Highlights of the DSA Post-Meeting Trip to Tennessee

Ellis Laudermilk

The 2006 annual meeting of the Dragonfly Society of the Americas in Cave City, Kentucky was immediately followed by a post-meeting trip to the Crossville, Tennessee (Cumberland Co.) area, 13–15 June. Approximately 26 people traveled down to Tennessee on 13 June, and most stopped by scenic Pickett State Park on the trip down. Pickett yielded some very nice species including ***Tachopteryx thoreyi***, ***Gomphus rogersi***, ***Celithemis verna*** and a possible ***Macromia margarita*** (the jury is still out). Later that night we all met for dinner at the Cancun Mexican Restaurant in Crossville and talked about the day's activities. The debate about the identity of the ***Macromia*** continued after dinner. At issue was a single female specimen collected by Cary Kerst that some believe is ***M. alleghaniensis*** and others believe is ***M. margarita***. The issue has still not been completely resolved.

The next two days were spent primarily in Daddys Creek, the Obed River, and Clear Creek in the Crossville area. However, George and Phoebe Harp visited several counties (White, Warren, etc.) just west of Crossville that were poorly known in an effort to add county records for the Tennessee list, and they were very successful. Plenty of ***M. alleghaniensis*** were observed, and I collected one additional female from Daddys Creek that appears to be ***M. margarita***. Again, the identity is still being debated. This specimen is earning plenty of frequent flyer miles as it has already been to Florida, and is currently at "The Bug Works" for Carl Cook to examine. If only a male ***M. margarita*** or two had been collected the picture would be much clearer, but no males were collected anywhere adding to the confusion. The beautiful ***Calopteryx angustipennis*** was quite common at many sites . . . what a stunning damselfly! Gomphids observed included ***Gomphus exilis***, ***G. lineatifrons***, ***G. lividus***, ***G. quadricolor***, ***G. viridifrons***, ***Hagenius brevistylus***, ***Progomphus obscurus***, etc., and George and Phoebe Harp collected ***Stylogomphus sigmastylus*** at McMinnville. Most surprising (to me) was the abundance of ***Stylogomphus*** "intermediates" in the Crossville area. The Cumberland County area has previously produced intermediate specimens, and it appears this area is a classic spot for range overlap of ***S. albistylus*** and ***S. sigmastylus***. As a result of this fascinating development, and the need to further clarify the status of these two taxa, Jessica Ware has agreed to conduct a genetic analysis of ***Stylogomphus***. We would be especially grateful to those willing to share some of the DNA from intermediate specimens collected on this trip, or any other recently collected specimens that appear intermediate. We only need a leg, so most of the specimen will remain intact and can be returned to the collector. Please contact me at <ellis.laudermilk@ky.gov> if you are interested in donating some material.

Day two (14 June) of the post-meeting trip did yield quite a surprise when I discovered a population of ***Nehalennia integricollis*** at a pond in the Catoosa Wildlife Management area in Cumberland County. This was my first encounter with this species, and while I knew it was a ***Nehalennia***, I was unsure of the species, so I collected a tandem pair and an additional male. Steve Krotzer helped with the identification later that evening, and we, along with Giff Beaton, discussed the possibility that it was a Tennessee state record. A quick e-mail to Ken Tennessen upon my return home confirmed it was indeed the first record for any member of the genus from Tennessee (I wonder if Ken was named after the state of Tennessee, or maybe it was the other way around . . . just kidding, Ken!) This nice little pond also supported populations of ***Lestes eurinus***, ***Tramea carolina***, and a great population of ***Anax longipes***. My fellow enthusiasts for the day included Jim Davidson and Guy Denny from Ohio, who were capturing odonate images as fast as their digital cameras could process them, and Steve and Marcia Hummel from Iowa. Steve made an impressive and successful 360-degree swing at an ***Anax longipes*** that decided to make a

brief (but costly) pass over one of the river sites we visited. The weather and water conditions couldn't have been better, and it was a very peaceful and relaxing day chasing odonates with some new friends. The evening dinner was split between the Cancun Mexican Restaurant and the Vegas Steakhouse and Lounge. Obviously, the "Lounge" was the main draw for the latter group.

The last day of the meeting turned out mainly to be a travel day for most people. Again, the weather was phenomenal. Tim Vogt planned to meet Richard Connors from Nashville for the day, but I didn't get a chance to find out what they found before this article was due. It is always a bit sad to say goodbye to old and new friends alike, but I guess we can't chase dragonflies every day. However, Ed Lam had a few hours before his flight out of Nashville, so we hurried north of town to a spot on Daddys Creek that had yielded a number of ***Macromia*** the previous day. There seemed to be fewer ***Macromia*** individuals than the day before, but several females were making brief appearances to oviposit near us, and a few males were zooming past leaving us quite frustrated. Finally, we managed to snag a male ***M. alleghaniensis*** and a female ***Macromia*** sp. (yet to be determined). As a bonus, we also took ***Gomphus quadricolor*** and ***G. viridifrons***.

At least 60 species were observed during the post-meeting trip in Tennessee, and several intriguing questions remain. First, what is going on with the ***Stylogomphus*** in the area? Nick distributed some interesting photos of the terminal appendages of several specimens. Hopefully, Jessica's work will shed some light on this situation. Second, are the female ***Macromia*** we collected ***M. alleghaniensis*** or ***M. margarita***, and if they are the latter, then where were all the males? Third, will Jerrell Daigle and Nick Donnelly have to fight a duel to settle the ***Macromia*** identifications? Stay tuned for answers to these burning questions!

Finally, I'm sure I speak for Carl when I say it was a pleasure hosting the annual meeting in Kentucky and the post-meeting trip in Tennessee. We hope everyone had a great time and an opportunity to see at least a few interesting odonates as well. We thank you for attending and for your kind verbal and written comments, and for the, shall we say, "spirits" that were donated to the cause. Looking forward to seeing you again at a future DSA meeting! Dragonfly wishes!

My DSA 2006 Post-Meeting Trip

Dave McShaffrey

The meeting in Kentucky was over and most of us — about 75% of the crew — were heading on to Tennessee for the post-meeting trip.

With such a large group, it was impossible to move in a convoy, so everyone was on their own for the trip to Crossville. I left Cave City and made a stop in Glasgow, Kentucky to pick up lunch and Kentucky and Tennessee Gazetteers. My first collecting stop was in Marrowbone, Kentucky. A roadside rest there sat beside a beautiful stretch of Marrowbone Creek. Here the stream was about 10 meters wide and very shallow, flowing over flat bedrock. It was a beautiful place, it was warm, the sun was shining, and there were no odonates.

I drove on down Kentucky 90 and picked up US 127 heading south. In the small Tennessee town of Pall Mall (or Wolf River) I came across another idyllic site. The Sergeant Alvin C. York (a famous WWI soldier) Mill State Historic Area is a pretty park nestled along the Wolf River. A grist mill slows down the Wolf River here. Upstream of the dam there was a slow stretch of river where I spotted a sundragon (***Helocordulia***) and a small clubtail. The latter perched often in the abundant poison ivy and I decided I didn't want it that bad. The sundragon consistently danced out of reach.

Below the dam was more productive. Here the river was a mix of cobble and bedrock substrate, easily waded in most spots, with gravel islands hosting *Justicia* (Water-Willow). The latter was loaded with ***Calopteryx maculata*** who were most accommodating to the lens. I was also able to scare up — and capture — a ***Gomphus lineatifrons*** over a riffle between the *Justicia* banks. I spent considerable time stalking and photographing a cooperative gomphid which later turned out to be — to my chagrin — ***Dromogomphus spinosus***, a species which I am very familiar with. All in all I'd recommend this site to anyone else passing through the area. The historical sites associated with Sergeant York include a general store, his home, and several other displays.

Back on the road I followed 127 to its crossing of Clear Creek, a tributary of the Obed River. A pull-off on the east side of the road led to a path leading to the stream. I worked about ¼ mile downstream through the clear water

coursing over sizeable boulders, not the easiest wading. There was not much flying except for more ***C. maculata*** and what turned out to be ***C. angustipennis***. I was not able to catch the latter. Heading back upstream I encountered two brothers swimming in a deep spot; they inquired as to the cost of my camera and the wisdom of carrying it in a stream. They also informed me that there were a "lot of dragonflies"—the day before. I went upstream under the bridge, which didn't look promising. Back downstream the boys had been joined by their sister and mother, but no dragonflies, so I moved on.

The remainder of my day was spent scouting access to the Obed River. Other groups had headed to Pickett State Park and Forest where they reported seeing ***Tachopteryx*** and a number of other species; it seemed to be the place to go that day. George and Phoebe Harp struck out on their own and raised the species counts for at least one Tennessee County from one to over 20. The Hummels and Dave Fitch and others had followed me to Pall Mall, pulling in as I was leaving, but I'm not sure if they saw anything different.

We gathered at the Super 8 in Crossville at 7:00 PM for dinner. It was a quick walk across the street to the Cancun Mexican Restaurant. The staff was friendly and managed to accommodate us at a long table and several booths. Back at the hotel, Ellis tallied up the day's take and we planned the next day.

On Wednesday I joined Ed Lam and Jerrell Daigle; we followed the Donellys and the Allisons out to Clear Creek along TN 298 about one mile above the junction with the Obed River. This was a beautiful, wadeable site with good access via a picnic area. I had just taken several photos of ***C. angustipennis*** when a man in uniform approached us and asked us "What do you *think* you are doing?" It turns out this was the unit manager for the National Park Service's Obed River Scenic River Unit and this was his turf. Mind you, the National Park Service's stewardship of the land was not indicated on any of our maps, we were on Clear Creek, not the scenic river itself, and there were no NPS signs to be seen on the property. Our blanket Tennessee permit was rejected out of hand (although the issuing agency co-manages the site) and we were told we were lucky his rangers weren't there or they'd be "writing paper". The presence of the unit biologist, who suggested that the Mammoth Cave permit might cover us, did nothing to smooth out the situation. The biologist asked us for any records we might gather in the surrounding area. We'll get right on that.

We headed for the spot where route 298 crosses the Obed itself—apparently just upstream of NPS jurisdiction. There was not much flying there and we decided to move on. Potter Ford—across the Obed River in the heart of the scenic river—has apparently been defunct for some time. Another group, led by Ellis, had reached the river ahead of us, but on the far side. They had encountered Tennessee Wildlife Authority personnel who had not only encouraged them to collect from the river but had suggested sites to collect. Stymied in our attempt to cross the river here to go on to Daddys Creek, and unable to collect on NPS property, we decided to move on. We stayed long enough to photograph (take only photographs, leave only footprints) ***Progomphus obscurus***. Nick and Ailsa worked around to the far side of the river to collect from Daddys Creek.

Ed, Jerrell and I went back through Crossville and out to Daddys Creek where it is crossed by TN 68. This proved to be an interesting site. ***C. angustipennis*** were common here, and we were able to photograph and catch both males and females; we observed one of the latter ovipositing, completely submerging solo on vegetation in the middle of the stream. We also saw ***Hagenius***, ***C. maculata***, and ***Stylogomphus***. Both Ed and I captured and photographed the latter. Back at the hotel, Ellis was of the opinion that the ***Stylogomphus*** we had were intermediate between ***albistylus*** and ***sigmastylus***, no doubt the hybrids mentioned in the paper he and Carl Cook wrote describing ***S. sigmastylus***. Problem was, we had seen both males and females, and the females were ovipositing—something that you wouldn't expect from hybrids. This is a situation which requires further study.

That night the group split up for dinner; some of us preferring the convenience of the Cancun and others heading to a steakhouse up interstate 40.

Most of us had to leave on Thursday morning. I headed back up US 27 to US 119 which I followed all the way to Charleston, West Virginia. A scenic drive all the way. I was hoping to stop and collect some West Virginia records for Jen Wykle, but as usual I miscalculated the amount of time it would take to drive through the mountains (I also failed to anticipate a minivan/semi wreck that closed the road for a half hour at one point) and I had to content myself with marking a few sites for a later visit.

Springtime in Tallahassee 2006

Jerrell J. Daigle <Jdaigle@nettally.com>

A small but enthusiastic group of frozen snowbirds joined me for the 2006 Springtime Tallahassee meeting 26–30 March. They were Nick and Ailsa Donnelly, and Ed Lam from New York. Our base of operations was the Sleep Inn with its free sumptuous breakfasts.

Monday, we relaxed at the nearby Silver Lake State Park, letting the warm sunshine work out the kinks in our frozen limbs. We saw lots of ***Gomphus cavillaris brimleyi***, ***Ladona deplanata***, ***Epitheca cynosura***, and ***E. costalis***. Nick even caught a struggling ***Gomphus minutus*** male and a ***G. cavillaris brimleyi*** female trying to mate. Or was it the other way around?

Later, we went to Trout Pond and we saw a couple of unreachable ***Gomphus australis*** flying out over the lake plus a few more ***Ladona deplanata***. Further down the road, we found a couple of teneral ***Lestes vidua*** at a small pond with dormant grasses and vegetation. At nearby Dog Lake and Little Dog Lake, we found lots of ***Epitheca cynosura*** and ***E. costalis***. We even got a glimpse of a rare bar-winged ***E. costalis*** female but we couldn't catch it. ***Enallagma doubledayi*** was the common damselfly and we saw more ***L. deplanata*** and ***G. cavillaris brimleyi***. I got us turned around the wrong way coming out of the pond, but fortunately we were guided back to the car by Ailsa and Nick over the walkie-talkie.

On Tuesday, we went to Torreya State Park to hike among the turkey oaks on the bluffs and ravines. We were looking for the rare ***Cordulegaster sayi*** and we found some! I counted 12 individuals near the park entrance. Nick even caught a mated pair with his fingers! Both Nick and Ed got several good photos of perching males and females while they munched on wasps or flies. It was good to know that this healthy population is still in good shape.

Later, we went further down the road to the nearby Garden of Eden preserve run by the Nature Conservancy. We could not collect here, but we could take photographs. We were looking for cousins of Clyde the Glide, the most photographed ***C. sayi*** in the world. This famous dude was photographed last year by Giff Beaton and Dennis Paulson (see cover of Argia 17[2]). We saw two males and one mated pair that afternoon, so this population is still doing okay. This is the first time anyone saw ***C. sayi*** from two different populations in the same day.

Wednesday, we traveled to the black gum and tupelo swamps south of Hosford, which is west of Tallahassee. Our plan was to walk the abandoned railroad tracks through the swamp looking for ***Gomphaeschna antilope*** and ***Arigomphus pallidus*** plus photograph any pitcher plants and wild orchids we might see along the road. When we got to the site, it was apparent that a local drought had dried up most of the swamp. We were not optimistic as we trudged along the railroad tracks. After about a half-hour, we suddenly saw something flying way down over the tracks. As we got closer, we could see dark aeshnids flying slowly in circles. I leaped up and got one of them. It was a nice male ***Gomphaeschna antilope***! Then another came by and then another! Ed got one and I got another one, then Nick and then Ailsa! Soon the sky was filled with them! We had a wild time swinging left and right at the swarming dragonflies. We soon saw that they were feeding on the emerging alate termites along the tracks. Maybe that is why they were unwary. We even got some mature females, which are hard to come by normally. It was exhausting, but fun! We did not see any ***Arigomphus pallidus*** but we did take nice photos of several species of pitcher plants along the road. We finished the day with delicious ice cream at the local wooden country store.

Well, all good things must come to pass or do they? Ed had to fly out that afternoon plus Nick and Ailsa had to start driving back. We decided to go back to Trout Pond in the morning and try one more time to catch the wary and elusive ***Gomphus australis***. When we got there, we could see about 5–6 individuals, but they were not coming in close to shore. They were perching on the base trunks of cypress trees in depths of 3–4 feet. After several near misses and with time running out, Nick and Ed said the heck with it. They waded out into the water up to their waists to make better swings. That was the ticket! They both emerged sopping wet but each had a prized beautiful male ***Gomphus australis***! Even though we had trouble getting Nick out of his waterlogged boots and we had to dry Ed's wallet and pants, they both said it was worth it! I think Ed was still damp when he boarded the plane that afternoon.

All in all, it was a fun trip! We had plenty of sunshine with no clouds and we saw several rare southern springtime species. Hopefully, in the future, we will find new populations of ***Cordulegaster sayi*** and even find some ***Ophiogomphus***! See you next time!

Anything You Caddo, I Caddo Better

Jim Johnson <jt_johnson@comcast.net>

Venomous snakes; Mary Jane Krotzer's homemade toffee cookies; restaurants that don't serve alcohol; someone named Peaches. I don't know what these things mean to you, but to me they spell Glenwood, Arkansas!

The 2006 southeast regional DSA meeting was held in the beautiful Ouachita Mountains of west-central Arkansas, 18–21 May. The meeting, graciously hosted by George and Phoebe Harp, was attended by 13 visitors. The attendees included Peter and Cindy Allen of the UK, Giff Beaton of Georgia, Nick and Ailsa Donnelly of New York, Steve and Mary Jane Krotzer of Alabama, Gayle and Jeanell Strickland of Louisiana, Mike Thomas of Connecticut, and Dennis Paulson, my wife Linda Pritchard, and myself of Washington. We couldn't have asked for better weather, even though it was a bit on the warm side for this northwesterner.

During our first dinner in town, Linda and I were quite surprised to learn that Glenwood is in a dry county—a foreign concept to me. Now I'm no lush, but after a long drive from Lafayette, Louisiana, I was really looking forward to an ice-cold cerveza or a frosty margarita when we decided to dine at the local Mexican restaurant. It just wasn't the same, I must say.

The majority of the group gathered at the Riverwood Inn in Glenwood during the first evening to settle in and find out where to find such goodies as ***Cordulegaster talaria*** (Ouachita Spiketail), ***Gomphus oklahomensis*** (Oklahoma Clubtail), ***G. ozarkensis*** (Ozark Clubtail), and ***Ophiogomphus westfalli*** (Westfall's Snaketail). George was an excellent host, providing National Forest maps, county lists, reprints of his and Phoebe's Ouachita National Forest summary (2003, Dragonflies [Odonata] of the Ouachita National Forest, Journal of the Arkansas Academy of Science, Vol. 57, pp. 68–75), and directions to the best sites. For the next two days we scattered to the four winds to see what we could find.

The primary drainage through this area is the Caddo River and much of the collecting focused on this stream. ***Gomphus ozarkensis*** were fairly easy to find on the Caddo near Amity, and ***G. vastus*** (Cobra Clubtail) and ***G. quadricolor*** (Rapids Clubtail) were also collected along this stretch. This was a southwestern extension of the known range of ***G. quadricolor*** according to <www.OdonataCentral.com>. I found a mature female ***Neurocordulia xanthosoma*** (Orange Shadowdragon) roosting on a vegetated gravel bar (along with a water moccasin) which was quite exciting, but Dennis Paulson outdid me the next day by finding several individuals on what came to be known as Neurocordulia Island.

Many attendees hoped to see ***Macromia pacifica*** (Gilded River Cruiser), but most of us had to be content with a rare black-and-yellow blur going about 50 miles per hour up the stream. Nick Donnelly did take a ***Macromia pacifica*** on the Caddo River, but not quite old enough for the bright green eye color. He then waited in deep water for nearly two days trying to catch another (that takes determination!) While waiting for their infrequent full-afterburner passes about every four hours, on average, he amused himself by standing in the shade of a toppled but still living sycamore along the shore. There were two species of water snakes lounging on the horizontal stem, and it was great fun to watch how they emerged from the water and ascended to the stem (always using the thinnest possible branchlet). He watched as two of them started to nervously move about on the stem, one climbing to the very thinnest branchlet it could manage. And then the reason for their behavior was seen: a large and hungry

The "Caddo Crew". Photo by Giff Beaton.

copperhead was crawling out on the stem looking for a water snake meal. It lunged, and two snakes plopped into the water, virtually on top of Nick. Evidently the copperhead missed, for the water snake emerged about twenty seconds later and returned to its resting place. The copperhead never reappeared. If it weren't for snakes, those long fruitless waits for ***Macromia*** would be a real bummer.

Further upstream on the Caddo River in the areas of Caddo Gap and Black Springs, more ***Gomphus ozarkensis*** as well as ***G. graslinellus*** (Pronghorn Clubtail) were found, and a few lucky people found ***Ophiogomphus westfalli***. Dennis Paulson, Giff Beaton, and Mike Thomas found a few individuals of the recently described ***Cordulegaster talaria*** at a previously unknown location for the species at a tributary of the upper reaches of the Caddo. ***Stylogomphus sigmastylus*** (Interior Least Clubtail), also recently described, were just emerging on the upper Caddo.

There were two primary sites that were visited for odonates of the lentic persuasion: Fancy Hill Lake and Caddo Pond. Caddo Pond is a site where ***Gomphus oklahomensis*** can be found, but they seemed to be done flying by the time of this meeting. Another treat at Caddo Pond was ***Celithemis verna*** (Double-ringed Pennant) at a small, nearby retention pond, but apparently it was past their bed time by the time I got there one late afternoon.

The most exciting things about Fancy Hill Lake were driving in on the narrow, rolling dirt road with several deep puddles, then navigating your way to the lake through the woods — assuming that you knew which way to go. I was very thankful for my GPS unit! The lake was full of ***Libellula cyanea*** (Spangled Skimmer) and ***Celithemis elisa*** (Calico Pennant) — common species, but very nice for someone from the northwest, and a few ***Lestes australis*** (Southern Spreadwing) were found as well.

On Friday night several of us went to the Caddo River at Caddo Gap for the dusk flight of ***Neurocordulia*** where they were skimming across the river as soon as we arrived. Trying to catch these crepuscular creatures is one of the activities that I most look forward to whenever I visit the eastern chunk of the continent — not that I'm ever very successful. I am pleased to report, however, that the two northwesterners in the group of Dusk Water Swatters (presumably with the least neurocorduliaing experience) were the only ones who walked away with any ***Neurocordulias — virginiensis*** (Cinnamon Shadowdragon) in this case.

We all gathered in the motel's meeting room on Saturday night for a very interesting presentation by George Harp on the major geological divisions of Arkansas, the odonates associated with each area, and some threats to water quality that they are keeping an eye on. Now I know the difference between the Ozarks and the Ouachitas; before I could barely pronounce Ouachita correctly. George wrapped up his talk with a dragonfly photo quiz provided by someone by the name of "Peaches" who appears to be a very friendly gal. I don't think anyone offered a guess — personally I had a hard time getting past the mammarous perch. Ask him about it sometime.

Linda and I had to head home on Sunday as did some other attendees, but several people stuck around for the day. It's always tough to tear yourself away from a gathering like this when other people are staying. I hear through the grapevine that the Donnellys ended up with three flat tires (two of them simultaneous!) in the Little Missouri River area, and the Allens spent much of the day lost in the National Forest looking for a spring. Steve Krotzer speaks very highly of the $3.99 buffet at the Pizza Shack. Hmm . . . . . maybe we didn't miss too much.

George Harp reports that there were two new Clark County records — ***Gomphus quadricolor*** and ***Macromia pacifica***, which puts its species total at 54; there were three new Pike County records — ***Enallagma basidens*** (Double-striped Bluet), ***Ischnura kellicotti*** (Lilypad Forktail), and ***Celithemis elisa***, which put its total at 37. In addition, there was on new species for the Ouachita National Forest — ***Nasiaeschna pentacantha*** (Cyrano Darner). The National Forest list now stands at 84 species.

I think it's fair to say that everyone who attended this gathering had a great time (flat tires aside), thanks to George and Phoebe Harp, and I look forward to visiting this area again in the future. Next time I'll pick up some beer on the way.

Thoughts on *Lestes stultus* — is it a Valid Species?

Jim Johnson <jt_johnson@comcast.net>

Since its description in 1861 and subsequent redescription by Kennedy (1917), ***Lestes stultus*** has enjoyed a place on species lists and in species accounts throughout the odonatological literature (Paulson & Garrison 1977, Garrison 1991, Westfall & May 1996, Paulson & Dunkle 1999, Manolis 2003, Donnelly 2004). Manolis (2003) and Donnelly (2004) did express doubt about the validity of ***stultus*** as a species, suggesting that it may be a color form or subspecies of ***L. dryas***, but little else has been written on the subject.

Lestes stultus is structurally identical to ***dryas***, although averaging slightly larger, apparently. The only way to differentiate them is by the hue of the thorax, and, to some degree, elevation and flight period (within the core range of ***stultus***; Manolis 2003). ***Lestes stultus*** is black with a dull reddish-purple sheen, while ***dryas*** is metallic emerald green. ***L. stultus*** usually has a pale antehumeral stripe while ***dryas*** generally does not and ***dryas*** has more extensive dark coloration on the lower part of the thorax (Andrew Rehn pers. comm.) Kennedy (1917) described a slight difference in the paraprocts of each species, but Westfall and May (1996) suggest that the difference is within the range of variation found in dryas.

During their analysis of ***Lestes*** to infer their phylogeny in North America, Stoks and McPeek (2006) found that ***stultus*** and ***dryas*** are genetically identical at the mitochondrial DNA loci sequenced for the study. This indicates that the two species are closely related, to be sure, but since the analysis did not focus on this pair of species, they could not make any determinations about their specific status (M. McPeek pers. comm.)

My first experience with what is known as ***Lestes stultus*** was on 25 June 2000 when I found two males at a little cattail wetland outside Drain, Douglas County, Oregon (Johnson et al. 2002). This was a first record for Oregon and, as I often did in those days, I gave one specimen to Dennis Paulson who agreed on its identity. This was an extension of the species' known range by at least 100 miles. Further experiences with this species have only led to confusion.

Later that summer on 17 September, Steve Valley and I collected at Fanno Meadows, Polk County, Oregon — a collection of wetlands in the northern Coast Range at 870 meters elevation. Here we found what appeared to be several ***Lestes stultus*** in a nearly dry sedge marsh. This seemed to be another range extension of about 90 miles. Several individuals were collected. I was greatly disappointed the next day however when, after acetoning, all of the specimens turned from black to emerald green. These specimens then became indistinguishable from ***dryas*** although they do have the pale antehumeral stripe typical of ***stultus***.

My third and ultimate (at this point) experience with anything resembling ***Lestes stultus*** was on 18 June 2003 in the Illinois Valley, Josephine County, Oregon, when Steve Valley and I stopped in the area on our way to the 2003 DSA Annual Meeting in California. At one location, which I would describe as a soggy seep on a gentle slope with a small shallow pool at the bottom, we found a number of ***dryas***/***stultus*** which ran the gamut of color blends from emerald green to black. Some individuals were teneral, but I made a point of collecting mature specimens which represented the spectrum.

Because of these difficulties, Steve Valley and I (Johnson & Valley 2005) decided not to include ***Lestes stultus*** in our summary of Oregon odonates until we are able to gain a firmer grasp on the situation in the state.

Whether ***stultus*** and ***dryas*** are considered species or subspecies, the southwestern corner of Oregon seems to be a blending ground between the two taxa. In addition, individuals well north of southwestern Oregon have, by appearances, changed from one to the other by way of desiccation. This leads to the question, should these taxa be considered species or subspecies?

Consider that colors exhibited by these taxa certainly relate, at least in part, to the refraction of thin layers of water within the cuticle and that there are no recognized structural differences. If desiccation in some instances causes a color change from one extreme to the other resulting in identical taxa, then I think that the specific status of stultus should be scrutinized. Manolis (pers. comm.) states that he has never observed a color change in ***stultus*** due to desiccation in California, although Rehn (pers. comm.) mentions post-mortem changes to the color of the metallic sheen. Perhaps this is an artifact of hybridization (or intergradation) in some areas where ***stultus*** and ***dryas*** meet. There seems to be some partitioning between the two in California — ***stultus*** flies earlier at lower elevations; ***dryas*** later at higher elevations — but these distinctions don't seem to hold up further north.

I have no experience with ***stultus*** in its core range in

California, so I cannot speak to any variation that occurs within the taxon there. I am also certainly no odonate taxonomic authority, but I pose these questions to those who are. Perhaps those with the most experience with ***stultus*** in California can shed some light on the situation, but it may be in southwestern Oregon where their "true" relationship is revealed. I hope to be able to spend more time looking at ***Lestes*** in southwestern Oregon and getting a better handle on the situation there, although it may require additional molecular analyses to fully assess their relationship.

Acknowledgments

I thank Rosser Garrison, Tim Manolis, Mark McPeek, and Andrew Rehn for sharing their experience and knowledge with regard to ***Lestes stultus***.

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DSA Meetings for 2007

DSA Annual Meeting: (from Jerrell Daigle) The dates for the 2007 Annual DSA meeting in Springerville, Arizona have been set for 27–31 July with the business meeting scheduled for Saturday, 28 July. More details will be forthcoming in the next issue of Argia and on our DSA Web site. In the meantime, check out the Springerville Web site <http://springerville.com> for more information about Springerville and the surrounding area. If you are planning to attend, please let Jerrell Daigle know. Thanks! See you there!

Northeast Meeting: (from Jim Bangma) The New Jersey Odonata Survey and the Jersey Odonate Enthusiasts are happy to be hosting the 2007 Northeastern Regional DSA meeting. The meeting is tentatively scheduled for the weekend of 22–24 June in Sussex County, New Jersey.

With 145 species, Sussex County has perhaps the longest confirmed list of odonates of any county in the United States, but even so, there are many unexplored areas within the county. We hope to survey a number of relatively new sites, primarily within Hamburg Mountain, Sparta Mountain and Weldon Brook Wildlife Management Areas.

Trips are also planned to a number of Sussex's parks and reserves, such as High Point State Park and the Delaware Water Gap National Recreational Area.

Details will be published in Argia as they become available and information will also be available on the NJOS Web site <www.njodes.com>. We look forward to seeing you next spring.

Southeast Meeting: This will be held on 5–8 July, in southwestern Georgia, where Giff Beaton will lead us on a hunt for southern piney woods Emeralds (***Somatochlora***). Giff will supply details later, but you can mark your calendar now.

Stylurus potulentus, New for Alabama

Steve Krotzer

On 26 June 2006, I collected one individual of ***Stylurus potulentus*** (Needham) along Majors Creek, a medium-sized, tannin, sandy stream in Baldwin County in south Alabama. Majors Creek at this particular locality (N31° 04.23' W087° 45.88') varies from 20–30 feet in width, is fairly shallow (and made even more so by the recent drought in this part of the state), and has riparian vegetation dominated by *Cyrilla racemiflora* (swamp cyrilla, or titi) and to a lesser extent by *Cliftonia monophylla* (buckwheat-tree, or black titi). The specimen, a young female, was first seen at about 1400h CDT and was in the process of consuming an unidentified insect at the time of capture. No additional individuals were seen in approximately 2.5 hours at the stream, nor were any seen on a return visit the following morning.

This is the first documented occurrence of ***Stylurus potulentus*** in Alabama, although its presence in the state is not unexpected. The species has been reported from the neighboring states of Mississippi and Florida (Needham et al. 2000), in counties that adjoin Alabama (Dunkle 1992, Donnelly 2004).

Dunkle (2000) lists ***Stylurus potulentus*** as "rare" and describes its habitat as undisturbed, sandy forest streams. While the current status of the Majors Creek population is not known, its future is perhaps uncertain. The stream is subject to extremely heavy ATV use, and the drought-induced low water levels exacerbate this problem. Additionally, the surrounding watershed is almost completely unprotected. Hopefully, ***Stylurus potulentus*** can persist in Majors Creek despite these obstacles.

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Rediscovery of Intergrade *Epitheca* in Southern Indiana

Nick Donnelly

In Iowa I gave a talk on my progress in understanding the complex ***Epitheca*** problem in the eastern half of the United States. Previous investigations indicated that there seemed to be four distinct species in the ***cynosura*** group: ***cynosura*** itself, ***costalis*** (formerly *williamsoni*), ***petechialis***, and ***semiaquea***. Each of these species has proven to be somewhat variable at a single locality and much more so over a wide range. The variability is such that occasional specimens are not easily determined to species. In one area (much of Ohio and southern Indiana) there seemed to be variability that only could be explained by intergradation — that is, hybridization that produces fertile offspring, allowing back crosses to be produced in abundance and resulting in a wide range of variation. The problem is that large series are required to support this conjecture.

The largest series I examined was assembled by B.E. (Monty) Montgomery from 1936 through 1952 at the Clark State Forest in southern Indiana. Monty went there with entomology classes from Purdue; happily he collected a great many insect specimens, including 40 male specimens that he labeled "***Tetragoneuria cynosura***" (Monty never determined any specimens as ***costalis*** nor ***williamsoni*** — a synonym of ***costalis*** whose name was used widely during Monty's life), but much of his material from southern Indiana clearly belongs to this species. More of interest, many of his Clark State Forest specimens appeared to be intergrades between ***cynosura*** and ***costalis***, including one male with ***costalis*** body morphology and large wing spots!

I visited the Clark State Forest just prior to the Kentucky

meeting to see what I could find out about this problem. The date (9 June) may have been a bit early; Monty's specimens were mainly taken later in June, and this year had a slow spring for much of the east. There were some but not many ***Epitheca*** flying, and I obtained only four specimens in the brief time available. Two are clearly ***costalis***. One is a ***costalis*** that has some ***cynosura*** morphology, and the fourth seems to be a clear structural intermediate between ***costalis*** and ***cynosura***.

So the intergradation seems to be continuing, after a collecting hiatus of more than half a century. There are probably many places to find these intergrades in the Ohio River valley, and I recommend that anyone living or traveling here spend some time with these intriguing insects.

Enallagma anna in Pennsylvania

e-mail from **Hal White**

I got a call Saturday from Clark Shiffer telling me he had discovered a small population of ***Enallagma anna*** in Huntingdon Co., Pennsylvania. He gave me permission to distribute this news of a new Pennsylvania species on the Internet. Other than records in southern Ontario, I am not aware of any reports of this species in eastern North America. Given this is a damselfly with limited dispersal ability, this record is a significant range extension. It suggests that there should be other populations waiting to be discovered in Ohio, New York, and Pennsylvania.

Gynacantha nervosa from Delaware!

e-mail from **Hal White**

I spent part of this afternoon going through the Odonata in the University of Delaware insect collection and discovered a female of ***Gynacantha nervosa*** (Twilight Darner) collected 27 September 1975 in Newark, New Castle Co., Delaware by Chuck Mason, a faculty member in Entomology here. As best I can tell, this is the northernmost record for this southern species. I think there is a record for southern Virginia. <http://www2.ups.edu/biology/museum/Gynacantha_nervosaF.jpg>

Emergence of *Cordulegaster maculata* Sélys 1854 in New Brunswick

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In twenty years of relishing Odonata I have never observed emergence of a spiketail species even though one of my favourite and most-visited locations (the St. Croix River constituting the border between New Brunswick and Maine) has a huge population of Twin-spotted Spiketails (***Cordulegaster maculata***) flying during the month of June (very sporting netting). In fact, I have only encountered one individual of that species which appeared teneral—late in June in Madawaska County of northern New Brunswick.

I have taken the larvae at many sites, and exuviae somewhat less frequently. It seemed to me, to the extent that I had considered it at all, that the species emerges well before the period of synchronous emergence of the river gomphids (when lotic study has been greatest), but I had not pursued the subject as the species are fairly common, and emergence of peatland species was of greater interest in May.

This year we had delightfully benign weather in May (followed by a June best described as tragic), and as I was in Saint John after giving a seminar at the New Brunswick Museum. On 13 May I decided to drive down to the St. Croix River and attempt to get underwater photography of the snaketail (***Ophiogomphus***) larvae prior to their emergence. In particular I hoped to collect larvae of ***O. howei*** (Pygmy Snaketail); its exuviae have twice been taken on the Maine side of the river. Parenthetically, I did not see or net a single ***Ophiogomphus*** larva in spite of fairly extensive work in the fine substrate from the bank to about 4 meters out. From this I conclude that the snaketail larvae are still in the coarser substrate in mid-river this early; perhaps in little settle-points between the boulders. I did take some ***Gomphus*** (***Hylogomphus***) ***adelphus***, ***Boyeria vinosa***, ***Hagenius brevistylus***, ***Stylogomphus albistylus***, and ***Macromia illinoiensis*** larvae in the fines, and a number of stadia of ***Cordulegaster***, most of the largest individuals being very close to the shore (<20 cm).

I had expected to spend a few hours shivering under water (freshwater is not exactly warm in mid-May), then

Fig. 1

Fig. 2

return to my hotel. However the day was delightfully sunny and cool only in the shadows and after a period snorkeling and netting for larvae I decided to have an early lunch and just enjoy this lovely locale, not expecting to see much out of the water. I find a useful survey technique, with the added benefit of appealing to my inherently lazy nature, is to just sit and watch. Moving about increases one's likelihood of encountering species such as territorial skimmers (Libellulidae), but you less frequently notice patrolling species and other phenomenon. In this case I was sitting for only ten minutes or so before I noticed, at about 10:15 AM, a ***C. maculata*** larvae hanging a bit backwards of vertical on an exposed marginal tree root perhaps 75 cm above the water surface at one of the little sand beaches of the site (Figure 1). She was obvious mostly because her abdomen had dried and become light in colour—otherwise I might have missed her as she was in shadow (the New Brunswick shore of the river at this locale is on the east side, and hence shadowed until early to mid-afternoon; this may be an important element in the selection of which shore at which the larvae choose to emerge). During the subsequent six hours (she would have left the water somewhat before I first noticed her, so total time for the emergence would have been about seven hours) I observed and photographed her emergence. The reason for this long period of emergence was likely the cool air in the shade. Certainly other Anisoptera can emerge in less than one-third of this time when the temperature is higher.

The longest period of the emergence was spent in the stage where the head, body, legs, uninflated wings, and the basal abdomen are out and the insect is hanging backwards waiting (evidently) for the legs to harden, and for the strength to flex forward, grab her skin, and fully withdraw her abdomen (Figure 2). During this period she was so still that I suspected that she had died. The other long period (after an abrupt reach forward to withdraw

Fig. 3

Fig. 4

the abdomen, preceded only by a few wiggles) was the inflation of wings and abdomen, which took several hours, though it accelerated markedly when the sun fell on the insect in early afternoon.

At about 1630 the teneral shivered her wings briefly (Figure 3), then took off and headed directly up towards the sun for hundreds of metres until it passed out of sight. I took this particular exuvia to voucher the record. During this process I took many photographs, however I neglected (dang) to engage the time stamp facility in the camera and hence don't have accurate timing of the events, beyond some regrettably cursory notes. As I had to kneel in the river to photograph the insect, I had some difficulty in recording the events to the extent I should have. I strongly suggest that others use this time stamp facility in future encounters of this type (it's now permanently on in my camera).

While this particular female was emerging, I noticed another larva also doing so a short ways off—in this case a male similarly perched on an exposed tree root close to the water as well as one ***Basiaeschna janata*** (Springtime Darner) male emerging, again in shaded wood under cover. I later found yet another exuvia whose teneral had flown.

In addition to emergence, I noticed larvae attempting to leave the water at the small sand beaches below the rapids of this depositional section of the river bank (Figure 4). The sand is light tan in colour and the spiketail larvae very dark brown, so they were quite obvious and presumably vulnerable to predators. I was surprised at the difficulty they had in actually getting out of the water; the small chop generated by the rapids upstream (~2 cm waves or so) batted them about roughly, often tumbling them back out from the beach, where they adroitly flipped themselves back over, if they ended up upside down, by violently twisting the tips of their abdomen down (upwards on the insect) and so levering themselves back upright. I would sometimes lose sight of the larvae while they were attempting to exit the water, and originally thought they had retreated into the darker and coarser gravel a metre off the beach, but eventually realized that when they had had enough battering they simply buried themselves—for a nap I suppose. They did this in less then a minute, scooping sand out below themselves and having the wash drop sand over them during the process, until they were buried with a light coating of sand on top, and invisible. I later discovered that in some cases they buried themselves within 8 cm of the water's edge—and this explained why I had netted the largest larvae specimens of the species from near the shore.

In the past I have usually taken exuviae of this species from sheltered locations under and within the marginal roots of trees partially undermined by the river. I ascribed this to the likelihood that skins in exposed locations had been weathered off, which might well be the case to some extent, but believe now that the species often chooses such protected sites, perhaps to afford some protection from the shorebirds which must be their greatest threat. These birds are a major predator on the ***Ophiogomphus*** when they emerge, but I did not notice them on 13 May—perhaps the far less abundant and less synchronous emergence of the spiketails did not get their attention.

Altogether one of my most enjoyable experiences in the interest in recent years, and a demonstration of how being somewhere at the wrong time can be valuable.

Odonata of the French West Indies: Diversity and Updated Checklist of Species

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Studies on Odonata of French West Indies (Guadeloupe, Martinique, Marie-Galante, Les Saintes, La Désirade, St Martin, and St Barthélémy) began early in 1654. During the 17th and 18th centuries, the first explorers mentioned dragonflies in their works (Breton 1647, Du Tertre 1654, Labat 1722). During the 20th century, mainly North American scientists such as Klots (1932), Donnelly (1970), and Sibley (1999) studied French West Indian dragonflies. Checklists established by island or island group were used in order to have precise data on the distribution of species in the Antilles. Donnelly (1970), Sibley (1999), and Paulson (2003) presented updated checklists of species. In France, no studies on Odonata systematics, faunistics, ecology, and species distribution in the French West Indies took place during the 20th century. The last French works on dragonflies of the FWI listed 25 species from Guadeloupe and Les Saintes (Goyaud 1994), and 22 species from Martinique (Grand 2000). A literature compilation published in Martinia (Dommanget 2000) listed 30 species from Guadeloupe and 22 from Martinique. Meurgey (2005c, 2006a, 2006b) added several species from Guadeloupe.

No information was available from the other islands of the French West Indies. Principal reasons that could explain this lack of interest by odonatologists are that these islands are victims of a disordered agriculture and increasing urbanization, which seems to have cost the islands a great part of their faunistic richness. Another reason is that naturalists on family journeys during the holidays devote only a very brief time to the study of odonates, and very often at well-known places. Finally, because the French West Indian odonate fauna seems to be well known, it does not seem to justify further studies. Despite the publication of an identification key (Donnelly 2000), few people are studying the French West Indian Odonata fauna.

Materials and Method

Since 2000, the Museum of Natural History of Nantes and the Société Française d'Odonatologie organized an annual three-week mission. The objective of these studies is to contribute to the systematics, ecology, biology and conservation knowledge of French West Indian Odonata fauna. Ponds principally ensure the requirements of agricultural water in the French West Indies. The dryness which prevails during half of the year increases water needs and gives rise to the creation of several ponds. The new habitats thus created are not favorable to aquatic insects, and contribute to the loss of diversity. Our aim is to characterize ponds accommodating a great diversity of dragonflies in order to give indications for management, evaluation, and protection of these habitats to the farmers and local population.

Data was obtained from collections including the National Museum of Natural History, Paris, the Museum of Natural History, Nantes, the National Institute for Agronomical Research, the French Society of Odonatology (FSO), literature sources, and from our studies. This represents 3059 data entries for 500 stations, our studies alone gathered 1857 data entries. All the information was computerized in a database easily updatable according to the advances in knowledge, in a way to produce statistical analysis or distribution maps.

Results

At present, 40 species have been recorded in the French West Indies. Five species have no recent records: ***Erythemis attala*** (Martinique), ***Erythrodiplax berenice*** (Guadeloupe), ***Erythrodiplax fusca*** (Martinique), ***Erythrodiplax unimaculata*** (Martinique), and ***Tramea onusta*** (Guadeloupe). The existing fauna consists of 40 species, comprising 5 families and 23 genera. Aeshnidae and Libellulidae combined covers approximately 75% of the total fauna, and the family Libellulidae alone comprises 52% of all the species.

List of species from the French West Indies.

GU: Guadeloupe; MA: Martinique; MG: Marie-Galante; DE: La Désirade; LS: Les Saintes; SM: Saint-Martin; SB: Saint-Barthélemy.

Zygoptera

Lestidae (2)
Lestes forficula GU MA MG LS
Lestes tenuatus GU MG LS

Protoneuridae (2)
Protoneura ailsa MA
Protoneura spec. nov. GU

Coenagrionidae (6)
Argia concinna GU MA
Enallagma coecum GU MA
Ischnura capreolus GU MA
Ischnura hastata GU MA MG LS
Ischnura ramburii GU MA MG LS DE

Telebasis corallina GU MG LS

Anisoptera

Aeshnidae (8)
Anax amazili GU MG
Anax ephippiger GU
Anax concolor GU MG
Anax junius GU MA MG
Coryphaeschna adnexa LS
Rhionaeschna psilus GU
Triacanthagyna caribbea GU
Triacanthagyna septima GU

Libellulidae (22)
Brachymesia furcata GU MA MG LS
Brachymesia herbida GU MA MG LS
Dythemis sterilis GU MA MG LS
Erythemis attala MA
Erythemis vesiculosa GU MA MG LS SB
Erythrodiplax berenice GU
Erythrodiplax fusca MA
Erythrodiplax unimaculata MA
Erythrodiplax umbrata GU MA MG LS SB
Macrothemis spec. nov. GU (as *Macrothemis celeno* [Meurgey 2005c]. There is a female specimen in the Florida State Collection of Arthropods which was tentatively determined as *hemichlora* and which may belong to this species.)
Miathyria marcella GU MA MG LS
Micrathyria aequalis GU MA MG LS
Micrathyria didyma GU MA MG LS
Orthemis macrostigma GU MA MG LS
Pantala flavescens GU MA MG LS DE SB
Scapanea archboldi GU MA
Tauriphila australis MA
Tholymis citrina GU MA MG
Tramea abdominalis GU MA MG LS DE SB
Tramea binotata GU
Tramea calverti GU
Tramea insularis GU
Tramea onusta GU

Eleven newly recorded species are added to the previous lists since 2000. The difference in the number of species is the result of the finding undescribed species (***Protoneura*** spec. nov., ***Macrothemis*** spec. nov.), the revision of old collections (***Erythrodiplax berenice*** in Guadeloupe, previously named ***Erythemis attala*** in SFO's collection), and the recording of additional species from different islands (9 from Guadeloupe, 2 from Martinique).

Most species are common to all islands. Three species are endemic in the Lesser Antilles (***Argia concinna***, ***Protoneura ailsa***, ***Scapanea archboldi***), and ***Protoneura*** spec. nov., and ***Macrothemis*** spec. nov. are Guadeloupe endemics. ***Anax junius***, ***Anax ephippiger***, and ***Pantala flavescens*** have a widespread distribution. A large proportion of species have South American affinities, and some species have North and Central America affinities. The distribution of species among families clearly shows that the odonate fauna of the French West Indies is principally made up of vagrant or migrating Anisoptera. They are either carried by the winds or by active island-by-island dispersal from South America and Central America, or even from The Old World, with the first record of ***A. ephippiger*** in 2006. It is similar for Aeshnidae, but it seems that the paucity of species in this family may be due to a sampling artifact, with most species being crepuscular. The percentage of species belonging to families Libellulidae and Aeshnidae represent 90.9 % of newly recorded species since 2000. Successive missions showed that the newly recorded species seem to be established in Guadeloupe and Martinique, except for ***A. ephippiger***, which was seen for the first time in 2006.

Presently, the Guadeloupe fauna is the best studied with 34 extant species. The odonate fauna of Martinique remains poorly known and the last synthesis for this island (Meurgey 2005a) listed 27 species. Marie-Galante was studied for the first time in 2005 (Meurgey 2005b) and 19 species were recorded. Les Saintes has less than 10 suitable aquatic habitats. Unfortunately, most habitats are invaded by Water Lettuce (especially in Terre de Bas, Les Saintes), but 17 species occur on this archipelago. La Désirade is a very dry island all year around, and the two ponds in this island are almost always completely dry. We have little information about the dragonflies of St. Martin and St. Barthélémy. At present, only four species are known from St. Barthélémy (K. Questel pers. comm.). Concerning St. Martin, two French students are presently carrying out a study on arthropods of this island. The results of their study will allow us to know more precisely the fauna of this island.

Discussion

The species list presented here represents a significant advance in comparison with Dommanget's previous work in 2000, but it is by no means a final one. Some islands such as St. Martin and St. Barthélémy remain mostly unexplored. The wet forests of Martinique and in northern Guadeloupe need further studies. Some families like Protoneuridae and Aeshnidae remain poorly collected because they either inhabit mountainous streams, rainforests, or are crepuscular in behavior. Gomphidae appear to be absent from all of these areas, but they are present

further north in the Greater Antillean Islands. Finally, studies of bromeliads should be undertaken to determine if this niche is occupied by Odonata. Also, colonization by Odonata is still active between the West Indies, South America, and Central America. We suggest that the Odonata fauna could reach 50–55 species in the future.

In conclusion, the French West Indies Odonata, although better studied than a few years ago, still needs much attention. The biology and behavior of most species is imperfectly known. Nothing is known about the larval ecology of virtually all species. Larvae and exuviae are important indicators in monitoring water quality in rivers and lakes. Because of rapidly decreasing natural habitats, we have no estimate of the percentage of species that should be protected on different islands in the French West Indies. The recent increase of the Odonata knowledge proves that even in islands whose fauna seems well known, work must still be carried out in an organized way. For this reason, the Natural History Museum of Nantes, in collaboration with the SFO will continue to lead the Odonata studies of the French West Indies.

Acknowledgements

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Odonates in the collection of the Provincial Museum "Ignacio Agramonte y Loynaz" in Camaguey

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The odonate species in the collection of the provincial museum "Ignacio Agramonte y Loynaz" were inventoried; their localities and identities were determined and recorded.

The provincial museum "Ignacio Agramonte y Loynaz" was founded in 1945. The building where it presently is located functioned in the 19th century as the headquarters of the Cavalry of the Spanish army since 1868, until the end of the Spanish dominion over Cuba in 1898. In 1902 it was converted to the Hotel Camaguey. In 1945 it opened its doors to the public, displaying collections of furnishings, armaments, paintings, and natural history items.

The origins of the collections were diverse. A large part came from the eminent Cuban naturalist Carlos de la Torre y Huerta; others were acquired in an exhibition in La Habana of a German collection; still others from the Smithsonian Museum; donations from the collection of the "Instituto Segunda Enseñaza" of Camaguey; from the "Escuelas Pías" of Camaguey; from the museum "Oscar M. de Rojas" in Cardenas, Matanzas; a donation from the "Museo Nacional de Historia Natural"; and collections from specialists of this institution.

Insects, as the dominant animal class, are represented by Lepidoptera, Coleoptera, Hemiptera, and Odonata. This last order is housed in eight boxes made of caoba wood, with glass tops and hermetically sealed, displayed to the public.

The collection of Odonata, or "libélulas", as they are commonly known, consist of 44 species, in 26 genera belonging to six families, with a total of 122 individual specimens. It contains two of the five endemic species of Cuba and three species that are considered rare in Cuba.

Fifty-one examples from the collection of Dr. Carlos de la Torre y Huerta had been labeled according to the names of Gundlach (1888). These names were updated in 1968, by Alayo in his "Libelulas de Cuba" (parts 1 and 2)

Zygoptera

Lestidae
Lestes forficula
L. spumarius

Protoneuridae
Neoneura carnatica[1]
N. maria[1]

Coenagrionidae
Enallagma civile
E. coecum
E. doubledayi
Ischnura capreolus
I. hastata
I. ramburii

Anisoptera

Aeshnidae
Anax junius
Coryphaeschna adnexa
C. inges
Gynacantha ereagris
G. nervosa
Triacanthagyna septima
T. trifida[3]

Gomphidae
Aphylla cariaba

Libellulidae
Brachymesia furcata
Cannaphila insularis funerea
Celithemis eponina[3]
Dythemis rufinervis[2]
Erythemis attala[3]
E. plebeja
E. simplicicollis
E. vesiculosa
Erythrodiplax berenice naeva
E. fervida
E. justiniano[2]
E. umbrata
Macrodiplax balteata
Macrothemis celeno[2]
Miathyria marcella
M. simplex
Micrathyria didyma

Orthemis ferruginea
Pantala flavescens[4]
P. hymenaea
Perithemis domitia
Scapanea frontalis[2]
Tauriphyla australis
Tholymis citrina
Tramea abdominalis
T. insularis

[1] endemic to Cuba
[2] endemic to the Antilles
[3] rare or accidental species
[4] cosmopolitan species

West Virginia Odonate Atlas Project

Jennifer Wykle

The West Virginia Odonate Atlas project was initiated in 2005 by the West Virginia Division of Natural Resources, Wildlife Diversity and Natural Heritage Program in cooperation with the West Virginia Department of Agriculture. While all previous survey data will be used in the publication of an atlas in 2008, data for 2005 – 2007 will rely heavily on the collection of specimens by volunteers.

Volunteer collection equipment and training sessions have been funded by an EPA grant received in 2004. The project was advertised only in our free magazine publication, West Virginia Wildlife, and 58 people around the state signed up for the program in 2005. Two training sessions were held in two different areas of the state. They consisted of a presentation on dragonfly biology, natural history, family taxonomy and instructions for collection, preservation, and mailing of specimens. The afternoons were spent in the field collecting odonates. We provided volunteers with nets, acetone, collection envelopes, a thermometer, the Stokes Beginner's Guide to Dragonflies, an instruction manual, and datasheets.

Results of 2005: Thirty-eight of the 58 initial participants actually turned in specimens and the participation rate was higher than what was expected for this type of program. Nine hundred and eighty-four specimens and 83 species (of the 149 species verified or reported from West Virginia) were collected statewide. Collections were made from twenty-eight of our 55 counties and most habitats visited were ponds, lakes, marshes, and bogs. Very few riverine species were collected. West Virginia has eighty-three species on our state rare list (some of which are probably due to lack of survey) and 28 of those were captured during 2005. For the West Virginia Atlas, only specimens and pictures of easily identified odonates will be counted as records.

The highlight of the survey was that it produced three state records! Nick Donnelly verified ***Libellula axilena***, ***Celithemis verna***, and ***Enallagma ebrium*** as new species to West Virginia. And while ***Tachyopteryx thoreyi*** has been observed in West Virginia prior to 2005, we finally had our first official specimens with four records throughout the state.

So far in 2006, we have trained nine more participants in areas of the state that are lacking records. We are not actively recruiting anymore volunteers for this project but hope to direct current participants to areas in need of survey. At the end of the 2006 field season we will reassess data gaps and will channel our efforts in 2007 to counties and areas lacking records, and target the less collected groups such as the gomphids. We hope to publish the West Virginia Odonate Atlas in 2008.

Works in Progress

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At the 2006 DSA annual meeting in Kentucky, several people asked me what projects I am working on these days. Briefly, I have just published a description of ***Heteragrion bickorum*** n. sp. from Ecuador. François Meurgey and I have two papers in press about a new ***Protoneura*** from Guadeloupe and the resurrection of ***Orthemis macrostigma*** Rambur from the Lesser Antilles. Right now, I am describing several new species, including a ***Heteragrion*** from Brazil, two new ***Heteropodagrion*** species from Ecuador, a ***Telagrion*** from Bolivia, a ***Sympetrum*** from the Caribbean, and a ***Macrothemis*** from Guadeloupe. Presently, Nick Donnelly and I are studying both the red ***Orthemis*** from south Florida and the Greater Antilles plus a subspecies of ***Heteragrion mitratum*** from Central America

Current Work on Neotropical Odonata

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Dr. Natalia von Ellenrieder and I have been busy trying to understand the systematics of the neotropical Odonata. We have recently published the following papers (note: PDFs of all are available from me) followed by their abstracts:

von Ellenrieder, N. & R.W. Garrison. 2004. Case 3294. *Triacanthagyna* Selys, 1883 and *Gynacantha* Rambur, 1842 (Insecta, Odonata): proposed conservation of usage by suppression of the name *Acanthagyna* Kirby, 1890 and designation of *Gynacantha nervosa* Rambur, 1842 as type species of *Gynacantha*. Bulletin of Zoological Nomenclature, 62(1): 14–17.

Abstract: The purpose of this application, under Article 70.2 of the Code, is to conserve the accustomed usage of the names ***Gynacantha*** Rambur, 1842 and ***Triacanthagyna*** Selys, 1883 for two genera of aeshnid dragonflies. The names are objective synonyms but are currently in use for two distinct groups of species. It is proposed that ***Gynacantha nervosa*** Rambur, 1842 should be designated as the type species of ***Gynacantha***.

Garrison, R.W. & N. von Ellenrieder. 2005. *Neuragrion mysticum* Karsch 1891 (Odonata: Megapodagrionidae) demystified. Canadian Entomologist 137(1): 169–173.

Abstract: Based on circumstantial evidence, ***Neuragrion mysticum*** Karsch, 1891 is considered a junior synonym of ***Heteropodagrion sanguinipes*** Selys 1885. Annotated wing scans for ***H. sanguinipes*** and ***Mesagrion leucorrhinum*** Selys 1885, species originally compared to ***N. mysticum***, are provided.

De Marmels, J. & R.W. Garrison. 2005. Comments on the Genus *Leptagrion* Selys, 1876 in Venezuela and on other poorly known species, with a description of *Bromeliagrion* gen. nov. (Zygoptera: Coenagrionidae). Canadian Entomologist, 137(3): 257–273.

Abstract: Type material of poorly known taxa currently placed under the genera ***Leptagrion*** Selys and ***Telagrion*** Selys is reviewed, illustrated, and correctly associated with currently known specimens in collections. The following changes are made: ***Leptagrion beebeanum*** Calvert and ***Leptagrion fernandezianum*** Rácenis are placed and keyed in a new genus, ***Bromeliagrion*** De Marmels gen. nov.; ***Bromeliagrion rehni*** Garrison sp. nov. is described from Ecuador. The following synonymies are proposed: ***Leptagrion auriceps*** St. Quentin is a junior synonym of ***Leptagrion macrurum*** (Burmeister); ***Leptagrion autazensis*** Sjöstedt is a junior synonym of ***Aeolagrion flammeum*** (Selys); ***Leptagrion? rufum*** Selys is a junior synonym of ***Anisagrion inornatum*** (Selys); and ***Leptobasis tenax*** St. Quentin is a junior synonym of ***Telagrion longum*** Selys.

Garrison, R.W. 2006. A synopsis of the genera *Mnesarete* Cowley, *Bryoplathanon* gen. nov., and *Ormenophlebia* gen. nov. (Odonata: Calopterygidae). Contributions to Science, Natural History Museum of Los Angeles County 506: 1–84.

Abstract: This synopsis of the exclusively South American genus ***Mnesarete*** includes keys to both sexes based primarily on morphology of the caudal appendage in males and the posterior margin of the prothorax and intersternite in females, diagnoses, distribution maps, and diagnostic illustrations. Two new genera, ***Bryoplathanon*** (type species: ***Lais globifer*** Hagen in Selys) and ***Ormenophlebia*** (type species: ***Lais imperatrix*** McLachlan) are described. The following nomenclatural changes are proposed: ***M. regina*** (Ris), ***M. rollinati*** (Martin), and ***M. saltuum*** (Ris) are transferred to ***Ormenophlebia***; and ***Hetaerina borchgravii*** Selys and ***H. fuscibasis*** Calvert are transferred to ***Mnesarete***. Seven new species (***M. drepane***, ***M. ephippium***, ***M. lencionii***, ***M. loutoni***, ***M. machadoi***, ***M. rhopalon***, and ***M. williamsoni***) are described. A generic key to all New World Calopterygidae and a discussion of the generic concepts of ***Hetaerina*** and the 24 species of ***Mnesarete*** are presented, and descriptions for the last larval stadium of ***M. grisea*** and ***O. imperatrix*** are provided.

Garrison, R.W. & N. von Ellenrieder. 2006. Generic diagnoses within a closely related group of genera: *Brechmorhoga*, *Gynothemis*, *Macrothemis*, and *Scapa-*

nea (Odonata: Libellulidae). Canadian Entomologist, 138(3): 269–273.

[This paper will appear in the next issue of the Canadian Entomologist]

Garrison, R.W., N. von Ellenrieder, & J.A. Louton. 2006. Dragonfly genera of the New World. An illustrated and annotated key to the Anisoptera. The John Hopkins University Press, Baltimore, vii + 368pp. [in press; will appear August 2006].

Web site: http://www.press.jhu.edu/books/title_pages/9090.html

$99.00 hardcover, August 2006, 384 pp. 24 color illus., 31 halftones, 1595 line drawings. This volume will be an illustrated guide to the taxonomy and ecology of dragonflies of the New World. It will provide fully illustrated and up-to-date keys for all dragonfly genera with descriptive text for each genus, accompanied by distribution maps and 1,595 diagnostic illustrations, including wing patterns and characteristics of the genitalia.

We are currently working on Volume 2: Dragonfly genera of the New World. An illustrated and annotated key to the Zygoptera, which will also be published by The John Hopkins University Press. We anticipate completing this volume within the next three years. In anticipation of this, we are reviewing current generic concepts for various neotropical genera many of which have been poorly defined or characterized. The previously listed papers from the Canadian Entomologist cited above address such issues and we are currently working on other poorly defined genera. One of these is a synopsis of the genus ***Telebasis*** Selys (Odonata: Coenagrionidae). This genus currently consists of 45 described species with another new species from Colombia and Venezuela. Not only is the genus vaguely defined, but the outline illustrations of ***Telebasis*** provided by the recently published reviews of Bick & Bick (1995, 1996) do not allow one to confidently associate unknown material with published names. As with my other works on neotropical Odonata, I will provide an illustrated and updated key to both sexes of all described species and corrected distribution and diagnosis data since the recent reviews by Bick & Bick. I would like to correspond with workers who have holdings in this genus in order that my study would be more complete.

Daigle–Speak

Many of us have had the chance to join our Treasurer, Jerrell Daigle, in the field where his enthusiasm for the subject of odonates sometimes leads to—how shall we put it—slight over-emphasis on the quantities of any given species located at the site he is describing. Here, then, is a small dictionary for those of you who will meet Jerrell for the first time, so that you can correctly interpret the numbers he gives you:

JD: "There are millions of them all over the place."

Fact: If you look hard enough you will see four or five specimens on a really sunny day.

JD: "There was a gomphid on every rock."

Fact: Two ***Ophiogomphus*** may be in view at the same time.

JD: "They were hanging from the bushes like Christmas tree ornaments."

Fact: Close and intimate examination of very thorny bushes may, just may, yield one rather elderly clubtail.

JD: "You stand on the railway line and they are swarming everywhere."

Fact: Last year one specimen was collected there.

JD: "I am positive you will find what you are looking for there".

Fact: Mauffray collected one at that location two years ago.

JD: "It is there, I know it's there, no doubt about it."

Fact: Mauffray saw one there ten years ago—he thinks, but did not manage to net it.

JD: "I have heard that it has been found there."

Fact: There is a specimen in the collection from the 1880s simply labeled "Florida?"

Poetic Whimsies

sent in by **Ken Tennessen**

David Henry Wenrich (1885–1968) was a prominent protozoologist at the University of Pennsylvania. In 1954, he self-published a book containing rhyming poems that he had written throughout his life. The book is entitled "Rambling Rhymes and Whimsical Jingles". Bill Mauffray found a copy of this book in Florida State Collection of Arthropods and lent it to me while we were attending the recent DSA Annual Meeting in Kentucky. Wenrich's poems covered many different subjects, such as birthdays, Christmas, the seasons, education, and other facets of life. But there was one section with poems about animals (mainly one-celled animals), and on page 19 I was surprised to find the following poem about dragonflies. I read some of the other poems, and it is obvious that Wenrich had fun composing verse.

The Dragonfly

By David Henry Wenrich

Now what, we ask, is a dragonfly?
Is it a dragon that has sprouted wings?
Does it have claws, sharp-pointed teeth,
And scales, and other reptilian things?

Or is it just a curious fly
With a dragon's look and an evil eye
That flits about, now low, now high,
To pounce on hapless smaller fry?

Or is it, instead, an animal freak,
With a dragon's body and a fly's physique,
A fly-like head and a dragon's cheek,
And a fly-like tongue in a dragon's beak?

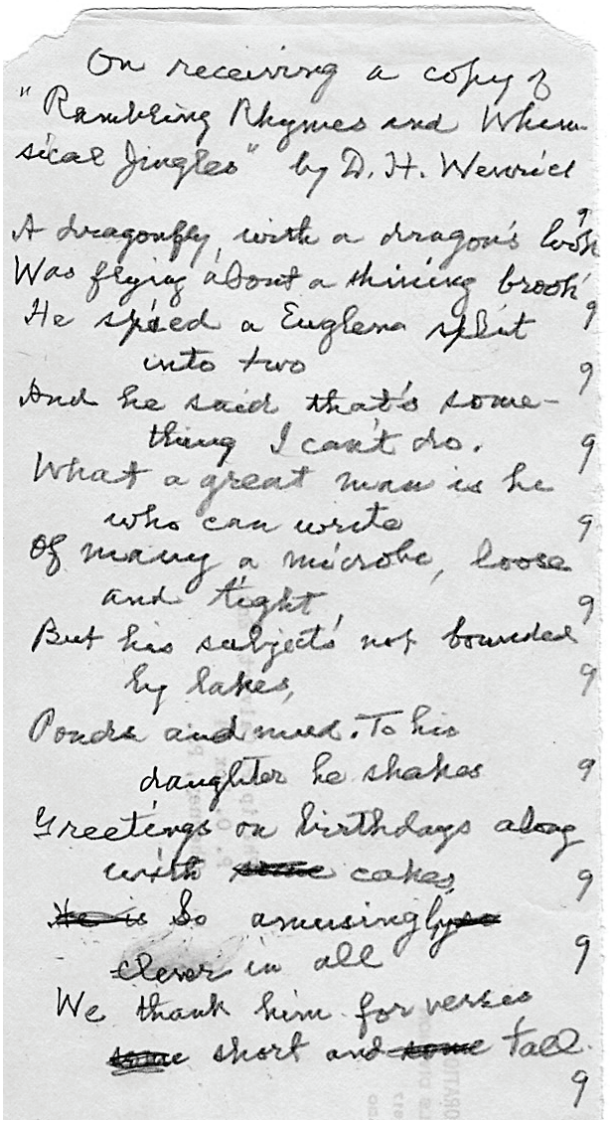
Well, if we look in an insect book,
And learn about the dragonfly troop,
We find they're neither dragons nor flies,
But insects of the Odonata group.

There was another surprise. Tucked inside the FSCA copy of the book is part an envelope with a hand-written note. On the outside of the envelope the address reads: "Philip P. Calvert, Ent., P.O. Box 14, Cheyney, Pa." Wenrich's poems must have inspired Calvert to verse, for on the inside of the envelope, in Calvert's handwriting, is the following:

"On receiving a copy of 'Rambling Rhymes and Whimsical Jingles' by D, H. Wenrich.

A dragonfly, with a dragon's look,
Was flying about a shining brook.
He spied a Euglena split into two
And he said that's some-thing I can't do.
What a great man is he who can write
Of many a microbe, loose and tight,
But his subject's not bounded by lakes,
Ponds and mud. To his daughter he shakes
Greetings on birthdays along with cakes.
So amusingly clever in all
We thank him for verses short and tall."

A scan of Calvert's hand-written poem is below.;



Follow That Fly

Henry Fountain (from the New York Times)

You won't see them flying overhead in a V formation, honking away like miniature Canada geese, but some species of dragonflies do migrate. Not much is known about their journeys, however. After all, there's no way to track individual insects over long distances, is there? Well, yes, there is. A Princeton scientist and colleagues have done just that, attaching tiny radio transmitters to green darner dragonflies and following them using ground-based and airborne receivers. Their studies have revealed that dragonflies appear to act just like birds in deciding when to travel.

"They follow really simple rules," said Martin Wikelski, an ecologist at Princeton and the lead author of a paper on the subject in Biology Letters. "They just use temperature and wind."

Radio tracking has been used to follow larger animals. But transmitters have gotten much smaller, and Dr. Wikelski, who has worked with them for years, wanted to see if they could be used on insects.

He and his colleagues used a transmitter-battery package weighing about one-hundredth of an ounce, about one-quarter of a dragonfly's weight, and the insects are known to carry prey that weigh even more than that. The transmitters were attached to the thorax with false-eyelash adhesive and Super Glue.

"Everybody thought this was totally crazy," Dr. Wikelski said, and even his team had doubts. "We didn't really expect it to work well."

But of 14 green darners that were tagged in central New Jersey last fall, the scientists were able to track 13, following them by car or small plane and using signal strength to chart location.

The dragonflies headed south, generally, and were followed for about 35 miles, on average, over six days. (The tiny batteries die after about 10 days.) Like birds, they had days when they traveled (about every third day) and others when they rested. And like birds, they flew only when the winds were relatively weak (less than about 15 miles an hour) and when temperatures fell over successive nights (a sign of a cold front with prevailing southerly winds).

What is still a mystery, Dr. Wikelski said, is why these insects migrate. Presumably it's to find better breeding grounds, but only more and longer tracking will determine that. "It's a question we can only really answer if we can follow individuals," he said.

NABS Odonata Bibliography

Ken Tennessen, P.O. Box 585, Wautoma, WI 54982, <ktennessen@centurytel.net>

I have been preparing the Odonata section of the annual bibliography for the North American Benthological Society (NABS) since 1992. This bibliography has been beneficial not only to many of the society's members, but to myself as it "makes" me keep up with the dragonfly literature. At least it seemed I was able to do so until the last few years. I have noticed that more and more authors are requesting reprints from their publishers as PDF files, not paper reprints. Or perhaps many authors are not ordering reprints or sending them to colleagues anymore. At any rate, I have been receiving fewer and fewer actual reprints. This lack of reprint exchange is making it more difficult to find papers that deal with Odonata and in preparing the NABS bibliography. I feel as though I am missing many references.

Here is my plea. I would greatly appreciate receiving a reprint or at least a complete bibliographic reference of any article published dealing with Odonata. A reprint can be either a paper copy or an electronic file (my address and e-mail are above). Thanks in advance. For those who are not members of NABS but would like an electronic copy of the Odonata bibliography, just send me a request via e-mail. I usually have the previous year's version finalized sometime in June.

WDA Congress in Namibia

We invite WDA members to attend the 5th WDA International Congress of Odonatology to be held at the Waterberg Plateau Park, Namibia from 16th to 20th of April 2007.

Please visit the congress Web site (http://wda2007.tu-bs.de) for further information on the congress venue and preliminary program.

Please use the pre-registration form on that Web site to indicate your interest of attending the congress. Those, who register early will be informed by e-mail about all news concerning the congress (e.g. registration deadlines, fees etc.)

Eugène Marais, Chief Curator for Natural History, National Museum of Namibia, Windhoek (WDA 2007 organiser)

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

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

Richard Rowe, Zoology & Tropical Ecology, School of Tropical Biology, James Cook University, Townsville, Australia (WDA symposium coordinator)

Request for Submissions

The ARGIA editorial staff is always looking for material for these pages, and sometimes it can be a struggle to fill an issue. Notes and articles can be on anything from new state/provincial records or updates on state/provincial summaries, trip reports, interesting observations, research summaries, works in progress, poems, inquiries, requests, etcetera. And of course we needs photos for the front and back covers. We know there are a lot of good photographers out there sitting on stacks of great photos (well, not literally we hope). So, please think about submitting material to the Editor for publication—especially those of you who have never done so.

Notice

John Heppner would like to obtain vol. 1–23 of Odonatologica, preferably in loose issues (not bound), in good condition. If anyone has a full set (to Vol. 23) for sale, He would like to know the price, etc.

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Can You Name It?

The image at right was provided by Ken Tennessen. These are the caudal gills of a larval damselfly, but which species? The answer can be found on the next page, but see if you can figure it out before looking.

Can You Name It? answer: *Enallagma antennatum* (Rainbow Bluet)

Argia

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Back cover: (upper) Southern Snaketail, *Ophiogomphus australis*, photo by Gayle Strickland; (lower) Kennedy's Emerald, *Somatochlora kennedyi*, photo by Glenn Corbiere