

ISSN 1061-8503

ARGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF THE AMERICAS

VOLUME 15

1 August 2003

NUMBER 2



PUBLISHED BY THE DRAGONFLY SOCIETY OF THE AMERICAS

THE DRAGONFLY SOCIETY OF THE AMERICAS

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

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

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

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

Front cover: Is it a species or isn't it? The most sought-after dragonfly at the DSA meeting was *Cordulegaster deserticola* (or *C. dorsalis deserticola*). Image by Steve Valley.

In This Issue

Dennis Paulson was one of the very few North Americans to attend the WDA convention at Beechworth, Australia. As he has previously, Dennis gives us a fascinating account of Odonata collecting "down under". I follow this with a much more prosaic account of a brief trip to a little-studied part of our own country: the northern Great

There is quite a bit of summer left, and there are still bugs to be found. It may be too wet in the east, too dry in the southwest, or whatever, but this is the time to take your net or camera and head to the field.

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MINTER J. WESTFALL, JR. PASSES AWAY

Ken Tennessen

One of the saddest moments to befall the Odonatological world, and particularly the DSA in its 14 years of existence, a moment we were all hoping would be postponed for a long time, has now come to be. Minter Jackson Westfall, Jr. died peacefully at his home in Gainesville, Georgia on July 20, 2003, at the age of 87. With Minter's passing, a chapter in the history of Odonatology is closed. His name will be revered along with the likes of other great 20th century Odonatologists before him, such as Calvert, Walker, Williamson and Lieftinck, to name just a few. He touched the lives and careers of nearly all members of DSA and also of the entire world dragonfly community. His strength faded only in the last couple of years. The last time most of us saw him was at Cades Cove, when at age 85 he came to help inventory the Odonata of the Smoky Mountains National Park. To say Minter was devoted to dragonfly study is an understatement, but he was even more devoted to his family and his Christian faith. He is survived by his son David, daughters Carol and Holly, and numerous grandchildren. Our condolences to each of them.

Minter's dear wife, Margaret, passed away three years ago [see M. May, *ARGIA* 12(1):4-5]. Their son David said that in his words, his father was "ready to go join Margaret." Through their years together, they graced many national and international symposia on Odonata and traveled on collecting trips to many parts of the world. They made lasting friendships wherever they went because they cared about people. Throughout his career, from his first publication on Odonata at age 25 (1941, Notes on Florida Odonata, Entomol. News 52:15-18,31-34) until his last in 2000 (Dragonflies of North America, Revised Edition), Minter was respected and renowned by hundreds of Odonatologists. For those who did not get the chance to meet him, his books, papers, and letters nourished all.

Minter was a natural teacher, beginning at a very early age teaching nature study to boy scouts in North Carolina, all the while slipping in facts about dragonflies. One of his favorite stories came from this happy time. He had told the scouts about the primitive-looking dragonfly, *Tachopteryx thoreyi*, and whoever caught one would earn extra credit. One day they were hiking a trail when a fine male landed on one boy's cap. Minter yelled the boy's name and said, "On your head, a *Tachopteryx*!" He then told how he could just see the boy's mind working. All of sudden, the boy plopped his net down over his head and trapped the *Tachopteryx*! Another favorite of his was Jerrell Daigle's famous

saga concerning a Wisconsin black bear (*ARGIA* 14(1):15): "I was running down the road, with Dr. Westfall right on my heels; we were trying to net a slow flying *Somatochlora kennedyi* overhead, when I happened to glance back over my shoulder and laid saucer eyes upon an upcoming black bear loping along right towards us! If the episode were ever to be made into a motion picture called Ungentle Ben our ensuing conversation might be used for the script, and went something like: (me) "Minter! Look out! Bear!, Bear!", (Dr. Westfall) "Where? Where?", (me) "There, There! Right behind us!", (Dr. Westfall) "Oh! Oh!", (me) "Run! Run!", We did about 100 yards in what was probably Olympic class time, and - - when we looked back (fortunately for the bear) he had decided he couldn't stand any more of our dialogue and turned off into the bushes and trotted away."

Early on, Minter was greatly influenced by Edward M. Davis and James G. Needham, both of whom steered him toward dragonfly study. He completed his Ph.D. at Cornell in 1947 and found a teaching position at the University of Florida. His career in Zoology there spanned 38 years. Throughout that time, he gave undivided attention to every student who sought help, biology major or not, however long it took. At times his devotion to students took valuable time from his research on Odonata. At other times, he was responding to letters from around the world posing difficult questions on odonate taxonomy. He still had to find time for attending staff meetings, counseling graduate students, refereeing papers, and preparing the newsletter SELYSIA. All in all he authored or coauthored over 50 refereed journal papers and book chapters on dragonflies, plus he contributed many notes concerning Odonata and Odonatologists in society newsletters. In hindsight, I think his greatest professional contributions were the help he gave to others who were interested in studying dragonflies (he was so generous with his knowledge and time, it often meant delaying work on his own papers), and secondly his use of larvae to clarify taxonomic relationships.

Minter introduced 16 new taxa of Odonata to science, namely the genus *Elasmothemis* (1988), and 15 species and one subspecies: *Enallagma davis* (1943), *Libellula needhami* (1943), *Macromia margarita* (1947), *Celithemis berthaleonora* (1952), *Gomphus (Gomphurus) septima* (1956), *Philogenia leonora* (1956, and *Philogenia zeteki* (1956, with R. B. Cumming), *Telebasis byersi* (1957), *Protoneura viridis* (1964), *Gomphus (Gomphurus) ozarkensis* (1975), *Protoneura sanguinipes* (1987), *Micrathyria divergens*, *M. dunklei*, *M. occipita*, and *M. pseudeximia* (1992), and lastly, *Erythrodiplax bromeliicola* (2000).

One of Minter's favorite subjects for study was the larval stage. He reared and described too many to list here, but most notable were his papers on larval Gomphidae and Zygoptera. When he discovered the larva of *Elasmothermis cannaeoides*, which was so different from the larvae of *Dythemis*, it convinced him that the group deserved generic rank.

When he left the Florida State Collection of Arthropods in Gainesville, Florida in 1996 to move close to his son David in Gainesville, Georgia, he left a file drawer with several unfinished manuscripts and drawings on temperate and tropical Odonata larvae.

The respect and admiration other Odonatologists had for Minter Westfall is evidenced by the nine taxa that have been named for him: *Metaleptobasis westfalli* Cumming (1954), *Enallagma westfalli* Donnelly (1964), *Hetaerina westfalli* Ráčenis (1968), *Ophiogomphus westfalli* Cook & Daigle (1985), *Epigomphus westfalli* Donnelly (1986), *Philogenia minteri* Dunkle (1986), *Gomphus westfalli* Carle & May (1987), *Epipleoneura westfalli* Machado (1986), *Argia westfalli* Garrison (1996).

Minter was awarded the Membership of Honor in S.I.O. (Societas Internationalis Odonatologica) in Ste. Therese, Canada in 1979. In 1986 the same society paid tribute to him on his 70th birthday by devoting an entire issue of the journal Odonatologica to him. Less than a year ago [see ARGIA 14(3):4], Minter was bestowed an Honorary Membership in the Dragonfly Society of the Americas, proposed by one of his students, Dr. Sidney W. Dunkle. Many other honors and tributes were conferred upon him over the years.

I first met Dr. Minter Westfall in 1968 when I went to Gainesville to attend the University of Florida and begin pursuit of a Master's degree in Entomology. It didn't take long to know I was in the right place. Minter put me to work right away researching damselfly taxonomy for his forthcoming Zygoptera manual, which much later (1996), with the tremendous collaboration of Dr. Mike May, became the sequel to the famous 1955 Anisoptera Manual that Minter had coauthored with James G. Needham. The Anisoptera Manual has also been revised (2000), again with Mike's help, and together these two books serve as the foundation for identification of North American Odonata.

Through the 35 years I knew him, three of Minter's qualities really got through to me, though I'm not sure he consciously taught these things. These are: 1) study the entire biology of dragonflies if you want to understand their true nature, 2) take great

care that you have it right before you publish (or edit and re-edit), and 3) persevere. I have never met another person more tenacious in their approach to furthering scientific knowledge. When on a seemingly impossible bibliographic search, he was a bloodhound. And watching him dredge all day with that cumbersome steel Needham scraper is etched in my mind forever. I think I am going to miss him in more ways than I realize right now.

I'm feeling a bit numb, writing this obituary the day after Minter's death. On my desk is a stainless steel letter opener with an embossed leather handle, a Ph. D. graduation gift from him in August of 1975. There is another memento; before I left Gainesville that fall, he gave me an already well-aged Swift 10X hand lens that he had used for many years. It is now badly worn, and I have put it away for safekeeping; I've decided it has seen its last days of fieldwork. With heavy heart, these are the tangible objects I will have to always rekindle thoughts of a great Odonatologist, mentor and friend. But I also feel rich in a way, for having known Minter Westfall gives me great inspiration to continue pursuing knowledge of the Odonata.

[For biographic details of Dr. Minter J. Westfall, Jr., and a bibliography up to 1985, see Odonatologica 15:5-17]

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Minter's death wasn't exactly a shock. I knew he was 87 and not in great health. But it is a little hard to realize, especially at the height of dragonfly season, with *Anax* and *Libellula* on the ponds and *Macromia* whipping by me along sandy roads, just out of net reach, that he's gone.

I'd known Minter since I was eight years old. That's when we moved to Gainesville, a block down 7th Place from the Westfalls. Not that Minter was a really easy person for an eight year-old to get to know, but his son, David, was a schoolmate and good friend. One of the best things about living on that block was that sometimes we got to look through the drawers of mounted insects stored in their carport. Later, in junior high, Minter tried, with limited success, to teach us what the heck our biology teacher was talking about in the section of photosynthesis, and in 9th grade drove us down to Lakeland for the state science fair; that trip was when I learned, to my surprise, that Minter had quite a lot to say when you got him going.

I guess I could go on for a while telling Minter stories, but I'll just do one more, because I've always thought of it as a real personal turning point. I'd come back to Gainesville after a semester at grad. school that had convinced me I wanted to be a field biologist rather than a bench scientist, and I

As David said when he emailed to let us know of his Dad's death, Minter lived a rich, full life, and luckily for all of us a long one. He's also one of those people who helped a lot of others lead richer and fuller lives, full of hot sun, rich in mud, fast streams with slippery rocks, and an inexhaustible source of pleasure and satisfaction. Thanks. Minter.

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Carl Cook



Minter Westfall in 1998 – photo by John Heppner

Minter Westfall was instrumental in my acquiring an interest in Odonata and also was the one who encourage me to go to college. He further encouraged me to relocate to Gainesville Fl to help with the IORI and the FSCA collections. I continue to run the IORI with great pleasure and fulfillment as a volunteer in the area of Odonate research. All of his publications and books will be a constant reminder to me of his contributions in the field of Odonatology. Minter will always be highly respected and remembered.

Bill Mauffray

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2003 DSA ANNUAL MEETING IN WILLIAMS, CA AND POST-MEETING TRIP TO OWENS VALLEY, JUNE 19-25

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Collecting equipment, check....photo equipment, check....camping equipment, check....clothes, check. Looking around at the piles in my living room, I know I am forgetting something. No way this is all going to fit, I think desperately! My mind wanders and I imagine this same scene being played out all around the country as old friends and new ones prepare for the 2003 Dragonfly Society of

the Americas Annual Meeting in California. I look at the clock.... midnight....and Jim Johnson will be picking me up at 9:00 for the first leg of our trip to Williams. We plan on collecting, exploring and camping in southwestern Oregon along the way. Tuesday morning 4:00 AM, I am up and paring down, OK, this will fit, I only really need 1 clean pair of socks, etc. per day. 8:30, I am finally ready, but there is still that nagging feeling I am forgetting something....

That afternoon, 79.5 miles into our trip, standing knee-deep in a road side marsh, peering through my hand-lens at a *Lestes* trying to determine if it is *dryas* or *stultus*, I finally remember....I forgot my microscope! Well, at least that nagging feeling is gone. Our plan is to check the major rivers and streams (North and South Umpqua, Rogue and Illinois Rivers) along our route south, to see what is flying. On Wednesday, we take a side trip into the mountains to look at known *Tanypteryx hageni* sites and perhaps discover some new ones. Southwest of Grants Pass, we explored the area between Eight Dollar Mountain and the Illinois River and located a number of *Darlingtonia* bogs that all had a few *T. hageni* flying, but it appeared that we were at the beginning of their flight season in this region. After a bit more exploring and collecting Thursday morning we make a dash in the afternoon for Williams, CA, where the DSA meeting will be held. (Jim and I added 18 new county records for OR on the round trip to CA).

There was no mistaking that we were at the right place when we pulled into the Granzellas parking lot. It was full of clusters of people talking, gesturing, hugging, shaking hands (a very odd collection, I can tell you). We spotted a dozen old friends right away. This is perhaps the most enduring tradition of DSA, "the parking lot meeting". More information about the science of Odonatology is exchanged there than any other forum I can think of. We soon joined the throng, drifting from cluster to cluster, greeting old friends, meeting new ones, catching up on the past year, showing off new equipment, finding out who would be on which field trip the next day, telling jokes and stories, but most of all....having fun! Anyone watching us must have thought we were about the strangest bunch they had ever seen.

The field trips were split, with groups going west to Bear Creek on Highway 20, led by Dave and Kathy Biggs, and Pope Creek and Cold Canyon led by Andy Rehn. Another group headed northeast to the Chico area, Bidwell Park and into the mountains to Cherry Hill, led by Tim Manolis. On Saturday, the groups switched destinations.

At Bear Creek, in Colusa County, the following 31 species were seen, collected or photographed, * indicates new county records: *Hetaerina americana*, *Archilestes grandis**, *Argia agrioides*, *Argia emma*, *Argia lugens*, *Argia vivida*, *Enallagma carunculatum*, *Enallagma boreale*, *Enallagma civile*, *Enallagma cyathigerum*, *Ischnura cervula*, *Ischnura Perparva*, *Ischnura barberi**, *Erpetogomphus compositus*, *Progomphus borealis*, *Aeshna californica**, *Aeshna multicolor*, *Anax walsinghami*, *Macromia magnifica*, *Epitheca canis**, *Brechmorhoga mendax*, *Erythemis collocata*, *Libellula forensis*, *Libellula luctuosa*, *Libellula lydia*, *Libellula saturata*, *Pachydiplax longipennis*, *Sympetrum corruptum*, *Sympetrum madidum*, and *Tramea lacerata*. *A. walsinghami* was a real highlight for me. It was the first time I was in net range of them and also the first time to see the monster larvae, which Ken Tennessen dredged up.

At Pope Creek, in Napa County, 15 species were seen, collected or photographed: *A. agrioides*, *A. vivida*, *E. carunculatum*, *E. praevarum*, *Telebasis salva*, *Gomphus kurilis*, *M. magnifica*, *Cordulegaster dorsalis*, *B. mendax*, *E. collocata*, *Libellula comanche*, *L. luctuosa*, *L. saturata*, *P. longipennis*, *T. lacerata*. A few collectors visited a *Tanypteryx hageni* site near Lake Berryessa, but it was apparently too late in the season and none were seen there.

At Guenoc Pond, on Butts Canyon Road, between Pope and Bear Creek, in Lake County, 5 new county records were found: *Archilestes californica**, *Telebasis salva**, *Anax junius**, *E. compositus**, and *Sympetrum occidentale**.

Putah Creek, on the Yolo/Solano county line, was a good spot to get *Zoniagrion exclamationis*, along with *Argia agrioides*, *Enallagma cyathigerum* and *Ischnura cervula*.

At Big Chico Creek, Bidwell Park, in Butte County, 16 species were reported: *H. americana*, *A. agrioides*, *A. emma*, *A. lugens*, *A. vivida*, *Enallagma civile*, *E. cyathigerum*, *G. kurilis*, *Ophiogomphus bison*, *Ophiogomphus occidentis*, *M. magnifica*, *B. mendax*, *L. saturata*, *Paltothermis lineatipes*, *Pantala hymenaea*, and *T. lacerata*.

At Horseshoe Lake in Bidwell Park we added: *Ischnura cervula*, *I. denticollis*, *I. perparva*, *T. salva*, *Aeshna multicolor*, *A. junius*, *E. compositus*, *Libellula forensis*, *L. luctuosa*,

Libellula lydia, *Libellula pulchella*, and *P. longipennis*.

Near the Cherry Hill Campground, along Butte Creek, in northern Butte County, we visited a really great *Tanypteryx hageni* site. The large hillside bog at an elevation of about 4700 feet was one of the largest *Tanypteryx* habitats I have ever seen. The upper part had *Darlingtonia* growing, but most of it was made up of a sheet-flow bog covered with moss, wildflowers and grasses. Cop pairs, ovipositing females, territorial males, burrows with larvae and exuviae were found in abundance. It was amazing to see photographers lining up to shoot a cop pair, and they sat patiently, as one after another captured their image. Ken Tennessen found *Cordulegaster dorsalis* exuviae on a roadside trickle below the bog and Jerrell Daigle captured an adult. *Amphiagrion abbreviatum* and *Argia vivida* were also common. *Libellula nodisticta* and *Sympetrum corruptum* were found in a clearing near the road.

The evening meetings were presided over by our President, Dennis Paulson. Friday evening, Dennis efficiently led us through the DSA business meeting, where we heard Jerrell Daigle's Treasurer's Report and DSA Incorporation Report. Jerrell passed out the traditional DSA Meeting Buttons. This one sported an image of *Zoniagrion exclamationis*. We also discussed future meetings and after a presentation by Steve and Marcia Hummel, chose Iowa for the 2004 DSA meeting. Kathy Biggs and the CalOdes Group honored Dennis Paulson and Rosser Garrison as the "Fathers of California Dragonflies" for their 1977 paper on Pacific Coast Odonata, with a special button. (It is hard to believe we are all getting that old). We chose Steve Krotzer as our President-elect, to assume that position in 2005 and Steve Hummel was chosen as a regular member of the Executive Council, for the next 6 years, replacing Paul Brunelle. All other DSA officers will retain their positions.

The meeting lasted for a little more than an hour and after it was adjourned, many of us headed for our rooms to process specimens, host or attend late night gab sessions (parties), some of which lasted until the wee hours of the morning. (The motel management did ask us to close the door to our room because we were a little noisy, but the rooms seemed to be exceptionally well insulated.)

The Saturday night meeting was reserved for presentations related to odonatology rather than DSA business. Rosser Garrison gave a presentation about his studies of *Hetaerina* and *Mnesarete* and

also his projects to create keys for New World Odonata. Another subject he covered had to do with the issue of *Triacanthagyna* / *Gynacantha* and suppressing an earlier name. Steve and Mary Jane Krotzer gave us a very nice musical interlude with Steve's excellent dragonfly photographs. Heath Ogden gave a report on his projects involving Molecular Systematics of Odonata. Ken Tennessen gave a talk about Larval Sampling and showed us his latest generation of larvae grabbers, including his slick new "Brush-Tipped Tennessen Scraper, Model 2003". He also gave us tips on efficient design and construction.

At the end of the meeting, Dennis Paulson passed the gavel to the new DSA President, Roy Beckemeyer. Thank you Dennis, for the great job over the past 2 years!

On Sunday morning, after a more abbreviated night of revelry, we said our good byes to those who were not going on the post meeting safari to the Owens Valley area around Bishop. It is about a 6 hour drive from Williams to Bishop for everyone but odonatists. The route over the Sierras passes many streams, marshes and lakes, and a dragonfly hunter cannot resist the temptation to check them out.

On New York Creek, surrounded by a residential neighborhood, on the eastern outskirts of Sacramento, Ken Tennessen was able to dredge up a couple *Octogomphus specularis* larvae, but the adults were not to be seen on this trip. Many of us stopped along Hwy. 50, on the side of a cliff, to take in the spectacular view of the Upper Truckee River Valley, more than 1000 feet below. Breathtaking and scary! At Grass Lake, along Hwy. 89, in El Dorado County, *Somatochlora semicircularis* was emerging and *Coenagrion resolutum* and *Leucorrhinia hudsonica* were collected.

In Alpine County, at Markleeville, a *Libellula saturata* escaped the net, but *Amphiagrion abbreviatum* and *Enallagma boreale* were collected. At Monitor Pass, on 2 small grass lakes, *Ischnura cervula*, *I. perparva* and *Leucorrhinia intacta* were collected, for new county records and *Lestes dryas*, *Leucorrhinia hudsonica* and *Libellula quadrimaculata* were also collected. *A. abbreviatum* and *E. anna* were collected in Mono County.

The post-meeting expedition was headquartered in various motels at Bishop, in Inyo County. Monday morning saw nets swinging at every wet spot within 30 miles. The species that were seen or collected in

Inyo County were: *Amphiagrion abbreviatum*, *Argia alberta*, *Argia emma*, *Argia sedula*, *Argia vivida*, *Enallagma anna*, *Enallagma carunculatum*, *Hetaerina americana*, *Ischnura barberi*, *Ischnura cervula*, *Ischnura denticollis*, *Ischnura perparva*, *Telebasis salva*, *Aeshna multicolor*, *Anax junius*, *Erythemis collocata*, *Libellula composita*, *Libellula forensis*, *Libellula nodisticta*, *Libellula quadrimaculata*, *Libellula saturata*, *Libellula subornata*, *Ophiogomphus morrisoni*, *Pachydiplax longipennis*, *Pantala flavescens*, *Pantala hymenaea*, *Progomphus borealis*, *Sympetrum corruptum*, *Sympetrum corruptum*, *Sympetrum occidentale*, *Tramea lacerata*, and *Tramea onusta*.

Most of the collectors also made the trek over the White Mountains on the steep and curvy Hwy 168, to Deep Springs Valley. Some also visited the ancient Bristle-cone Pines that are growing in the mountains. One of the few known *Cordulegaster deserticola* sites is Antelope Springs, on the north side of Deep Springs Valley. Many specimens of this beautiful species were photographed and collected. Larvae were collected by Ken Tennessen, and he reports several morphological differences between *C. deserticola* and the closely related *C. dorsalis*. Adults were also seen flying and many exuviae were collected at Batchelder Springs.

At last count there were 65 people and one dog, from 16 states and Argentina, in attendance at the 2003 DSA Meeting: Ken Tennessen, Steve & Mary Jane Krotzer from Alabama, Natalie von Ellenrieder from Argentina, Doug Danforth & Rich Bailowitz from Arizona, George & Phoebe Harp from Arkansas, Andy Lazere, Andy Rehn, Bob Behrstock, Bob Parks, Bruce Deuel, Bruce Webb, Chris Anderson, Don Mitchell, Douglas Vaughn, Doris Kreschmer, Heather Hacking and friend, Kathy & Dave Biggs, Kathy & Kit Crump, Liz Cooper, Ray & Steven Bruun, Rod Miller, Rosser & Jo Garrison, Sandra Huwe, Lois Taylor, Steve Lindley, Terri Gallion & Jenna (her guide dog), Tim Manolis, Tom & Jo Heindel all from California, Jerrell Daigle from Florida, Steve & Marcia Hummel from Indiana, Roy Beckemeyer from Kansas, Blair Nikula & David Allan Fitch from Massachusetts, Mike May from New Jersey, Nick & Ailsa Donnelly from New York, Duncan Cuyler from North Carolina, Jim Johnson, Ron Lyons & Steve Valley from Oregon, John Abbott, John Morse, Linda Sharp and husband, Omar Bocanegra, Ryan Caesar & Sid Dunkle all from Texas, Erik Pilgrim & Heath Ogden from Utah, Dennis Paulson, Molly Hukari, Mike Kasprzak, Betty & Jessica Williams from Washington.

I think the meeting was judged a success by all those who attended. Some species that were hoped for, were not seen, but almost everyone saw some new ones. Stories that are told and re-told always come out of these meetings. My favorite from this one is about Jerrell Daigle, who navigating for Ken Tennessen on their drive west, invented a new unit of measurement, "the Double Knuckle", for estimating distances on a map. No one is sure how many miles a double knuckle represents, but navigating has been redefined as "Daigleing".

We owe a special thanks to Dave and Kathy Biggs, Tim Manolis and Andy Rehn for organizing and hosting the 2003 DSA Meeting. They did a great job!

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2003 EGLIN AFB, FLORIDA MEETING

Jerrell J. Daigle and Theresa Thom

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Last year the 2002 Southeast Regional Meeting was held at Eglin Air Force Base in Niceville, Florida (See ARGIA 14:2). It went very well, and we decided to have it again this year (April 11-12) after the MOAB (Massive Ordinance Air Burst) bombing tests!

Attendees included Theresa Thom (our host), Don Ray, Frank Butera, Johnny Richardson, Emily Springer, Mike Heyn, Manny Pescador, Andy Rasmussen, and Jerrell J. Daigle from Florida. Carl Cook came down from Kentucky. Steve Krotzer, Paul Miliotis, and Ken Tennessen followed him from Alabama. This year's snowbirds were Ailsa and Nick Donnelly plus Peggy and Fred Sibley from New York, and Dan Bogar from Pennsylvania. Jim Johnson traveled from way out west in Washington! We had a much larger turn out than last year, and everyone was eager for new Eglin adventures!

Our main goal was to help Theresa, the base aquatic biologist, with her ongoing invertebrate species level inventory for Eglin AFB. For the weekend we were focused on Odonata, with our senses especially tuned to look for adults of the new Florida *Ophiogomphus*. We were able to double last year's species total, add new species records and verify collected specimens including *Gomphaeschna antilope*, *Nannothemis bella*, *Helocordulia selysii*, *Libellula flavida*, *L. semifasciata*, *Enallagma dubium*, *E. weewa*, *Nehalennia gracilis*, and *Argia bipunctulata*.

We enjoyed good weather, and an amazing landscape including the largest contiguous old-growth longleaf pine (*Pinus palustris*) ecosystem left in the Southeast! We sampled near streams like Turkey Creek, which provides habitat to the federally endangered Okaloosa Darter (*Etheostoma okaloosae*). The ecosystem management on Eglin has helped protect and maintain habitat for many state and federally threatened and endangered species as well as rare species including dragonflies like *Ophiogomphus* and *Cordulegaster*. Which reminds me, Dan Bogar informed me he got the rare *Cordulegaster sayi* in the nearby Blackwater State Forest after the meeting.

We went back to a good site for *Ophiogomphus* larvae. The habitat is sandy oak and pine uplands with the small sandy clear seepage streams averaging about 18 degrees Centigrade. The larvae were found in areas of pea-sized quartz gravel, the gravel having a slight greenish tinge. We were able to dredge and return many *Ophiogomphus* larvae. Jerrell earned the "Ophiogomphus of the Year Award" as he collected a mature female adult in the field, the only one seen. We were evidently too early or too late in the year to find them swarming but we will try again next year. Luckily, Theresa had reared a few adults in the lab so we had several specimens to compare. It appears to be related to an undescribed *Ophiogomphus* species found in southern Alabama, but we are still studying the specimens.

During our weekend adventure, we were lucky enough to explore a beautiful seepage slope with several species of pitcher plants (*Sarracenia leucophylla*, *S. flava*, *S. purpurea*, *S. rubra*), other carnivorous plants (*Drosera intermedia*, *D. tracyi*, *D. brevifolia*) and some terrestrial orchids. We found *Libellula flavida*, *L. semifasciata*, and *Argia bipunctulata*. Steve Krotzer got a glimpse of a possible *Cordulegaster sayi* but it got away. We also discovered a slender glass lizard (*Ophisaurus attenuatus*), which complimented our Eastern glass lizard (*O. ventralis*) sighting at Anderson Pond last year.

Of course, a Dragonfly Society Meeting wouldn't be complete without mentioning local cuisine. We dined at a local Mexican Restaurant one night, and the following evening we ate at Theresa's favorite, Nida's International Cuisine, which specializes in Thai food – although they make fantastic apple pie! While we discussed the day's events over dinner, Carl Cook informed us that he would like to host the 2004 Southeast Regional meeting in Kentucky at Mammoth Caves State Park. He said he would

make the official proposal at the 2003 SE Regional meeting in LaFayette, Georgia in May.

All in all, it was a great trip! We saw new habitats, added another *Ophiogomphus* site, and met new friends! Although we couldn't get anyone to swim in the hotel pool, our trip overall was a success. Our thanks go to Theresa Thom for organizing the survey and for guiding us on Eglin. We plan to help again next year amidst swarms of *Ophiogomphus* and *Cordulegaster*!

Aloha! See you all next year!

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**2003 SE MEETING AT LAFAYETTE,
 GEORGIA**

Jerrell J. Daigle, Bill Mauffray, and Giff Beaton

The 2003 Southeast Regional Meeting was held at the Key West Inn in LaFayette, Georgia, from May 23-24. It was followed by a sidetrip to northern Georgia led by Giff Beaton on May 25. Despite cool temperatures and heavy rains earlier in the week that raised the stream levels, we were very successful in our collecting efforts and we all had a great time!

Attendees included Giff Beaton (our pilot host and guide) and Marion Dobbs from Georgia plus Bill Mauffray, Jeff Biller, and Jerrell J. Daigle from Florida. Carl Cook came down from Kentucky, followed by Sandy Garrett and Dave Wagner of Tennessee. Pamela Bryer burned the midnight oil driving from South Carolina! Happy camper Jason Bried came from Mississippi. Steve and Mary Jane Krotzer drove over from nearby Alabama. But the real snowbird was Mike Thomas from snowy Connecticut! He was followed by the Birdman of California, Bob Behrstock! A truly great group of enthusiasts, all ready for aerial adventures!

The purpose of our trip was to help Giff, Bill, and the Georgia Dragonfly Survey group conduct a species level inventory for 3 sparsely surveyed counties in extreme northwest Georgia. We were able to add 11 new records for Chattooga County, 19 records for Dade County, and 38 records for Walker County! At the same spot, two new state records (*Argomphus villosipes* and *Lestes eurinus*) were collected by our merry band! Second state records included *Sympetrum semicinctum*, *Calopteryx angustipennis*, and *Gomphus lineatifrons*. Other notable species included *Enallagma dubium*, *Gomphus consanguis*, and *Libellula axilena*.

Friday morning dawned cool and cloudy which is not a great start, but after a quick breakfast in a very smoky Huddle House, the weather didn't seem so bad. Our plan was to split the group for the morning with most of the people going to a known *G. consanguis* site in Chattooga County and the rest hitting a part of southern Walker Co fairly close by. It was still cool but the clouds were beginning to clear as we hit the first spot, Teloga Creek, and we eventually located a number of teneral *G. consanguis* along with a few other species. As we were leaving, we stopped at a nice stream crossing right at the Walker County line and Bill snagged GA's second *G. lineatifrons*, the first adult ever. The Walker people had some success in Johns Mountain WMA that morning, including a couple of county records.

longipes cruising a tiny pond, and ringed the pond with nets in a futile attempt to catch one (much to the amusement of the observers). To Bill's surprise, we also had several *L. axilena* here, a good find for this part of the state.

out and saw two of them, patrolling and fencing for territory in the shade, which is not usual for Eastern Amberwing. Eventually Sid Dunkle arrived and confirmed that at least one of the critters was a Slough Amberwing (*Perithemis domitia*)!

I gave the opening talk, on tips for odonate identification and gender differences in the Odonata, and we all spent some time socializing. We also checked out the silent auction, which included an odonate DVD and poster, a Southwest Airlines trip, and various other goodies. The next morning we gathered at 8 AM for the field trips to begin; we started by filing out behind the VNC and showing everyone the Amberwings, and discussing how to distinguish Slough from Eastern.

Then we headed to Llano Grande, the tract formerly known as the Mercedes Tract of the Lower Rio Grande Valley National Wildlife Refuge. It was cloudy and breezy, and as cool as 90-plus degrees can ever get, so odes were thinner than usual. There were lots of Eastern Amberwings (*P. tenera*) of both genders lurking in the grass, along with several female/immature Blue Dashers (*Pachydiplax longipennis*). We had a nice comparison of a Hyacinth Glider (*Miathyria marcella*) with a Red Saddlebags (*Tramea onusta*) as both foraged on the downwind side of a large isolated mesquite tree. A few Roseate Skimmers (*Orthemis ferruginea*) and Red-tailed Pennants (*Brachymesia furcata*) patrolled the edges of the pond. We scared lots of damsels out of the long grass, all apparently either Familiar Bluet (*Enallagma civile*) or Rambur's Forktail (*Ischnura ramburii*), and we observed mating pairs of both. Perhaps the most exciting insect wasn't even an odonate, but an ode-like Owlfly (order Neuroptera, family Ascalaphidae) on a dead weed stem, doing its best impression of a thorn! We also saw some good birds, a Green Kingfisher and Yellow-crowned Night Heron along the pond, and a trio of American White Pelicans soaring overhead.

Next stop was the Edinburgh Scenic Wetlands. We were invited in to the new World Birding Center building there, which was beautiful! Exhibits, a gift shop, fish tanks; banners with the Edinburgh official city bird, flower, butterfly, and yes, even dragonfly! And huge windows looking out on feeders, wetlands, and butterfly plantings. The plantings are young, but the whole place promises to be spectacular in 2-3 years. And the WBC had constructed a dragonfly pond, which was swarming with activity! More dashers and Roseates, all three pondhawks (*Erythemis simplicicollis*, *plebeja*, and *vesiculosa*), Four-spotted Pennants (*B. gravida*), and the always-popular Thornbush Dasher

(*Micrathyria hageni*). The only negative was that there were SO many dragonflies, they were constantly chasing each other, it was difficult to isolate or point out to others any one individual!

We returned to the VNC that afternoon for a series of talks. First up, we all watched Dustin Huntington's video, "Dragonflies of New Mexico", which had lots of drool-inducing shots of a variety of species, many of which also occur in the LRGV: <http://www.imunu.com/> Terry Fuller followed up with a slide show on damselflies of the LRGV, including a highly detailed review of odonate anatomy, right down to the different pleural sutures, and dazzling photos of all the local species. Carrie Cate closed the afternoon session with a talk that expanded the topics into birds, mammals, reptiles, and her specialty the spiders. And, after the festival banquet, Sid Dunkle delivered the keynote talk, including some jaw-dropping photos of naiads of several species!

The last day of the festival opened at 8 AM again, at which point we all drove over to Anzalduas County Park. We immediately started spotting clubtails, and continued to do so our whole time there; one area of riverside trees had dozens of them in the treetops! And astonishingly, the most common species appeared to be Five-striped Leaf-tail (*Phyllogomphoides albrighti*)! We also saw several Russet-tipped Clubtails (*Stylurus plagiatus*), including a mating pair, and a few Narrow-striped Force-tails (*Aphylla protracta*), and I netted one critter that Sid confirmed in the hand as a Broad-striped Force-tail (*A. augustifolia*). A couple of Prince Basket-tails (*Epi-theca princeps*) cruised over our heads. The low brush and reeds along the river was well populated with Black Setwings (*Dythemis nigrescens*) with a few Needham's Skimmers (*Libellula needhami*) and American Rubyspots (*Hetaerina americana*), while the shorter mowed grass higher up harbored Powdered and Blue-ringed Dancers (*Argia moesta* and *A. sedula*). A couple of Smoky Rubyspots (*H. titia*) lurked in some riverside woods; the edge of these woods provided our only Dusky Dancer (*A. translata*) of the weekend, while a leafless tree in the sun down the river a bit added a pair of Marl Pennants (*Macrodiplax balteata*).

Our last field trip spot was Santa Ana NWR, but we had so much fun at Anzalduas that we arrived at SANWR late and had little time to look around. It was enough time to add one new species to our list, though: Chalky Spreadwing (*Lestes sigma*), lurking in the grass along the irrigation ditch.

of Anisoptera (including the spectacular *Petalura ingentissima* and *Austroaeschna weiskei* and the new species *Eusynthemis netta*), but this year we saw not a single member of this suborder except one corduliid that flitted by. We explored one new stream, quite picturesque and rich-looking, but it had only *Diphlebia hybridoides* and *Lestoidea lewisiana*. These are two lovely damselfly, don't get me wrong, but we had seen plenty of them in 1998, and rarer species that we sought just didn't show themselves.

Everywhere we went there were fewer odonates than before, and at open-country streams near Mount Carbine, stream species were almost replaced by pond species using the disconnected pools. One thing I learned was that *Diphlebia* is the quintessential stream dragonfly of the dry season. At several beautiful forest streams in the Daintree River area and on the Atherton Tablelands, *Diphlebia euphaeoides* (a damselfly looking like a blue, black-winged gomphid) was the only odonate evident, although fairly common. Without doubt, *Diphlebia* ought to be the Australian national insect!

The Atherton Tablelands is one of the garden spots of northern Queensland but one that we still haven't adequately sampled for Odonata. On our previous visit, we had bad weather, and this year, although the weather was good, our karma wasn't. Some of the good-looking forest streams we visited there were entirely lacking in odonates, a new experience for me. The dry country west of the tablelands was much better, and Archer Creek was another good locality, with much diversity of both stream and pond species. One interesting spot was Innot Hot Springs well to the west of the tablelands, where common species such as *Diplacodes haematodes* and *Orthetrum caledonicum* were not only flying over water too hot for me to walk in but also ovipositing in it.

As we visited numerous wetlands in several areas, it became obvious that the Northern Queensland species fell roughly in two groups: (1) widespread open-country species that were about as common as they had been in 1998, and (2) rain-forest species most of which were absent. It seemed clear that either the latter group were away from the water and waiting for the rains, or - worse - that the drought had diminished populations of many of them. Only time and future visits will tell.

Our best dragonflying in Queensland came when we flew to Bamaga, at the tip of the Cape York Peninsula. We had always wanted to visit this fabled finger of Australia pointing straight at New

Guinea's underbelly, and our excitement was tempered only by the continued tardiness of the rainy season. Our hotel, the Resort Bamaga, was right on the shore of a large dam (dammed stream), so odonates were a constant feature of our stay there. The first thing I saw when I walked to the water was that the iridescent blue-winged *Rhyothemis resplendens* was the most common dragonfly, males at the tip of branch after branch along the shore. This was *Rhyothemis* heaven, in fact, with *R. graphiptera*, *R. phyllis*, and *R. princeps* also present. The dam and its outlet stream produced 31 species in the three days we stayed there, and other nearby wetlands added others, including numerous species I hadn't seen before. Each evening the dusk-fliers came out - *Tholymis tillarga*, *Zyxomma elgneri*, and *Z. petiolatum* - sorely taxing our netting ability as they rocketed along the shore in the dim light. I was fascinated by the variable wingtip color of the *Zyxomma*, from clear to spotted, and finally saw the odd twisting oviposition behavior of *T. tillarga*.

After a disappointing start in the Cairns area, we finally found some unexpected species at Bamaga. I discovered that what looked like a pruinose blue *Orthetrum sabina* was in fact another species, *O. balteatum*, and I quickly named it "Elusive Skimmer" because I was not able to capture one, try and try as I might, until just before we left the hotel. When I went back to the water for one last attempt, two males flew by in quick succession, both netted! What was my problem before?

At a small stream through sandy woodland, bordered by *Nepenthes* pitcher plants, we found two tiny red dragonflies that keyed to the smallest anisopteran, *Nannophya pygmaea*. Unknown from Queensland, it had been reported from the Northern Territory, and I was satisfied with the identification until I added them to my collection with the other *N. pygmaea* and immediately realized they were quite different and clearly no described species. Correspondence with Günther Theischinger resulted in his discovering that the Northern Territory "*pygmaea*" in the Australian National Insect Collection were of the same species. With much more abundant material, he will be describing it, just in time for the new Australian Odonata guide. A dark little protoneurid, *Nososticta fraterna*, was abundant at a clear sandy stream called "Blue Hole" south of town, another new record for Queensland.

We ended up collecting specimens of 80 species of dragonflies, not so bad but a come-down after finding 136 species on our previous trip, when I felt we had fabulous luck everywhere we went.

After Bamaga, we flew to Sydney and drove to Deniliquin, in dry western New South Wales, where we spent a day with the legendary Phil Maher, a guide who took us out for one of the best birding days I've ever had. A special thrill was seeing our first owl-nightjar and three new species of shorebirds, including the nocturnal and elusive Plains Wanderer. We showed Phil a few dragonflies, including a presumed migratory assemblage of *Hemicordulia tau*, and encouraged his desire to learn more about the group.

We then drove to Beechworth, in northeastern Victoria, where the WDA symposium was just starting on the campus of La Trobe University. I spent six days there, one of which was an all-day field trip, and reveled in dragonfly discussions day in and day out. Meeting attendance (about 60 participants) was limited by the distance of Australia from the centers of odonatologist abundance in western Europe, Japan, and eastern North America, but there were people from all continents except the richest (South America) and the poorest (Antarctica) for dragonflies. One of the most delightful things about the campus was the little garden pool at our hotel that always had a half-dozen odonate species hanging around it and usually about that many photographers.

Presentations at the meeting were all interesting and informative, with paper sessions on adult behavior and physiology, Australian and African biodiversity and conservation, larval ecology and behavior, landscape ecology and odonates, and phylogeny and morphology. The plenary session chaired by Philip Corbet dealt with the very different subjects of ecological partitioning of Odonata along a watercourse and affinities among Gondwanaland relict Odonata. Ecological partitioning generated a spirited discussion of exceptions, resulting in Philip asking that we please focus back on the "rules." The Gondwana discussion led to questions about exactly what groups make up that fauna.

Among the papers I found most interesting were Andrea Worthington's and Rob Olberg's discussion of prey-object size selection in foraging adult dragonflies; Andreas Martens' and Frank Suhling's account of odonate assemblages of temporary desert ponds in Namibia; Adolfo Cordero's work with female color morphs of *Ischnura elegans*; and the accounts by several Dutch workers of the admirable levels of research going into the understanding of their fauna and its ecological and conservation needs. Richard Rowe's video of aggressive behavior in some Australian damselflies

was merely quite amazing - and we think the adults are territorial!

Serious business intruded on the fun occasionally, and the presidency of WDA passed from Philip Corbet to our own Mike May during this meeting. The Odonata Specialist Group met several times, and the chairmanship passed from Jan van Tol to Viola Clausnitzer. The latest OSG report on regional Odonata conservation issues and strategies will hopefully be published by WDA within the year.

The future looks exciting, with planned WDA symposia at Vigo, Spain, in 2005, and Windhoek, Namibia, in 2007. The post-meeting field trip for Namibia would be a fantastic experience, and there are even some dragonflies to be seen. Hope you can make one or both!

I'll have to say the only painful part of the trip for me was Netta's leaving Beechworth and going off on her own expedition toward the Victorian Alps and coast. She had bad weather in the Alps, but it cleared up on the coast, and she managed to find easily one of the colonies of *Hemiphysalis mirabilis* in Wilson's Promontory National Park. My not being able to see this fabled and presumably relict species was the cause of considerable anguish, and we may have to return to southern Australia just for *Hemiphysalis*. At least I got to enjoy this little gem of a damselfly vicariously from her photos of it.

After the meeting, we headed quickly back to Sydney for our flight home, with one final stop to enjoy Aussie dragonflies on a small stream where I wondered if I was seeing my last *Synlestes* and *Xanthagrion*. But I think it's a matter of when, rather than if, we will return to this most exotic continent.

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NORTHERN GREAT PLAINS - A SIDE TRIP ON THE WAY TO CALIFORNIA

Nick Donnelly

Having decided to attend the California meeting (which was a huge success for us!), Ailsa and I planned our trip so that we could visit a cousin in Manitoba, and a son's family in Wisconsin. This mandated a northern route, instead of the more southerly routes selected by the other participants.

This was another moist year, and you could have fed the world just from Manitoba and North Dakota alone. Or so it seemed. But wheat fields are poor places to look for dragonflies.

We headed into Manitoba and down off the not-very-precipitous mountain. Going north we passed through Riding Mountain National Park – a lovely forested mesa of much larger size. Reaching our cousin's house near Roblyn, we planned a day or so at Duck Mountain (another “mountain”!) Provincial Park, for which I had secured a collecting permit. The park was richly forested with several lakes and marshes, and we found more of the previous North Dakota species. *Cordulia shurtleffi* was abundant and was landing on the dirt roads, possibly another case of seeking warmth. But it was over 70 degrees (ours, not theirs), and the necessity for warmth did not seem very great. We also took *Epitheca canis* and *spinigera* along the road, along with a female of *Somatochlora kennedyi* that Ailsa found (we

The northern Great Plains are a seriously understudied part of North America. I urge any of you to visit this area, where, on both sides of the border, there are fine habitats interspersed with all that wheat. And it is a great place for birds. But that's another story.

The knowledge that some populations of *Anax junius* (occupying the same pond) have two components, one resident and one migratory, derives from a classic study by Robert Trottier in southern Ontario (Trottier 1971). This elegant, quantitative study left no doubt that two components, differing in larval growth rate and adult behaviour were coexisting. A large factor in the success of this study (apart from Trottier's skill

We see great promise in taking this project forward if suitable habitats, at different latitudes, and each associated with a keen observer, can be identified. Anyone who can help with this enterprise is asked to communicate with Mike May at mimay@rci.rutgers.edu, or John Abbot at jcabbott@mail.utexas.edu. It would be gratifying indeed if, after so many years, the seasonal ecology of one of North America's best-known dragonflies could be elucidated.

Catastrophe is looming in the heart of the country. In response to budget shortfalls, the Chancellor of the University of Nebraska has made a number of major cuts, including the scrapping of all research

I suppose that there may yet be a miracle in the offing that will hold off the budget cuts to the museum, but I have seen very little positive evidence of this happening. As the economic problems continue across the US, I suppose we may

In many cases, the pursuing dragonfly flew away from its rival rather than towards it in order to maintain the disguise. Sometimes a dragonfly would imitate near and far fixed objects during a

backyard pond here in Sebastopol, Sonoma Co., CA. The pond is right outside my kitchen window: I've found that I don't need to look at a thermometer to know the temperature; I just need to look out at the pond:

If it is sunny, calm and summer and no Cardinal Meadowhawk is visible, it is less than 63 F.

If a Cardinal Meadowhawk is perched in the sun, it is between 63 to 80 F.

If a Cardinal Meadowhawk is perched in the oblique position in the sun, it is over 80 F.

If a Cardinal Meadowhawk is perched in the shade, it is over 90 F.

Really!

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NOTES ON AN EPIAESCHNA HEROS FEEDING SWARM

Jason Bried

Epiaeschna heros (Swamp Darner) is a huge insect. So when you stumble upon hundreds of adults swarming over a 200m stretch, it grabs your attention.

Such was the case on 28 May 2003 at the Noxubee National Wildlife Refuge in east-central Mississippi, where I was sampling vegetation and surveying the adult odonate community along a 200m belt transect running through a moist ditch bordered by woodland and leveed impoundments. I had been conducting odonate abundance surveys here for a few weeks prior as part of a larger research project, and this Swamp Darner display was not only a first for that survey, but also a first for me at any other time or where. Even as I drove up to the site, the dense frenzy was visible from a distance, looking something like a haphazard flock of low-flying mid-sized birds.

The maximum surface water depth in the ditch at this time was 12cm. The ditch plant community is a mixture of rushes (*Juncus* spp), true sedges (*Carex* spp), and vines (e.g., *Campsis radicans*, *Brunnichia ovata*). Along the north edge is a floodplain forest, interspersed with seasonal pockets of standing water and dominated by such characteristic southeastern bottomland hardwoods as hickories, oaks, elms, red maple, sweet gum, tupelo, and hornbeam. On the south side, an earthen levee slopes to ~1m above the ditch, separating the ditch from a series of moist-soil impoundments (flooded to ~0.5m at the time). These units are hydrologically manipulated to

promote breeding and feeding habitat for migratory waterfowl.

On 28-May, I tallied individuals of all adult dragonfly species encountered along a 200m distance, stopping every 20m to probe the vegetation for damselflies. The count took place between 1230-1300 hours, under partly cloudy skies (30-60% cloud cover), 29.8°C average air temperature (taken over 30 min.), 40.6% average humidity (taken over 30 min.), and 0.3m/s average wind speed and 0.7m/s max. wind speed (over a 2 min. interval). Weather data was recorded using a Kestrel 4000 hand-held weather station. The ditch receives full insolation throughout the day. Between early May and mid June, the relatively abundant (>10 individuals on two or more sampling dates) species included *Erythemis simplicicollis*, *Ischnura posita*, *Libellula cyanea*, and *Pachydiplax longipennis*. Less frequent or single count species were *Anax junius*, *Calopteryx maculata*, *Cordulegaster obliqua*, *Dromogomphus spinosus*, *Epitheca cynosura*, *Gomphaeschna fuscillata*, *Gomphus exilis*, *Ischnura hastata*, *Lestes disjunctus*, *L. rectangularis*, *Libellula incesta*, *L. lydia*, *L. semifasciata*, *Pantala hymenaea*, *Sympetrum ambiguum*, *Tramea carolina*, and *T. lacerata*. Three *Arigomphus maxwelli* were taken from a riverine overflow marsh nearby. A number of other species were seen in the adjacent moist-soil units (e.g., *Celithemis eponina*, *Enallagma traviatum*, *Epitheca princeps*, *Ischnura ramburii*, *Libellula vibrans*, etc).

A total of 128 *Epiaeschna heros* were tallied on 28-May, which may be a gross underestimate considering that I had to devote attention to the entire odonate community, not to mention the difficulty in keeping count amid the Swamp Darner's aggressive stop-go acceleration and criss-crossed flight paths. These same reasons could have forced counting individuals more than once, and hence this number could be an overestimate instead. Interestingly, on three sampling dates before and after this "event" (8, 13, and 22-May, 4, 8, and 13-June), a range of only 0 to 11 Swamp Darners were observed on any given date...quite a contrast to the 128 tallied on 28-May!!

If it was a feeding frenzy, then the food supply should not have been drastically different on 28-May, especially since the time-of-day sampling interval, water depth, and weather were similar among all seven dates. Did it possibly have something to do with the day-to-day weather patterns leading up to 28-May? Interspecific competition probably did not cause the spike, since other abundant co-dominant dragonflies were found in similar numbers before, on, and after 28-May. For example, *P. longipennis* was tallied at 77 and

85 individuals on 28-May and 4-June, respectively. In the surrounding bottomland forests, the Swamp Darner population seemed sparse. Perhaps in the herbaceous ditch and moist-soil units they are taking advantage of the abundant open space resources not found in the enclosed bottomland. Indeed, at mid-morning one day in April I witnessed another Swamp Darner feeding swarm (but with far fewer individuals) along a sunny stretch of dirt road bordered by swamp forest on both sides. These large animals could be taking advantage of the greater space and perhaps higher prey concentration afforded by these open areas. But this still doesn't explain why such a high concentration on a single date. Even if 28-May was their flight season peak, the window of time between sampling visits seemed too narrow (i.e., as close as 6 and 7 days before and after) to account for such variation. Obviously these ± 128 Swamp Darners weren't making an effort to avoid intraspecific competition. It seemed more the opposite. Have studies shown competitive facilitation within adult odonate populations? In other words, is there documented proof that individuals within a species work together to perpetuate their own population, such as by finding greater predator protection strength in numbers or by increasing foraging capacity?

Last summer in the delta, I observed a migratory swarm of *Pantala flavescens*, but that was different, though no less spectacular. Although I've limited experience studying the odonates, the high number of *Epiaeschna heros* within a localized area seemed like an unusual and interesting occurrence. But I recognize that other people have probably witnessed (or know of someone who has, or, better yet, know of pertinent literature) similar activity, at least for other species, and I'd welcome any info, explanatory or otherwise. I'll be hitting the library in my spare time.

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GENOMIC TISSUE LIBRARY OF ODONATA: A CALL FOR SPECIMENS

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Dragonflies and damselflies are among the most ancient of living creatures. Fossil records, representing possible ancestors and closely related groups, date to Carboniferous times (300 million

years ago) and were among the first insects to have taken flight. The majority of these lineages are now extinct and around 6500 species of Odonata survive today. Given the rate at which wetlands are disappearing, we have a unique opportunity to document the present odonate diversity in order to better understand and appreciate odonate and insect evolution.

We have begun an exciting, novel, and much needed project to store preserved specimens of dragonflies and damselflies for current and future molecular research. Our lab has successfully created the largest and most diverse genomic tissue libraries for Ephemeroptera (mayflies), Plecoptera (stoneflies), Dermaptera (earwigs), Grylloblattodea (icebugs), Mantodea (preying mantids), Phasmatodea (walking sticks), Mecoptera (scorpionflies), Siphonaptera (fleas), and Asilidae (robberflies), among other groups. We have facilities to store the tissue samples, extracted DNA template, and specimens for long-term scientific research. The tissues will be made available to other investigators for future studies under collection policies.

Although most odonates are collected and preserved using acetone treatment, we have investigated DNA yield for acetone preserved tissue versus alcohol (ETOH or other) preserved tissues, and our opinion and suggestion is that alcohol is superior for fixation and preserving tissue for DNA extraction. Even though some have shown that DNA work can be done from acetone dried specimens (only successful for multi-copy and/or mitochondrial genes), we want to have tissue that will be useful for all types of DNA analysis, including complete genome sequence recovery. We believe that this will enable all other researchers to have good tissue that may be worked on in future research. Therefore we would suggest that after collection, which can be done in the normal fashion (into envelopes), the specimens be fixed in alcohol as soon as possible. If you run into problems with shipping alcohol, we suggest emptying the container before preparing the package (a cotton ball soaked with alcohol may be placed inside the vial to maintain humidity). If you need any more assistance or would like us to pay the postage, please do not hesitate to contact Heath Ogden.

We have two immediate purposes for the obtained odonate specimens. First we want to investigate the relationships of the basal pterygote lineages (Ephemeroptera, Odonata, and Neoptera). The phylogenetic position of Odonata among the other orders has been controversial, and three main theories exist: (1) placement as sister group to Ephemeroptera (=Paleoptera); (2) placement as the most basal pterygote lineage; and (3) placement as sister to Neoptera. Second, we plan to address the

excellent photographs that are used in nearly all other guides. For each species there is a range map (unfortunately truncated at the state line) and a concise description.

What I like especially about this guide is the abundant helpful tips for identification. Manolis has achieved a marvelously complete presentation; the beginner will find this guide essential, and the veteran will keep a copy handy.

MINUTES of the 2003 DSA MEETING

The business meeting for 2003 was held in the Granzella's Hotel Conference Room, Williams, California, during the evenings of 20-21 June 2003. President Dennis Paulson thanked the organizers - Kathy and Dave Biggs, Tim Manolis, and Andy Rehn - on behalf of the DSA for hosting the meeting. Indeed it was a good meeting, with 66 people attending all or part of the proceedings. Treasurer Jerrell Daigle distributed the collector's item DSA meeting buttons to all present, this years button featuring the California endemic damselfly *Zoniagrion exclamatoris* (Exclamation Damsel). Special "Blue Ribbon" buttons were presented by Kathy Biggs to Dennis Paulson and Rosser Garrison for publishing their seminal paper on the distribution of Pacific Coast Odonata.

Treasurer Jerrell Daigle stated in his report that DSA currently had about \$10000 in its bank account, which will be reduced to about \$8000 after publication of the 2003 issues of Argia and BAO. Dues should be sent directly to Jerrell. Now that DSA has been incorporated as DSA Inc., DSA should be exempt from New York state sales taxes eventually. The minutes for the 2002 DSA Meeting in West Virginia, previously printed in Argia, were approved by an affirmative vote of all present. Steve and Marcia Hummel proposed that the 2004 DSA Meeting be held in northeastern Iowa, beginning on July 8, which proposal was enthusiastically accepted. Jerrell noted that a meeting place somewhere in the southwestern USA was needed for 2006.

Jerrell Daigle reported that the Southeastern Regional Meeting, held in LaFayette, Georgia, produced *Gomphus consanguis* (Cherokee Clubtail) and other good catches in spite of considerable flooding. Next year's Southeastern Regional Meeting will be held at Mammoth Cave National Park in Kentucky, hosted by Carl Cook. Nick Donnelly reported that bad weather prevented much collecting at the Northeastern Regional Meeting. Steve Valley reported that considerable

This excellent guide will be essential for anyone on the Pacific Coast of North America. The guide begins with a morphological summary, and a lengthy and thorough discussion of behavior, reproduction, life cycle, and related topics. Manolis gives useful tips on identification, noting that it is essential to net and examine many species in order to identify them properly. He warns cogently against using color alone for identification – a warning that is all too necessary for dragonfly students recently recruited from the butterfly or bird world.

The size of the guide is 4 ¾" by 7 ½", or conventional pocket size. There will be little excuse for leaving this book behind when one heads for the streams.

Manolis has provided marvelous color paintings of each species, nearly all embellished further with inset enlargements of diagnostic structures. These fine illustrations are far more useful than the

attention was given to the overharvest of dragonfly larvae for fish bait in the Pacific Northwest at the Northwestern Regional Meeting held in Salem, Oregon. George Harp reported that the Arkansas Meeting had good collecting, with *Nehalennia integricollis* (Southern Sprite) being new for the state. Terri Gallion is interested in organizing a Southwestern Regional Meeting.

New officers elected during this meeting were Steve Krotzer, President-elect, and Steve Hummel, Regular Member.

Nick and Ailsa Donnelly, Editor and Assistant Editor of *Argia* and the *Bulletin of American Odonatology*, noted that 400 copies of *Argia* are currently printed for each issue, enough to start printing them by offset printing methods. Suggestions are needed as to the feasibility of this. Color illustrations can be used both front and back of *Argia*, and JPEGs are needed for this purpose. Nick reminded us that DSA publications can print articles on the status of taxonomic names, but not publish any new names.

Mike May, President of the World Dragonfly Association, discussed the benefits of joining WDA, with dues currently at US \$52 with the journal or \$23 without the journal. The next symposia will be in Spain, and then Namibia in southwest Africa. Mike also mentioned that membership in the other international dragonfly society, *Societas Internationalis Odonatologica* (SIO) would offer similar benefits to all interested in Odonata.

Presentations given on the evening of 21 June included 1) Rosser Garrison discussed his work on *Hetaerina* (Rubyspots) and the related tropical American genus *Mnesarete*. He and Natalia von Ellenreider are also presenting a proposal to the Zoological Names Commission on retaining the names *Gynacantha* and *Triacanthagyna* (Two-spined and Three-spined Darners) in the sense that most odonatists are currently using those names. Rosser and Natalia are also working on a fully illustrated Key to the Genera of New World Odonata, which will be bilingual in both Spanish and English.; 2) Steve and Mary Jane Krotzer gave a relaxing music/photo power point presentation on Odonata; 3) Heath Ogden discussed the Brigham Young University's project on the Genomics of the Odonata. Heath still needs specimens of some rare families for DNA analysis.; and 4) Ken Tennessen showed examples of various devices for collecting Odonata larvae.

New President Roy Beckemeyer again thanked the organizers of this productive meeting, and adjourned the meeting.

REQUESTING MISSISSIPPI ODONATA INFORMATION

Jason Bried, Lloyd Bennett, Richard Brown

The fauna of Odonata in Mississippi has been poorly surveyed. Dot-map data from Donnelly (2002) indicated 114 species, 493 total records, and an average of 9.7 records per county with 37% of the total 82 counties lacking data. In an effort to consolidate and update faunistic data for Odonata in Mississippi, this note is a solicitation for any information on MS records that anybody is willing to share.

We are particularly interested in attaining records from obscure publications, electronic databases, museum collections, etc, and from folks willing to donate data from their personal collections and from communications with others.

Initial groundwork in compiling data and specimens has already begun, and any contributions from readers will be integrated with our compiled data and materials. Since an endeavor like this has no real end-point, the projected time schedule is ongoing. To help achieve this continuity, the Mississippi Entomological Museum at Mississippi State University is developing an electronic database, which in addition to the DSA, can serve as an "official" depository for Mississippi odonate records. We ask that any contributions be for collected specimens only, not observations (we'd be happy to take donated specimens; they would be stored in the museum). At present the museum database is not set up for web sharing, but hopefully this will come online in the future.

The task on our end is to increase collections of Odonata to obtain state-wide data, contact and encourage professional and hobbyist collectors from around the state to supply odonate records for input into the database, conduct an extensive literature search, and advertise further in other dragonfly-specific newsletters and entomological society newsletters, listserves, and webpages to maximize gathering of information. We're using the latest DSA state list as a base map to work from. Within a couple of years, our objective is to publish an updated state species list and a detailed county-by-county descriptive status. Information in this summary will be used with permission and proper acknowledgements.

The ultimate goal is to have a better understanding of Mississippi's Odonata faunistics, and, to provide an education, motivation, and reference tool for students, collectors, and researchers alike.

Contact info:

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(662) 325-7937

Reference:

Donnelly, T. 2002. Dot-map project: patterns of
diversity are emerging. *ARGIA* vol. 14, no. 2, pp.
13-16.

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**BULLETIN OF AMERICAN
ODONATOLOGY NOTICE: VOLUME 7,
NUMBER 2:**

**REVISION OF THE ORDER ODONATA IN
CUBA**

**Adrián Trapero Quintana and Carlos Naranjo
López**, Departamento de Biología de la
Universidad de Oriente

ABSTRACT An annotated list of 81 Odonata
species from Cuba is herein presented, including 40
collected by us (357 specimens) during a period of
more than 10 years. Specimens are deposited in the
Charles Ramsden Museum Entomological
collection of the Universidad de Oriente.
Ecological data, geographical distribution and new
localities are included.

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FREE ODONATA REPRINTS!

Recently the Biological Society of Washington
decided to get rid of all its copies of back separates,
and as a consequence the Entomology Section at
the National Museum received stacks of some old
papers. In an effort to get these, and some others
that have accumulated, into the hands of workers
that might use them, they are being offered here
(titles somewhat abbreviated).

Cockerell & Andrews. 1916. Dragon-flies from the
English Oligocene. *Proc. Bio. Soc. Wash.*
29:89-92.

Currie. 1903. The Odonata collected by Schwarz &
Barber in AZ & NM. *Proc. Ent. Soc. Wash.*
5:298-303.

Currie. 1905. Dragonflies from the Kootenay
District of British Columbia. *Proc. Ent. Soc.*
Wash. 7:16-20.

Donnelly. 1970. The Odonata of Dominica, British
West Indies. *Smiths. Contrib. Zoology*, 37

Dow. 1931. Odonata from Santa Clara, Cuba. *Proc.*
Biol. Soc. Wash. 44:55-60.

Levine. 1957. Anatomy & taxonomy of the naiads
of *Plathemis*. *Smiths. Misc. Coll.* 134.

Needham. 1903. A new genus and species of
dragonfly from Brazil. *Proc. Bio. Soc. Wash.*
16:55-58.

Needham. 1905. A new genus and species of
Libellulinae from Brazil. *Proc. Bio. Soc. Wash.*
18:113-116.

Anyone that would like to obtain a copy of any or
all of these works should make their desiderata
known to Oliver Flint by mail, e-mail
<flint.oliver@nsmnh.si.edu>, or FAX 202-786-
2894. Be sure to include your mailing address.

Oliver Flint, Entomology - MRC 169, National
Museum of Natural History, P.O. Box 37012,
Washington, DC 20013-7012

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Bill Mauffray, IORI, Gainesville FL, iori@afn.org

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mail directory on the IORI web site. You can now
add your personal web page to the site. It must be
Odonata related to be included. Please send me by
e-mail your web site address. If the Odonata section
is only part of a larger site, then you must provide
the link that takes people to the Odonata portion of
your web site. While you at it, please check to see if
I have your correct e-mail address in the directory.
If you have a "bio" page or a photo of yourself on
the web, send me that link also.

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BACK ISSUES OF ARGIA AND THE BULLETIN OF AMERICAN ODONATOLOGY

The editor is able to provide back issues of **ARGIA**. Please contact T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. The present price schedule takes into account the different costs of duplication of each number of **ARGIA**. In the event that an issue becomes exhausted, then xerox copies will be sent. **Prices are \$3.00 per issue; these do not include postage; see below.**

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 7(2) Revision of the Order Odonata in Cuba, A. Trapero Q. and C. Naranjo L., pp. 23-40 *

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ARGIA

Binghamton, New York

Vol. 15, No.21, 1 Aug. 2003

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Macromia magnifica. We saw these at the California meeting (Photo by Rod Miller; used with permission)



Gomphus lineatifrons – Georgia DSA meeting. (Photo by Giff Beaton; used with permission)