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ARGIA

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THE DRAGONFLY SOCIETY OF THE AMERICAS

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JOURNALS PUBLISHED BY THE SOCIETY

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

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

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

MEMBERSHIP IN THE DRAGONFLY SOCIETY OF THE AMERICAS

Membership in the **DSA** is open to any person in any country. Dues for individuals in the US, Canada, or Latin America are $15 for regular membership and $20 for institutions or contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are $25.
Dues should be mailed to Jerrell Daigle, 2067 Little River Road, TALLAHASSEE FL 32311

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

Cover: ***Lanthus parvulus***, Dolly Sods, West Virginia (nearly three times natural size). En example of the northern Odonata that we found in West Virginia. Photo by Nick Donnelly

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

In This Issue

This has been a very productive summer, but, for most of us, a strange one. In the northeast we experienced near-flood conditions in the early summer, followed by one of the deepest droughts that most of us can remember. We went from flooded streams to dusty stream courses, and the dragonflies were mainly rather scarce. The West Virginia meeting happily came shortly after the rains, and the dragonflies – for the most part – were out in all their Appalachian splendor. The finding of ***Telebasis byersi*** along the Ohio River ranks as the most interesting successes of the year. This was our biggest and best meeting ever (aren't they all like that?).

We eagerly look forward to next year's California gathering, which will be hosted by Kathy Biggs and friends, and will be located in central California the third weekend of June. One nice feature will be the revisiting of some of Clarence Kennedy's sites, which he described just before WW I. I enjoyed visiting several of these sites some years ago, and I think the group will get quite a kick from seeing them.

The DSA executive committee has named three honorary members. Minter Westfall, George Bick, and Philip Corbet have all justly earned this honor both through their considerable efforts and their unstinting assistance to newer workers in the field.

There were two regional meetings to report this summer. The Great Lakes Odonata meeting was highly successful, as Mark O'Brien reports. The Tug Hill meeting in New York gave a large group the opportunity of touring a newly acquired Nature Conservancy site - and produced many dragonflies of interest also.

Bob Behrstock reports on a population of ***Nehalennia minuta*** in the Florida Keys. The ***Lestes*** he also founds is possibly ***spumarius***, which I found earlier in some numbers. The Keys are becoming the locale of several odonates not otherwise found in the continental US. The conservation of these sites is extremely important, with removal of ground water the main concern.

There are a number of other records of interest. Bryan Pfeiffer records ***Williamsonia fletcheri*** in Vermont. Paul Catling adds ***Ophiogomphus howei*** definitively to the Canadian fauna, several years after its exuviae were found right on the boundary. Roy Beckemeyer and Dennis Paulson add some new records also.

Jim Curry recounts adventures with two species of ***Neurocordulia***. The Shadowdragons are among the most difficult dragonflies in the world to find, and extremely difficult to catch. I wish I had his luck – or is it persistence?

Jerrell Daigle tells of the second annual Nicaragua mud-fest. Compared with last year's epic journey, this one was a walk in the park. There is something especially neat about watching dragonflies around a shaded tropical pond, while a patient black caiman watches you. Which one is the hunter?

Another note from Cuba reminds us that there is much Odonata activity down there. There are beautiful places in that island, and we all hope to get there some day.

Bob Larsen's note reminds us of the intense interest in dragonflies among the Zuni of Arizona. We have always admired their taste. We also urge people in this part of the country to keep their eyes open for further information about the dragonfly in southwestern Native American culture.

Jason Bried has recently moved to Mississippi to take up dragonfly studies in graduate school. He is already off to a flying start with new records of dragonflies in this, our poorest known state.

Paul Lederer has come up with a new damselfly net which is so simple it prompts us to ask, "Why didn't we think of that?"

Among the business notes for the society is the small notice that we have become officially incorporated. The important hurdle facing us is achieving tax-exempt status. Stay tuned!

We have two excellent books to review this issue. Both Rob Cannings' British Columbia and Yukon guide and the encyclopedic Glotzhober and McShaffrey Ohio treatise are destined to find their ways to most of our shelves.

Finally, we include a little tid-bit from the Dallas newspaper. This is only a recent sample of what is becoming serious attention from the media.

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2002 DSA MEETING IN WEST VIRGINIA
Jennifer Wykle, jwykle @mail.dnr.state.wv.us

The 2002 Annual Meeting of the Dragonfly Society of the Americas (DSA) was held on the 20th through the 23rd of June in Lewisburg, West Virginia. Post-meeting activities included a trip to Elkins area and the Ohio River from the 23rd through the 28th. Sixty-eight people attended the meeting in Lewisburg but by the end of the week, a record number of 75 enthusiatic attendees participated in this huge gathering!

One can follow our photo exploits on several websites. They are
http://mcnet.marietta.edu/~odonata/dsa/dsa2002a.html
http://www.windsofkansas.com/world.html#dsa2002
and
http://hisl.tamu.edu/images/wv.
Thanks to Dave McShaffrey, Roy Beckemeyer, and Ryan Caesar, respectively.

Our first evening was spent sampling the local restaurants and congregating in the parking lot of our hotel, the Brier Inn. After I unsuccessfully attempted to lead the group in a chorus of "Country Roads", we went to bed in hopes of some good dragonflying the next day.

As we gathered for our fieldtrips on Friday morning, I breathed a sigh of relief. The sun was brightly shining and the forecast called for much of the same. Some of the various destinations for the next two days were the Greenbrier, New, and Meadow Rivers, Cranberry Glades Wilderness Area, Anthony's and Knapp's Creeks, Watoga and Little Beaver State Parks, and Buffalo Fork, Sherwood, and Moncove Lakes.

Friday evening, we had our DSA business meeting (see Sid Dunkle's minutes report elsewhere in this issue) upstairs in the Brier Inn conference room. Most importantly, the membership voted on and accepted a proposal for the 2003 DSA Meeting to be held the third week of June in Williams, California, just north of Sacramento. Tim Manolis, Kathy and Dave Biggs, and Andy Rehn will host it. Saturday evening we ate our dinner in the banquet room of the nearby Western Sizzlin. Later, we viewed many excellent presentations and slideshows from Hassan Amjad, Roy Beckemeyer, Dennis Paulson, Ken Tennessen, Steve Valley, and Natalia Von Ellenrieder.

After compiling the records I have received so far, there were four species collected or observed in the Lewisburg area that are officially new West Virginia State records. Nick Donnelly and others observed but did not catch ***Tachopteryx thoreyi***; Steve Hummell, Bill Mauffray, and Ollie Flint have turned in ***Ladona deplanata*** records; many people collected ***Libellula incesta***; and Jeff Hajenga collected ***Sympetrum internum***, which was later identified by Sid Dunkle.

With the sun still shining on Sunday, twenty-eight attendees ventured on to our next destination- Elkins. After a great meal at the glaring yellow Mexican restaurant, everyone went back to the hotels to rest up for our dragonflying expeditions the next day. Field trips were taken to the beautiful Dolly Sods Wilderness Area, Shavers Fork, Blister Swamp, Valley Bend wetland, Canaan Valley National Wildlife Refuge and State Park, Spruce Knob Lake, and Blackwater Falls State Park. The weather cooperated in the Elkins area except for one brief shower that drenched the group atop Cheat Mountain on the Shaver's Fork. Two new records were caught in the Elkins area. Hal White first spotted ***Libellula auripennis*** and the next day Ollie Flint bagged it. Dan Bogar, Rosser Garrison, and Natalia Von Ellenrieder collected ***Tramea carolina*** at the Valley Bend wetland. This site was the surprise hit of the trip with thirty-four species of dragonflies and damselflies documented; George and Phoebe Harp alerted us to the beautiful ***Aeshna mutata*** flying there! After two days in the Elkins area, we were ready for our next destination- the Ohio River.

The original group was down to eight and our first stop was Greenbottom Swamp along the Ohio River. The species diversity was not as high as expected, but with one afternoon of traipsing in the muck, two more state records were accumulated. Bob Glotzhober and Joel Wachel collected ***S. ambiguum*** and Joel also discovered ***Telebasis byersi***, a surprising northern range extension!

With the skies threatening rain (it couldn't last forever), we decided to go ahead and head to our cabin at McClintic WMA, where George Smolka finally joined the group. After reassuring Dave McShaffrey that George was not in cahoots with the Mothman, we decided to drive to the Ohio River at dusk in search of ***Neurocordulia***. We waited until dark and with no glowing dragonflies in sight, we headed back to our cabin to rest up for the next day.

Our last field trip was an exciting excursion to two of the Ohio River Islands National Wildlife Refuge and Boaz Swamp. Patty Morrison and her USFWS

crew loaded us on boats and away we went down the Ohio River! The catch of the day was a teneral ***Stylurus notatus*** made by George Smolka on Muskingum Island. After making it safely back to our cars, Dave McShaffrey, Bob Glotzhober, and Joel Wachtel decided to head back home to Ohio. That left a relieved Jerrell (who knew the Floridian was nervous about boating?), Sid, Barbara Natterer, Jim Davidson, George, and myself, to enjoy the rest of the evening stuffing ourselves at the Iron Gate Restaurant while listening to the local band.

From what I have compiled so far, 99 species were seen or collected over the week. Thank you to those who have sent in records and I'm anxiously waiting to hear from the ones who have not. Eight state and 171 county records were documented. Aside from the eight listed above, the species were: ***Aeshna mutata, A. umbrosa, Anax junius, Basiaeschna janata, Boyeria vinosa, Epiaeschna heros, Arigomphus villosipes, Dromogomphus spinosus, Gomphus adelphus, G. descriptus, G. exilis, G. lineatifrons, G. lividus, G. quadricolor, G. vastus, G. viridifrons, Hagenius brevistylus, Lanthus parvulus, Ophiogomphus carolus, O. mainensis fastigiatus, O. rupinsulensis, Stylogomphus albistylus, Stylurus notatus, Cordulegaster bilineata, C. diastatops, C. maculata, C. obliqua, Didymops transversa, Macromia illinoiensis, Cordulia shurtleffi, Epitheca (Epicordulia) princeps, E. (Tetragoneuria) canis, E. (Tetragoneuria) cynosura, Helocordulia uhleri, Neurocordulia yamaskanensis, Somatochlora elongata, S. forcipata, Celithemis elisa, C. eponina, C. fasciata, Erythemis simplicicollis, Ladona exusta, L. julia, Leucorrhinia glacialis, L. hudsonica, L. intacta, Libellula cyanea, L. luctuosa, L. pulchella, L. semifasciata, Pachydiplax longipennis, Pantala flavescens, P. hymenaea, Perithemis tenera, Plathemis lydia, Sympetrum obtrusum, S. rubicundulum, S. semicinctum, S. vicinum, Tramea lacerata, Calopteryx amata, C. angustipennis, C. maculata, Hetaerina americana, Lestes congener, L. disjunctus, L. eurinus, L. inequalis, L. rectangularis, L. vigilax, Amphiagrion saucium, Argia apicalis, A. fumipennis violacea, A. moesta, A. sedula, A. tibialis, A. translata, Chromagrion conditum, Enallagma aspersum, E. basidens, E. civile, E. cyathigerum, E. divagans, E. exsulans, E. geminatum, E. hageni, E. signatum, E. traviatum, Ischnura hastata, I. posita, I. verticalis,*** and ***Nehalennia irene.*** My thanks to Jerrell for typing this list!

I would like to thank Dan Arling at the Monongahela National Forest, Kim McHenry in the West Virginia State Parks office, Kelly Warren at the Canaan Valley National Wildlife Refuge, John Northeimer at Canaan Valley State Park, and Patty Morrison and her crew at the Ohio River Islands National Wildlife Refuge for giving us permits and helping to make these field trips possible.

We here at the Wildlife Diversity program would also like to thank you for choosing West Virginia as the site for the 2002 meeting. Your efforts here have provided us with an incomparable amount of information that has greatly increased our knowledge of the Odonata fauna in West Virginia. It was a tremendously successful meeting and I want to thank you again for making the trip to West Virginia!

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DSA MEETING IN CALIFORNIA, 20-23 June 2003.

The DSA 2003 meeting will be held June 20-22 in Williams, CA. Williams lies in the heart of California's northern Central Valley, and offers convenient access to our main field trip locations in the coast ranges and northern foothills of the Sierra Nevada. Descriptions of the planned field trips and accommodations can be found at Kathy Biggs' official website:
http://www.sonic.net/~bigsnest/DSA2003/.

The post-meeting field trip to the Owens Valley on June 22-24, with stops in the Sierra Nevada along the way, will provide great opportunity to photograph and collect western mountain and Great Basin odonates while surrounded by some of the most spectacular scenery in North America. Hope to see you there!

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HONORARY MEMBERS OF THE DRAGONFLY SOCIETY OF THE AMERICAS

Dennis Paulson, President

The DSA has established a means for recognizing persons who have, over an extended period of time, made substantial, extraordinary and lasting contributions to the study of odonatology and to the advancement and benefit of the DSA as an organization, and who have attained a position in which they are recognized by the odonatological community as distinguished experts in the field.

Three such distinguished individuals are to be awarded Honorary Membership in the society at this time: Dr. George H. Bick, Dr. Philip S. Corbet, and Dr. Minter J. Westfall, Jr. All have received a letter announcing this honor as well as a lifetime free membership in DSA, with all benefits of this membership.

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MINTER J. WESTFALL, JR.
Honorary Member, the Dragonfly Society of the Americas

Sidney W. Dunkle for the Executive Committee, DSA

The award of Honorary Membership in the Dragonfly Society of the Americas is hereby announced for Dr. Minter Jackson Westfall, Jr. To a large degree, Minter was the person that initiated and maintained my work with Odonata. I got interested in dragonflies when I was living in California and trying to put names on my photos of them. The local library had a book called "A Manual of the Dragonflies of North America", 1955, by J.G. Needham and Minter J. Westfall, Jr. That book got me hooked on dragonflies. A couple of years later I moved to Gainesville, Florida, and found that Dr. Westfall was a Professor of Zoology at the University of Florida there. I went to visit him at his office, and was amazed that this busy professor talked to me for two hours. I found out later that he just plain liked to talk about dragonflies, but this episode was an indication of Minter's willingness to help even beginners in odonatology. This was also a life-changing meeting, because years later I asked Minter to be my major professor for a PhD program in entomology and odonatology. Thus Minter became my Mentor (I've waited years for a chance to say that!) From Minter I have tried to learn patience and persistence, and tried to emulate his meticulous and exacting proofreading and editing skills. He was also supreme at bibliographic detective work, ferreting out obscure references and badgering them until they gave up their secrets.

When I was working on my PhD, I found that I was at the vortex of Western Hemisphere odonatology, with people from all over the world asking Minter for help and loans of specimens. He replied to all these with letters. Minter was also the major professor for two other workers with continuing prominent roles in North American odonatology and in the DSA, namely Dr. Michael May and Dr. Ken Tennessen. Along with Mike, Minter produced the two books that define North American odonatology, an update of the 1955 Manual called "Dragonflies of North America" published in 2000, and "Damselflies of North America" printed in 1996. Another major publication was the chapter on Odonata in R.W. Merritt and K.W. Cummins, 2nd Ed., 1984, "An Introduction to the Aquatic Insects of North America." Minter also published numerous other works on the taxonomy of both larval and adult odonates of North, Central, and South America, describing many new species in the process. His work has been honored by colleagues with at least nine odonate taxa named "***westfalli***" or "***minteri.***" There is no doubt in my mind that Minter's list of publications would have been even longer if he had not spent most of his time helping other people (including me!) do their research instead of working on his own research!

In addition to those things mentioned above, Dr. Westfall has been a President of the Societas Internationalis Odonatologica. For many years he also edited the newsletter Selysia for SIO, and was the Chairman of the SIO National Office in the U.S. In 1985 for SIO he became the first Director of the International Odonata Research Institute, and managed the odonate collections of both the IORI and the Florida State Collection of Arthropods. These collections include Minter's personal collection and are presently housed in the same building in Gainesville, Florida. They collectively constitute one of the very best Odonata collections in the world. Not least, Minter is an excellent all-around naturalist, outdoorsman, and explorer, and all who went on field trips with him, as I often did, enjoyed his warm company and his wide-ranging knowledge.

I am proud to hereby have a part in recognizing my good friend Dr. Minter Westfall,Jr. as a Member of Honor of the Dragonfly Society of the Americas, authorized by the Officers and Board Members of the DSA, herewith attested to by President Dennis Paulson, September, 2002.

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GEORGE H. BICK
Honorary Member, The Dragonfly Society of The Americas

Roy Beckemeyer for the Executive Committee, DSA

George H. Bick is hereby recognized as an Honorary Member of The Dragonfly Society of the

Americas. Dr. Bick has studied Odonata for over 50 years, and has made major contributions to our knowledge of the biology, taxonomy and distribution of American odonates. He has been a mentor for many North American students of Odonata, and has unselfishly shared his knowledge and information with other workers to further knowledge of odonatology.

George's initial work with Odonata involved documentation of the distribution of North American dragonflies. He was the first to document Odonata faunistics in the little-studied Great Plains region. He published faunal lists for Oklahoma (1957, SW Nat. 2(1):1-18) and the Dakotas (1977, Fl. Entomol., 60(3):149-165) that remain to this day the major source of our knowledge of odonate distributions in the central prairies. He has continued his interest in the distribution of odonate species in North America throughout his career, and was instrumental in coordinating the updating and clarification of the lists of Anisoptera and Zygoptera occurrence for the recently published dragonfly and damselfly manuals of Needham, Westfall, and May.

Dr. Bick also initiated and set the standard for season-long field observations of odonate biology. He and his wife, the late Juanda C. Bick, spent many summers in the field observing specific populations of damselflies to document the phenology, ecology and behavior of species and species assemblages (1958, J. Tenn. Acad. Sci., 33(3):240-251; 1963, Southwest. Nat., 8(2):57-84) They were among the first researchers to use hand-held movie cameras to document reproductive behavior in Zygoptera. Their studies are not only of seminal importance as original, precedent setting programs of research, but are often the only records of behavior that have been documented for even the common damselflies.

Dr. Bick established an example that all field odonatologists should strive to match in his consistent and extensive field work, invariably followed up by careful analysis and timely publication of lucid, clear statements of results.

In recent years, George and Juanda Bick, working with the extensive collections of the IORI, published a number of major studies and revisions to the taxonomy of New World damselfly genera. These include ***Telebasis*** (1995, Odonatologica, 24(1):11-44), ***Cora*** (1990, Odonatologica, 19(2):117-143) ***Philogenia*** (1988, Odonatologica, 17(1):9-32), and ***Polythore*** (Odonatologica, 1985, 14(1):1-28 & 1986, 15(3):245-273).

Dr. Bick has long supported odonatology as a discipline of study by actively participating in local, regional, national and international meetings, symposia, and organizations. He is one of the 44 charter members of the DSA, having been part of the group of odonatologists who attended the Johnson City, Tennessee, meeting of the Societas Internationalis Odonatologica in August of 1989, at which the DSA organizational meeting was held.

We are pleased to recognize Dr. George H. Bick for his contributions to DSA and to the study of Odonata by naming

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PHILIP S. CORBET
Honorary Member, The Dragonfly Society of The Americas

Dennis Paulson for the Executive Committee, DSA

Dr. Philip S. Corbet is hereby recognized as an Honorary Member of The Dragonfly Society of the Americas. Dr. Corbet can be considered the pre-eminent odonatologist of our time, based simply on the extent and value of his writings. He has been publishing about Odonata for over 50 years on such varied subjects as population regulation, the description of larval stages, environmental control of development, emergence patterns, migration, adult behavior, and the use of phytotelmata. And, as a senior statesman of dragonfly studies, he still possessed the energy and enthusiasm to stalk and capture the first individual of *Anax junius* to be documented on European shores.

Dr. Corbet's doctoral dissertation on seasonal ecology in UK dragonflies started a entire field of odonate studies in which larval life histories and adult flight seasons could be interrelated through aspects of environmental regulation. As a good naturalist, he broadened his understanding of the freshwater world with studies of the food habits of fishes and crocodiles and the ecology of blackflies, mosquitoes, and water mites. He has been fortunate in having the chance to further his understanding of nature by conducting research in diverse corners of the world, from Arctic Canada to the rain forests of Uganda and the far-flung islands of New Zealand.

Dr. Corbet's most lasting contributions will surely be in his masterful syntheses of odonate biology in 1960 (DRAGONFLIES, Collins, with Cynthia Longfield and Norman Moore), 1962 (A BIOLOGY OF DRAGONFLIES, Witherby), 1980 (BIOLOGY OF ODONATA, *Annual Review of Ecology*), and 1999 (DRAGONFLIES: BEHAVIOR AND ECOLOGY OF ODONATA, Comstock). He has unhesitatingly shared his knowledge and ideas with many students and colleagues over the years and reaped in return a flow of unpublished information to assist in his efforts to produce a clear and cohesive picture of the lives of these fascinating insects. Although not having published on every aspect of odonate biology, he surely knows more about dragonflies than anyone else.

At a time of increasing interest in dragonflies among amateurs, Dr. Corbet has been a leader in keeping the science in odonatology. His papers have consistently presented new ways of thinking about odonates, with an emphasis on pulling together facts and hypotheses. His presence at many odonatological meetings has been an inspiration to his colleagues, and his plenary sessions at international SIO and WDA symposia have featured open discussions about topics of dragonfly biology that were stimulating and productive.

We are pleased to recognize Dr. Philip S. Corbet for his contributions to DSA and to the study of Odonata by naming him as an Honorary Member of The Dragonfly Society of the Americas.

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DSA NORTHEASTERN FIELD TRIP TO THE TUG HILL PLATEAU, NEW YORK

Nick Donnelly

Uncharacteristically clear and sunny skies ("Donnelly" effect? Hah, I say! Hah!) greeted 26 dragonfly enthusiasts at the Tug Hill field Northeastern meeting of the DSA on 12-13 July this summer. In an area thought of as the "rain forest of New York" the group found more than 50 species of odonates in this wild and poorly accessible summit plateau in northern New York. We especially were fortunate to have six visitors from Canada – a new high for the Northeastern meeting.

The Nature Conservancy has recently purchased 45,000 acres of partially forested land, and will retain nearly 15,000 acres as a preserve in Lewis County, which until recently has been one of the more poorly known parts of New York for odonates (as well as birds, butterflies, and everything else).

The group included a healthy mix of veterans and beginners, and much of the time was spent mentoring the more inexperienced participants while standing in cool streams. Happily a nice mix of common and less common dragonflies and damselflies were present, and many people also helped to dredge larvae. On Friday evening the group gathered in Whetstone Gulf State Park for a communal cook out

Friday was spent in the core area of the TNC property, which is known as the G&W Road. Most of the time was spent on one of the branches of the Mad River, but in the early stages of our severe drought this year, this was an easily wadeable stream. A nearby beaver dam yielded ***Cordulegaster diastatops***, ***Gomphaeschna furcillata***, and ***Somatochlora williamsoni***, and ***Gomphus descriptus*** were plentiful along the stream. Many of the group were butterfly enthusiasts, and there was considerable interest over several local species, including the Canadian subspecies of the Tiger Swallowtail.

On Saturday we visited some lovely streams on the southern slope of the plateau. Although the odonates were not outstanding, the weather continued to be spectacular, and ***Hagenius*** is always a treat – especially up here in the north. Sunday was going-home time, and some of the best finds were made that day after the group dispersed. Michael Viet found a new locality for ***Ophiogomphus anomalus*** in Herkimer County. An intrepid little band of three casual collectors followed Jim Bangma and Sheryl Chacon to a dirt road in a forest east of Lowville where they took five species of ***Somatochlora*** without even getting their feet wet! All in all, it was a good weekend.

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HIGHLIGHTS FROM THE GREAT LAKES ODONATA MEETING,HIGGINS LAKE MI, JULY 1-4, 2002

Mark O'Brien

The second **GLOM** was a success, as the intrepid participants braved the heat and 4th of July crowds to gather at the Ralph A. MacMullin Center (RAM) at Higgins Lake. Although the attendance was down due to the holiday, sixteen people registered

for a couple of days of Odonata surveying and sharing of expertise. The weather did not let us down. It was at least 90°F each day with high humidity -- perfect for the dragonflies, and the evenings were warm and bug-free. Each day started with breakfast at the RAM Center, and we were provided bag lunches for the day. We made it back in time for dinner each day, which was pretty amazing, considering that if we had chosen to do so, we could have stayed out until 8 or 9 pm hunting Odonata. **(CR**= County Record}

July 1. People began arriving in the mid-afternoon, and that evening everyone introduced themselves, and then I provided an overview of the aims of the meeting. Some had traveled quite a distance - 10 hours for some - so a cold beer and a cool meeting room was a good way to end the day!

July 2. We assembled in the parking lot and car pooled to our destinations. Most of the vehicles had someone with one of the FRS radios (2 mile range?), which kept us together pretty well. They also provided amusement with random comments coming from everyone. Our first stop was along the **AuSable River in Crawford Co.**, just E of Grayling. There were not a lot of Odes flying at that time, but we did find: ***Calopteryx maculata, Calopteryx aequabilis, Ischnura verticalis, Argia fumipennis, Chromagrion conditum, Enallagma*** spp.**, *Gomphus exilis, Ophiogomphus colubrinus, Boyeria vinosa***, and ***L*adona julia**.

Stop 2 was in **Oscoda Co.**, where a few went off to listen for Kirtland's Warbler (heard one), and that group rejoined the main party at **Mack Lake**. Mack Lake is a typical shallow boggy-margined lake surrounded by sandy jack pine and oak habitat. Nonetheless, the spot had a good place for us to gather for lunch, and our collecting was very worthwhile. ***Nannothemis bella*** was present in small numbers on the sedge-matted margins of the lake (which had been lowered by lack of rain). We did collect the following:
Leucorrhinia intacta, Epitheca princeps* – CR, *Anax junius, Celithemis elisa, Gomphus spicatus, Lestes disjunctus, Enallagma ebrium, Enallagma hageni, Ischnura verticalis, Nehallenia irene, Libellula luctuosa* – CR, *Libellula pulchella, Plathemis Lydia, Ladona julia, Sympetrum obtrusum

Stop 3, our final destination was the **Rifle River State Recreation Area** in Ogemaw Co. The Rifle River SRA is a great place that is virtually unexplored, Odonata-wise. I made a brief stop there in 2000 to evaluate it as a potential area to be surveyed, and this time, we came with enough people to make sure we saw everything -- or at least tried to. The Rifle River itself is only 20 feet or so across where we surveyed, but it gets to be a wider recreational river a few miles downstream, which has yet to be surveyed. In addition, there are numerous lakes, some very different, in close proximity, and a series of eskers traverse the area. In all, it was a glorious place to visit with east access to the sites.

Grousehaven Lake - this marly, shallow lake is ringed with reeds, and on the day we were there, had a temperature of 92°F at the shoreline. It is spring-fed, and supports an array of Odonata. We were also rewarded with a big patch of showy lady's slipper orchids not far from the edge of the lake. We saw mostly libellulids here, and the Eastern Pondhawks and Widow Skimmers were very abundant.
Enallagma antennatum, Enallgma hageni, Enallagma ebrium, Ischnura verticalis, Argia fumipennis violacea, Libellula luctuosa* – CR, *Libellula quadrimaculata, Libellula pulchella* – CR, *Pachydiplax longipennis* – CR, *Erythemis simplicicollis* – CR, *Ladona julia, Plathemis Lydia, Leucorrhinia intacta, Celithemis elisa, Celithemis eponina* – CR, *Sympetrum sp. teneral, ***Epitheca princeps, Dorocordulia libera,*- CR, *Epitheca cynosura, Gomphus spicatus, Gomphus exilis, Anax junius***

Across the road, a stone's throw away is Lodge Lake, a deeper, mucky-bottomed lake with abundant macrophytes along the shore, and lots of vegetation near the surface. This lake is as different as can be from Grousehaven, and we saw some different species there. Kurt Mead caught a Cyrano Darner, which was a big catch for the spot! Big Nasty Leeches were also abundant!
Nasiaeschna pentacantha - saw several – **CR, Dorocordulia libera, *Libellula incesta* – CR, *P. longipennis, L. luctuosa, P. Lydia, E. simplicicollis, L. intacta, L. pulchella, L. julia, Ischnura verticalis, Enallagma exsulans, E. hageni, Anax junius***

Grebe Lake: ***A. fumipennis, E. geminatum, E. hageni, E. ebrium, Lestes vigilax* – CR, *A. junius, Arigomphus furcifer* – CR, *G. spicatus, D. libera,Celithemis eponina, E. simplicicollis, Libellula incesta, L. luctuosa, Ladona julia, Leucorrhinia frigida, L. intacta, Pachydiplax longipennis***

Jewett Lake: ***A. fumipennis, E. geminatum, E. hageni, G. spicatus, G. exilis, D. libera, L. julia, L. incesta, L. luctuosa, L. intacta, S. obtrusum, Perithemis tenera*** **- CR**

There are also several creeks that feed into the Rifle River. At **Skunk Creek**, a bunch of us got out and looked around while Margi did some kick-net sampling. The small creek and its surroundings supports the species that are typical for that area:

Calopteryx maculata - adults abundant along the shoreline vegetation
Cordulegaster maculata - larval specimens
Boyeria vinosa - larval specimens
Dorocordulia libera - along roadside near creek
Lestes dryas - in sedges near creek

Finally, we sampled a stretch of the **Rifle River** where a suspension footbridge crosses it above a riffle area. The Riffle River? At that point, about half the group spread out along the river to try and net anything passing by. ***Gomphus lividus*** was common here, as were ***Calopteryx maculata***. ***Ophiogomphus colubrinus*** was caught, and we also saw/collected ***D. libera, Calopteryx aequabilis*** **- CR,** ***P. lydia*** **and** ***Epitheca princeps*** was flying by. There are many other spots S of where we collected where the river is wider, but we did not have time to check them out. Certainly a watershed that needs more investigation.

The whole area looks like a great place to look for various darner species, so perhaps an August trip to RRSRA would be a good idea. Who knows what would turn up?

That afternoon, we put the pedal to the metal and got back around 5:30 - in time for dinner. In the evening, we compiled the list of the day's Odonata, and had several presentations. We tried identifying Odonata larvae with the aid of the video projection system and a video camera attached to a dissecting scope. Using Ethan Bright's key, we were able to go through the process of identifying some known specimens. That was actually pretty instructional, and I think gave some insight on the need to learn larval morphology.

July 3

We left the RAM Center after a filling breakfast, and I led the way with a cooler filled with everyone's lunch. The main purpose for the day was to visit some potential Hine's Emerald sites near Alpena. It was a longer trip than anticipated, but well worth it after we finally arrived. The road to Misery Bay leaves Alpena through some big and ominous-looking industrial sites, but within a mile or so, we came across some beautiful fens and marsh areas on Lake Huron. After some consultation, we decided to split into groups and survey the area. Having the FRS radios really helped out, since we could alert the others to interesting finds. At some point before noon, I heard Colin Jones say something about a possible Hine's emerald female. Leave it to the Canadians to get the first sighting. We met for lunch (had to, I had all the food and water) and Colin brought out two envelopes with wriggling dragons inside. He opened the first - a male ***S. hineana***! The second was a female. It turns out that the youngest participant, Robbie Oldham (10) caught the male ***hineana***. After lunch we drove back to the place where the two were caught. We released the female after photographing her, and after I decided that the site constituted a new site more than 1 km from the last one recorded by Wayne Steffins in 1999, we kept the male as a voucher after photographing him. I later netted and released two males along the same road and two-track. I also saw what I think was a ***hineana*** flying over the Misery Bay road. They are our largest emerald, and are pretty darn distinctive.

Marjorie caught a ***Somatochlora walshii*** along the main dirt road which was a good find, too. On the 2-track I saw an aeshnid fly up and land on the trunk of a tree. Very un-*aeshna*-like. Colin had said earlier that he had thought he'd seen ***Aeshna clepsydra***. After several unsuccessful attempts, I finally netted a specimen. It is hard to net something when those small spruce branches get in the way. Aha! It was different, it was . . . ***A. sitchensis***! The last place I would have searched for it, since I associate that species with boreal climates. I netted several more along the road, and that was a "lifer" for me, as the bird-people put it. The small pools along the two-track look to be a good spot for more emeralds. There are very few recent records of this species, and it was a real treat seeing it in Alpena Co.

While we were lurking amongst the cedars, Bob Dubois and Kurt Mead were on a fen near Misery Bay, seeing more ***Nannothemis bella*** and ***Amphiagrion saucium*** than they could possibly count. Bob swept his net a couple of times and had a few dozen specimens. I had planned on going there on the return trip, but the threatening sky did not look promising. The other group had gone into the woods on a different road, and Margi Chrisinscke and Paul Desjardins came out with a

beautiful ***Cordulegaster obliqua*** that was in a tiny creek. So, three groups hit different habitats, and all came away with some excellent records. It was really great that Colin got to see some ***hineana*** habitat, since he planned on surveying Manitoulin Island and the Bruce Peninsula in Ontario.

As we were preparing to leave, a nice thunderstorm blew into Alpena. A torrent of rain gave a few of us an opportunity to stop for a snack. It soon blew over, and we headed back to Higgins Lake for a dinner of fried shrimp and chicken on the lake shore. Later that evening, a huge fireworks display on the lake sent some of us out of the evening meeting to go sit on the shore and watch. It was a fine way to wrap up the stellar day and the second GLOM.

Species account for the day

Amphiagrion saucium **– CR,** ***Ischnura verticalis*** **--** Wetland N side of Misery Bay Rd.**,** ***Enallagma hageni, Argia fumipennis*** **– CR,** ***Lestes dryas*** **– CR,** ***Nehalennia irene, N. gracilis*** **– CR,** ***Calopteryx maculata, Gomphus spicatus, Aeshna sitchensis*** **– CR,** ***Anax junius, Pantala hymenaea*** – road kill on Misery Bay Rd. **– CR,** ***Nannothemis bella*** **– CR,** ***Plathemis Lydia, Ladona julia, Libellulla quadrimaculata, L. luctuosa*** **– CR,** ***L. pulchella, Celithemis elisa, Leuc. Intacta, L. proxima, L. frigida*** **– CR,** ***S. obtrusum, Dorocordulia libera, S. walshii*** **– CR,** ***S. hineana, Epitheca princeps*** **– CR,** ***Cordulegaster obliqua*** **- CR**

Attendees: Caryle Spence, Northville, MI, , Colin Jones, Ottawa, ONT, Erik Pilgrim, Logan, UT, Joan Berkopec, Green Bay, WI, Jody Clark, Traverse City, MI, Kurt Mead, Finland, MN, Margret Chriscinske, Ann Arbor, MI, Marjorie O'Brien, Ann Arbor, MI, Mark O'Brien, Ann Arbor, MI, Mike Oldham, Peterborough, ONT,
Paul Desjardins, Windsor, ONT, Robert DuBois, Superior, WI, Robert Oldham, Peterborough, ONT, Ron Eichhorn, Green Bay, WI, Véronique Oldham, Peterborough, ONT, Wendy Walden, Detroit, MI

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FIRST KNOWN U.S. POPULATION OF THE TROPICAL SPRITE *NEHALENNIA MINUTA* (SELYS) (ODONATA: COENAGRIONIDAE)

Robert A. Behrstock, 9707 S. Gessner, Apt. 3506, Houston, TX 77071

The Tropical Sprite ***Nehalennia minuta*** (Selys) is a widespread damselfly ranging from the Bahamas and Greater Antilles, south through Mexico and Central America to Brazil (De Marmels 1984, Westfall and May 1996). On the basis of a male discovered 6 Jan 2000 at Big Pine Key, Monroe County, Florida, it was recently added to the odonate fauna of the United States (Paulson 2000). The discovery occurred at a small, densely vegetated sinkhole in surface limestone adjacent to a large pond known as the Blue Hole. Paulson (2001) took a specimen of Everglades Sprite ***N. pallidula*** Calvert at Big Pine Key during the 1960s, so these two species are locally sympatric, although no one has demonstrated their simultaneous presence.

On 26 Feb 2002, during a family visit to Key West, I made a pilgrimage to the Blue Hole in search of ***minuta***. After a reasonably thorough and unsuccessful hunt through the accessible habitat, I continued north approximately 0.3 km on Key Deer Blvd. to the Frederick C. Mannillo, Jr. Wheelchair Accessible Nature Trail. This trail, a bit less than 0.25 km in length, leads through a limestone caprock woodland of Slash Pine, Saw Palmetto, Thatch and Silver palms, and Poisonwood, terminating at a short boardwalk and an observation deck. Surrounding much of the deck is a small, rainwater sustained wetland of open, grassy pools and shallow rock pits that had been filled by recent rains. Here, from 10:25-12:38 hrs, I observed a minimum of 16 ***Nehalennia minuta***, the first evidence of a breeding population in the United States. None of these was brilliant blue like the adult male shown in Dunkle (1990), suggesting a recent emergence. I estimated one sub-adult pale blue male, at least eight sub-adult tan and brown males, and seven tan and brown females. This situation paralleled my experience in the Everglades several days earlier when only one of 30-40 ***N. pallidula*** I observed was a moderately bright blue male. Several male and female ***minuta*** were photographed and one female was taken by hand and preserved in alcohol. Sid Dunkle confirmed the identification of the specimen as ***minuta***. Images of a male show the unmarked dorsal surface of abdominal segment 9; this segment is largely black above on ***pallidula***. The black spot present on the dorsal surface of segment 9 on the female ***minuta*** I collected was not as extensive as the black on segment 9 of ***pallidula***. De Marmels (1984) and Paulson (2001) discuss variability in the extent of black on segment 9 of ***minuta***. Additionally, the female I collected had a smooth posterior margin to the pronotum, lacking

the upright flange found on female ***pallidula***. Virtually all ***minuta*** I saw were perched on grasses, ferns, or shrubs, less than 1 m above ground and 2-8 m from the pools; none associated directly with open water. Temperatures were c. 78-82 degrees F (c. 24-28 degrees C), with thin, scattered clouds and a light breeze.

Other species at the pools included: one glimpsed male ***Lestes***, at least five male and female Citrine Forktails (***Ischnura hastata***), and one teneral male Caribbean Yellowface (***Neoerythromma cultellatum***), the latter also photographed and collected. Dunkle offers 15 March as the earliest flight date for Florida ***cultellatum*** and Paulson (2001) did not encounter it during his January 2000 trip that produced many unusual seasonal records. The presence of a teneral during February appears to be an early U.S. flight record. A short distance north of the trailhead, one red male "Antillean" ***Orthemis*** sp. and one male Band-winged Dragonlet (***Erythrodiplax umbrata***) were seen over saline flats along the road. Three additional species of interest near the trailhead were Southern Bald Eagle, Key Deer, and Florida Duskywing (*Ephyriades brunneus*), a West Indian butterfly restricted in the U.S. to pinelands at the tip of the Florida peninsula and the Florida Keys.

ACKNOWLEDGEMENTS

I thank Dennis Paulson and Jerrell Daigle for providing me with notes from their recent trips to southern Florida, Sid Dunkle for verifying the specimen of *minuta*, John Abbott for providing damselfly literature, and Victor and Enid Harvey for their hospitality during my visit to the Florida Keys.

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WILLIAMSONIA FLETCHERI ENCOUNTERED IN VERMONT

Bryan Pfeiffer

On 4 June 2002, while surveying for butterflies at a fen in Washington County, Vermont, I discovered a population of ***Williamsonia fletcheri***. This appears to be the first (and long overdue) record for the species in Vermont.

My partner Lori Barg and I were visiting the fen for my work on the Vermont Butterfly Survey (www.vinsweb.org/conservation/vbs). Limited Odonata were flying at the site that day, including ***Cordulia shurtleffi, Libellula julia*** (abundant) ***Leucorrhinia hudsonica***, and one or more other unidentified ***Leucorrhinia*** species. Not yet flying was ***Nannothemis bella***, which is more common later in June. The Zygoptera fauna was not investigated, with the exception of ***Chromagrion conditum***. I was, after all, there to survey for butterflies. But I must admit to a certain conflict of interest: I had ***Williamsonia*** on my mind that day.

Lori and I visited the fen from roughly 1029 to 1305 hrs. Ambient temperature at the start of the visit was 68F and at the end 71F. Winds were light, estimated at 5 miles per hour. And cloud cover during the visit was roughly 5 percent. The site is a graminoid fen, approximately 15 acres, with an open pool and a peat mat dominated by sedges. The surrounding woods are a mixture of northern hardwoods, red spruce and balsam fir. At this point, the landowner prefers that the location of the site remain undisclosed.

While I was pursuing photographs of the only butterfly evident in the fen that day (*Callophrys augustinus*), Lori mentioned seeing a small dragonfly unfamiliar to her land briefly nearby. I did not get an opportunity to pursue this individual. (It was most likely ***W. fletcheri***.) However, while crossing the fen in the vicinity of the open pond, I noticed and immediately netted a small cordulid. Field examination of the specimen revealed it to be a male ***W. fletcheri***. Having obtained prior permission to secure significant voucher specimens at this site, I retained this individual. In the

immediate vicinity, a portion of fen dominated by sedge species and flooded, we observed approximately five other ***W. fletcheri*** individuals.

Lori and I briefly explored sun-lit portions of the woods west of the fen, finding no other ***W. fletcheri***. This search was by no means comprehensive. Upon returning to the fen, we encountered additional ***W. fletcheri*** in other areas, for an estimated total of 8 to 12 individuals, including a male sunning on exposed vegetation and posing for some nice photographs.

The discovery will propel me to search for other Vermont locations for ***Williamsonia*** next spring. To the best of my knowledge there is no record for ***W. lintneri*** as well.

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PYGMY SNAKETAIL (*OPHIOGOMPHUS HOWEI*), NEW TO CANADA

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On 22 June 2002 at approximately 10 AM (New Brunswick time), I found 10 ***Ophiogomphus howei*** on the Canadian shore of the St. John River 1.6 km E of the church (Saint Coeur de Marie) at Baker Brook (47.3028°N, 68.4941°W, west of Edmunston), New Brunswick. This species was not listed for New Brunswick by Brunelle and Tingley (1994) or from the Atlantic provinces (Brunelle 1997), although it was indicated as a possible occurrence. It was also not listed with other recent additions to the Odonata of the Maritime provinces (Brunelle 1999), and is the first record for the province of New Brunswick and for Canada (Paul-Michael Brunelle and Stuart Tingley, pers. comm.).

Ophiogomphus howei is known from several counties in Maine (Brunelle 1999b, 1999c) including particularly parts of the Aroostook River near the Canadian border (map in Brunelle 1999c, p. 24). It is also known from other areas adjacent to Canada including Wisconsin (Tennessen 1993), New York (Donnelly 1999), Michigan's upper penninsula (O'Brien 1998), and east-central Minnesota (Carroll & Gunderson 1995). Not surprisingly ***Ophiogomphus howei*** has been considered a possible addition to the dragonfly fauna of Ontario (Catling and Brownell 2000). Its total range was mapped by Tennessen (1993).

The occurrence on the St. John River extends the known range only 35 miles (57 km) farther north, but is most exciting as the first Canadian record of this declining species. ***Ophiogomphus howei*** is listed as a threatened species in Maine and is being considered for federal listing in the United States. Dams, which destroy naturally fluctuating and fast-flowing aquatic habitats, and deteriorating water quality are cited as reasons for range-wide declines (Schweitzer 1989).

The habitat of ***O. howei*** on the St. John River is fast flowing water, mostly 1-2 m deep, with riffles. The river is approximately 100m across with a bottom of stones, gravel and some sand behind boulders and along the shore. This corresponds to descriptions of habitat at other locations (e.g. Kennedy and White 1979, Tennessen 1993). At the point where ***O. howei*** was found the river splits into a number of channels that flow around several small islands and stone and gravel bars. One Pygmy Snaketail was emerging, others were disturbed from shoreline vegetation (grasses, shrubs, horsetail and sedges) and flew with a weak fluttering flight further up the open bank. In all cases it appeared to be the first flight. The gradually sloping riverbanks are open with unusual shrub and herb vegetation to 1 m high which is adapted to the fluctuating water levels (fluctuation over several metres).

At the ***O. howei*** station on the St. John River four other gomphids were present along 200 m of Canadian shoreline. There were two emerging ***O. aspersus***, two emerging ***O. carolus***, 60 emerging and/or teneral ***O. anomalus***, and 25 emerging or teneral ***G. adelphus***. Eighty-five exuviae of ***O. anomalus*** and that many of other ***Ophiogomphus*** spp. were found along this small section of shoreline. Interestingly ***O. howei*** and ***O. anomalus*** are often found together (e.g. Donnelly 1999). Exuviae of ***O. anomalus*** were found at several places along the St. John River between Edmunston and Clair and along this same stretch of river nymphs of ***Cordulegaster maculata***, ***Macromia illinoensis*** and ***Neurocordulia*** cf. ***michaeli*** were also found.. The occurrence of a rich biodiversity of dragonflies including rare species indicates the extreme importance of preserving the upper St. John River in a natural state. The rich and unusual dragonfly assemblage here is associated with a high biodiversity including many groups of organisms.

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NEW STATE RECORDS OF *ENALLAGMA* FROM MINNESOTA AND NEW HAMPSHIRE

Dennis Paulson

Bill Mauffray listed these records on the World Wide Web list of North American Zygoptera based on my comments, but no further information was included, so I am taking this opportunity to present that information.

Enallagma clausum - MN, Beltrami Co., Upper Red Lake at Waskish, 30 May 1977, 2 males, D. R. Paulson (DRP collection).

Enallagma doubledayi - NH, Carroll Co., Madison, 7 July 1974, P. Miliotis (DRP collection).

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SOME ODONATA RECORDS FOR THE OXLEY NATURE CENTER, TULSA COUNTY, OKLAHOMA

Roy Beckemeyer

On July 18 and 19, 2002, I visited the Oxley Nature Center in Tulsa, Oklahoma, to give some programs and conduct some dragonfly observation walks. While there I also went through the Nature Center's insect collection to identify or verify the Odonata specimens there. While I did not have time to do a complete survey of the center habitats other than the pond near the buildings, many of the species noted are county records for Tulsa County.

Species seen live and positively identified in the field (most in the hand): 18/19 July: ***Argia apicalis, Ischnura posita, Anax junius, Arigomphus submedianus, Celithemis elisa, C. eponina, Erythemis simplicicollis, Ladona deplanata, Libellula incesta, L. luctuosa, L. vibrans, Pachydiplax longipennis, Perithemis tenera, Plathemis lydia, Sympetrum ambiguum, Tramea lacerata,*** red ***Tramea*** sp.

In the collection were: ***Argia apicalis*** (no date), ***Enallagma basidens*** (D. Horton, 7/11/01), ***Enallagma civile*** (D. Horton, 7/11/01), ***Ischnura verticalis*** (B.W. Ball, 7/10/84), ***Anax junius*** (no date), ***Epiaeschna heros*** (fresh specimen that had gotten trapped in the building 7/16/02), ***Arigomphus submedianus*** (B. Ball, 6/4/81), ***Celithemis elisa*** (K. Shreve, 7/11/01, D. Horton, 6/11/02), ***C. eponina*** (K. Shreve, 7/11/01), ***Erythemis simplicicollis*** (B.W. Ball, 6/29/83,

7/2/84, 7/3/84, D.Horton, 6/11/02), ***Erythrodiplax umbrata*** (B. Ball, 9/17/81), ***Libellula cyanea*** (B.W. Ball, 6/29/83), ***Libellula luctuosa*** (B.W. Ball, 7/2/84, 7/11/82, M. Muirhead, 6.23.82, M. Zeigler, 6/29/84, 7/2/84, S. Ruby, K. Shreve, D. Horton, all 6/11/01), ***L. vibrans*** (no date), ***Pachydiplax longipennis*** (Bob Jennings, 6/25/83, B.W. Ball, 6/9/81), ***Plathemis lydia*** (B. Ball, 6/4/81, 7/3/84, M. Zeigler, 7/2/84, K. Shreve, S. Horton, S. Ruby, all 7/11/01), ***Perithemis tenera*** (S. Ruby, 7/11/01), ***Tramea onusta*** (teneral male, B.W. Ball, 8/21/82).

The only species that had been recorded in Tulsa County prior to this were ***Enallagma civile, Epiaeschna heros***, and ***Pachydiplax longipennis.***

Thanks to Susie Ruby, Interpretive Naturalist at Oxley, for requesting and setting up the visit, and to Bob Jennings, Director of the Center, and to the other naturalists and staff members for their friendly assistance. Around 20 or so people, many of them members of the Oklahoma Ornithological Society, attended the program and walk Saturday, and I expect to see dragonfly and damselfly reports coming from northeastern Oklahoma in the near future.

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OBSERVATIONS ON *NEUROCORDULIA*

Jim Curry, Biology, Franklin College, Franklin, IN 46131

On June 15, 1999 a student of mine (Stan Baelz) and I were collecting dragonflies (Anisoptera) on the bank of the Ohio River in Harrison County, Indiana when Stan found a teneral female ***Neurocordulia molesta*** in a low bushy Sycamore tree 10-15 yards from the water. This was a new record for the state. The only other ***Neurocordulia*** reported for Indiana was a single female collected at a light trap in West Lafayette on June 20, 1953 (Montgomery, 1955). On the evening of June 18, Stan and I visited the site where he had found the teneral female in the hopes of collecting adult ***N. molesta***. The first ***Neurocordulia*** appeared 31 minutes before sunset. Prior to their appearance thousands of tiny mayflies (Ephemeroptera) were observed emerging from the river. Walker, (1915) reported that ***N. yamaskanensis*** appears to feed exclusively on mayflies. To our surprise, before it got too dark to see we captured both ***N. molesta*** and ***N. yamaskanensis***. We were unable to distinguish between the two species in flight, but all of the individuals that we observed were flying with extraordinary speed in low (below two meters), level, straight flight. After about twenty minutes, males were observed coupling with females and flying up into the trees on the bluff above the river.

We made additional visits to the site on June 29, July 4, July 27, and August 10. Five ***N. molesta*** were collected in all, three females and two males, all taken over the river. The last was collected on July 4. Eighteen ***N. yamaskanensis*** were collected in all, 11 females and 7 males, all taken over the river, the last on August 10. We did not visit the site again, and don't know how long ***N. yamaskanensis*** continued to fly after that date.

Our observations made us curious as to how these dragonflies could capture prey in such low light, and how they could feed themselves sufficiently in such a short period of time. Their speed is so great and their flight path so straight that it seems impossible that they could be targeting individual prey. The only time they were seen to deviate from the flight path was when they went after other ***Neurocordulia***. On July 4, rather than drive to the site as we had done earlier, we took a small boat with an outboard motor. When it got too dark to collect, we started back toward the landing, a distance of about a mile, in the boat. It was a slow boat, but even so, there were so many tiny insects in the air over the river that we could not keep our eyes open as we moved along. We were unaware of this "soup" of insects until the boat started moving. I held my net to the air as the boat moved along and by the time we reached the landing had collected a ball of insects about the size of a large orange. These included leafhoppers *Draeculacepphala mollipes*, tiny ground beetles (Carabidae), mosquitoes (Culicidae), caddisflies (Tricoptera), and midges (Chironomidae). These ranged in size from 8mm (leafhoppers) to 4mm (mosquitoes) in length. Mosquitoes and caddisflies were by far the most common, making up perhaps 90% of the total. Interestingly enough, there were no mayflies.

Based on this experience, I can't help wondering if the Shadowdragons were foraging by flying through the "soup" of tiny insects and scooping them up with their legs without ever targeting individual prey. The long spines of the tibiae could form a very nice net for sweeping tiny insects from the air. This would be similar to what some marine mammals do when plowing through a concentration of algae or krill with their mouths open. If so, the questions about how shadowdragons see prey in low light, why they never deviate the flight path while foraging, and how they are able to feed

themselves in only twenty or thirty minutes would be answered.

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Walker, E.M. 1915. Notes on the Odonata of Go Home Bay, Georgian Bay, Ontario. Ann. Rpt. Dept. Marine and Fisheries Branch, 4, Suppl.: 53-94

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NICK-AT-NIGHT: EPISODE II

Jerrell J. Daigle, jdaigle@nettally.com

In August, a group of intrepid adventurers set out to explore Bartola, Nicaragua. The hardy souls were Ailsa and Nick Donnelly from New York; Bill Shepard from California; Texans John Abbott, Ryan Caesar and Allan Hook; Phoebe and George Harp from Arkansas plus Bill Mauffray and Jerrell J. Daigle from Florida. Nick, George, and John vividly remembered the Nicaraguan mud of last year; the rest now know it well! The Nicaraguan entomologist Jean Michel Maes, to whom we owe abundant thanks, arranged the trip for us. You can follow our photo adventures on Ryan Caesar's website at <http://hisl.tamu.edu> by navigating to Travels and selecting Nicaragua. Thanks, Ryan!

In the first morning, we caught a small plane from Managua to San Carlos, where we would take a boat ride 68 kilometers down the 200-meter wide Río San Juan to the lodge. We flew over the huge Lake Managua, home of the famous man-eating freshwater sharks. I kept wondering what would happen if we encounter them swimming in the river near the lodge! The 3-hour motor boat ride through rain and occasional rapids was neat! However, we couldn't swing at the gomphids flying over the deep river because we would tip the boat over, and it would be a long swim to the shoreline!

Once at the lodge, we picked out our rooms and settled in with all of our gear. The staff was very friendly and helpful. Maria and her daughter, Jacquelin, cooked up splendid meals for us, 3 times a day! We always had fresh fruit juice (jugo) with our meals. I still don't know what was in that purple Kool-Aid but someone said it was a mixture of grape and beet juice. Yum-yum! But I'll stick to the pineapple.

I should mention that the beds had mosquito netting over them and we shared the rooms with occasional bats that left calling cards, including on my precious reprints which then became undistributable. I didn't mind them since they ate the mosquitoes! Just wear your hat! Speaking of mosquitoes, we took malaria tablets and sprayed ourselves but Bill Shepard still picked up dengue fever, most likely in Managua where dengue fever is prevalent. He is doing a lot better, thank you! Blackflies were common near the river and were our only pest if you forgot to spray yourself with repellant.

The environment around the lodge was rain forest. We mostly collected on the muddy trails and the small streams in the forest. During periods of light rain (there was not much light rain; mostly it was a tropical downpour) or on cloudy days, we collected at some ponds near the lodge. Surprisingly, we found many dragonflies and damselflies or "pipilachas" as the Nicaraguans would call them. We found ***Acanthagrion speculum, A. trilobatum, Argia adamsi, A. frequentula, A. indicatrix, A. insipida, A. johanella, A. oculata, A. translata, Enallagma novahispaniae, Heteragrion erythrogastrum, H. albifrons, Hetaerina miniata, H. titia, Ischnura capreolus, Lestes tikalus, Leptobasis vacillans, Mecistogaster linearis, M. modestus, Megaloprepus coerulatus, Neoerythromma cultellatum, Neoneura amelia, Palaemnema distadens, P. gigantula, P. paulirica, P. nathalia, Perissolestes remotus, Philogenia carrilica, Protoneura amatoria, P. sulfurata, Psaironeura remissa, Telebasis digiticollis, Gynacantha membranalis, Aphylla*** undescribed sp.,, ***Archaegomphus furcatus, Epigomphus ?compactus, Anatya guttata, Cannaphila insularis, Dythemis multipunctata, D. sterilis, Erythrodiplax fervida, E. funerea, E. fusca, E. umbrata, Miathyria marcella, Micrathyria ocellata, M. pseudoeximia, Nephropeltia phyrne, Orthemis discolor, Oligoclada umbricola, Perithemis electra, Perithemis*** undescribed sp., ***Rhodopygia hinei, Tauriphila argo, Tramea binotata,*** and ***Uracis imbuta***.

In the forest clearings, we saw many giant helicopter damselflies (***Mecistogaster*** and ***Megaloprepus***). Even Marcelino, our boat driver, caught one with his bare hands! Along the muddy and slippery trails, we found four species of ***Palaemnema*** perching near the bases of large buttressed trees. Wading in the flowing streams, we found ***Perissolestes, Philogenia, Heteragrion***, and ***Argia adamsi***. At the ponds, we caught

brilliant scarlet ***Rhodopygia hinei, Micrathyria ocellata***, and ***Acanthagrion speculum***. Open seepages had ***Argia frequentula*** and ***A. johanella***. Along the Río San Juan, I collected ***Argia insipida***, a new country record. I had found this species on big rivers in Trinidad and was pleasantly surprised to see it here! It has been taken in coastal Venezuela, and this was a new northern range extension. While feeding Pablo the cat and Daniela the spider monkey (Phoebe's friend) at lunchtime, we found numerous ***Anatya guttata*** flying around the dinner table!

Wildlife was plentiful at this pristine rainforest refuge. We saw howler and spider monkeys and small deer, colorful frogs, lizards, snakes, and caimans. I especially liked the poison-arrow frogs like the red *Dendrobrates pumilio* with its black legs and the lime-green-and-black marked *Dendrobrates auratus* hopping among the parasol ant (*Atta*) clearings. Frogs ranged in sized from the small yellow and brown *Hyla ebracata* and the giant green bullfrog, *Rana vaillanti*, with its strikingly purple legs. I would be amiss if I didn't mention the deadly Fer-de-lance or *Bothrops asper*. On several occasions, we almost stepped on them. Allan and I walked right by a 5 footer that could have ended our young careers! Marcelino had to kill it since it was next to our cabins and on the lodge property. The last I saw Allan, he still hasn't gotten his color back! George was painfully bitten on the toe by a giant spider while putting on his boots. Nothing like a good wake-up call! After those events, everyone always emptied their boots in the morning, plus I walked carefully in the woods with my eyes open for snakes!

On rainy days, we relaxed and enjoyed the atmosphere at the lodge. We read books, played cards with young Oscar, napped in the hammocks, brushed up on our Spanish with Maria, processed our insect specimens, took canoe rides, or went fishing. Having discovered that fried bananas were the bait of choice, Allan caught some large fish for the stewpot. Yes, we could find ways to pass the time until the sun showed up!

All in all, we had a fun trip and a great time with new friends! Rainforests are something else! The dragonflies were interesting and many species were new to most of us. We would like to see this area again but in the dry season, perhaps in March, to find which species would be flying then. Plus it would be easier hiking on the forest trails! All together, we got about 56 species of odonates. I believe only about 2-3 species were known from this province in, and a whopping 27 species, almost half, are new to Nicaragua! There is plenty of work to be done in here!

Hope to see you there next time! Adios!

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NEW LOCALITY RECORDS FOR ODONATA IN PICO CRISTAL NATIONAL PARK, CUBA

Adrian Trapero Quintana and **Carlos Naranjo López**, Univ. De Oriente, Santiago, Cuba

Translated by Nick Donnelly

Pico Cristal National Park is the earliest established park in Cuba. It is located in the Sierra de Cristal in the north of eastern Cuba (Fig. 1). It is located between the valleys of the Río Mayari on the west, and San Miguel on the east; a distance 0f 34 km. Its north – south extent is 26 km, bounded by the Saetia – Yaguaneque flatland and the valley of the Río Mayari. The size is 16,010 hectares, in which rain forest and pine forest predominate, and is underlain by peridotite, serpentine, and Cretaceous limestones. Rainfall varies between 1.4 and 2 meters annually, and the median temperature is 22 to 24° C. Steams flow into the Río Mayari in the west and the Río Levisa in the east. The highest elevations of the Nipe – Sagua – Baracoa massif (highest elevation 1231 meters) are found within the park. The area has a rich flora and fauna.

We observed and collected in March and May 2001, when we visited the following localities:

La China and Río Levisa in the southern slope between 590 and 756 meters.

El Palenque and Río Cabonico in the northern slopes between 250 and 570 meters.

To determine the specimens, we consulted the reference collection of the "Charles Ramsden" Museum; and our own collections at the Universidad de oriente. We also used keys publications of various authors: Alayo (1968), Esquivel (1994), Merritt and Cummings (1996), and Westfall and May (1996). All the material collected is deposited in the entomological collection of the Department of Biology of the Universidad de Oriente.

List of species collected and observed in the Poico Cristal National Park

Zygoptera; Coenagrionidae

Enallagma coecum cardenium Hagen 1876. There were a male and female collected in vegetation near the Río Cabonica.

Zygoptera; Megapodagrionidae

Hypolestes trinitatis Gundlach, 1888. We collected four examples of this peculiar megapodagronid, a male and three females. The male and two females were taken on the margins of the Río Cabonico and the other female in pine forest very close to the Río Levisa. Females are colored similar to juvenile males, with yellow marks over the entire body (Alayo, 1968), in contrast to the complete bluish pruinescence of the male.

Anisoptera; Aeshnidae

Aeshna psilus Calvert 1947
We took a male of this large odonate in El Palenque. It rested in a vertical position in a branch of marabú (Dichrostachys cinerea) in the rain, at the margin of the road. According to Alayo (1968) this species has only been reported in the Gran Piedra (in the eastern part of the island) and in an imprecisely recorded location in the west; this is the third report of the species in our island.

Anisoptera; Libellulidae

Dythemis rufinervis (Burmeister, 1839)
We took only a single male of this antillean species, in an unvegetated spring neal El Palenque, resting on a dry branch.

Lepthemis vesiculosa (Fabricius, 1775)
We observed this species late in the day, patrolling in a characteristic way, over ponds in the locality of La China.

Erythrodiplax umbrata (Linnaeus, 1758)
This species, like the latter, was seen sitting on herbaceous vegetation at El Palenque along the edge of the road. It displayed four dark bands on the wings between the nodus and stigma, a character that enables it to be identified at a distance of several meters.

Macrothemis celeno (Selys, 1857)
We took two males of this species, one in La China flying over the rocks of a nearby stream, and the other in a similar place near the Río Levisa. In this place we saw a female, with brown wing tips, flying over the channel.

Orthemis ferruginea (Fabricius, 1775) [Probably an undescribed species. Ed.]
We took a male while it sat on a branch at the edge of the road at El Palenque, in the afternoon. The example seemed somewhat old because of the leaden color of the thorax and abdomen.

Scapanea frontalis (Burmeister, 1839)
We observed this curious odonate flying relentlessly over the channel of the
Ríos Levisa and Cabonico, showing opalescent bands in the wings. We took three males, one in Río Levisa and two in Río Cabonico.

We think that the odonate diversity was rather low, owing to the prolonged rainfall during the collecting period. Nevertheless, this short list of 9 species constitutes new records for this area.

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Merritt, R y K, Cummins. 1996. An Introduction to the Aquatic Insects of North America. Kwendall/hunt. Publishing Company: 3ra Edition. pp 164-211.

Westfall, J y M, May. 1996. Danselflies of North America. Scientific Publishers: pp 112-570.

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SOME NOTES ON THE CULTURAL HISTORY OF DRAGONFLIES

[Edited from e-mails from **Robert Larsen**; adapted from a message to the CalOde group on the origin of the name "dragonfly"]

The earliest recorded identifiable species that I can find (from color photographs) are what appear to me to be ***Tetrathemis polleni*** from the great Spear Fishing scene at Thebes in Egypt over three thousand years ago. Here in the United States the earliest recorded species I can find is that of the Filigree Skimmer (***Pseudoleon superbus***) on Mimbres Culture pottery here in New Mexico dating from about 900 A.D. along with identifiable detailed images of Scaled Quail (*Callipepla squamata*) and the Texas Horned Lizard (*Phrymosoma cxornutum*). Dragonflies may have been recorded historically in the Hawikuh Codex (July 7, 1540) when Coronado arrived at the old

village of Hawikuh on Corn Mountain. Fifteen sheets of fine vellum were given to the Zuni to record every animal found in Cebola (now New Mexico). Systematic invertebrate studies in North America may date from this codex and Professor Mollies (University of New Mexico) will try and locate the lost codex in Spain!

Laurie Rufe (Tucson Art Museum Director) told me that dragonflies are represented in their Pre-Columbian pottery collection. She said she would try and locate some dated examples.

Here in New Mexico the dragonfly "Bringer of Rain", or "Rain Messenger," is still the most sacrosanct deity in the pantheon of Zuni deities and to this day still plays a central role in the Shalako Ceremonial (Zuni Rain Messenger Ceremonies, or Dragonfly Ceremonial) which is closed to all outsiders. I have asked some Zuni the name of the dragonfly, but of course it is sacrosanct and cannot be spoken. I suspect it is the Zuni word "Shalako" itself that is the word for dragonfly.

Prehistoric pictographs of the dragonflies are found on basalt near Milagro Springs west of Milagro, New Mexico and at numerous other sites in New Mexico and Arizona. Ruth Kirk in her work on the Zuni in the 1930s notes that the anthropologist Cushing had in the 1880s removed several dragonfly "ettone" from a very ancient large Shalako ceremonial pot and shipped them to the National Museum (Smithsonian). It would sure be interesting to see those particular ancient dragonflies and perhaps identify them.

[A follow up note explains "ettone".]

I don't know if "ettone" is a Zuni word or an anthropological term. Ruth Kirk, who studied Zuni fetishism in the 1930s, used the term to describe the most sacrosanct of Zuni fetishes those which were actual deities and which had very potent magical powers.

These deities were stone or bone carvings of very ancient origin of which the dragonfly "bringer of rain" was/is the most sacred. These stone-carved ettone fetishes, because they are actual gods, are placed in or on sacred ceremonial pots with a little hole on the side through which the god is fed (ground cornmeal on a slip of paper).

The dragonfly and other sacrosanct ettone are covered with an ancient blackish brown patina and Kirk believed them to date back to pre-Columbian times. According to Ruth Kirk in the 1880s Cushing ("Buttons" the Zuni called him) came into possession of a very ancient Shalako Ceremonial pot too large to get on the train. So Cushing removed the dragonfly ettone from the pot and sent them on to the Smithsonian.

[**ARGIA** readers may recall Kennedy's paper "A dragonfly nymph design on Indian pottery" 1943, Ann. Ent. Soc. Amer., 36(2): 190-191, referring to pottery from Cuzco, Peru]

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MISCELLANEOUS MISSISSIPPI

Jason Bried

(I'm writing this article the day before school starts, fearing and knowing that once it starts that's all it'll be…bye-bye dragonfly for at least a while. Let me say that it's been an extremely enjoyable and educational inaugural dragonfly season for me. From the beginner's self-trials (e.g. being tormented by the dichotomous keys, desperately searching for the hotspots in the field, etc) to the meetings and working with some interesting, enthusiastic people, it's all been extremely positive. I'm sure I'll be working with dragonflies for the long run, whether directly or peripherally, as a hobbyist or scientist. Thanks for getting me started George and Phoebe Harp, Nick and Ailsa Donnelly, John Abbott, Steve and Mary Jane Krotzer, Steve Roble, and the rest. And to Drs. Richard Brown and Gary Ervin of Mississippi State University (MSU), thanks for providing the necessary equipment, from the aerial nets and acetone to those deep south quintessentials: Iva-rest and Chigger-X)

In my lifetime two months of collecting, July 18th was my luckiest day; two state records and I hadn't even intended to swing a net that day (does it usually work out like that?). Becky Woods, Private Lands Biologist with the US Fish & Wildlife Service, was guiding me around to some potential sites for doing my thesis work on the Tallahatchie National Wildlife Refuge in northwest Mississippi. We drove out to the tip of Long Brake, the peninsular shaped floodplain attached to Tippo Bayou, a perennial 2nd or 3rd order brown-water creek. We got out to look at the bank vegetation and soon noticed a few gomphids, their behavior intermittent between perching on snags and flying brief patrols. I went back for the nets stashed in the truck and was eventually able to pancake one. Using Dunkle's "Dragonflies Through Binoculars", we tentatively determined ***Dromogomphus***

spoliatus, and later confirmed with the microscope. Becky said this is probably what she had seen flying in a couple other areas further north of where we were.

Later that same day, I was solo and about 60-70 miles south at Hillside National Wildlife Refuge. While wading knee-deep through a flooded bottomland dominated by water tupelo, black willow, willow oak and bald cypress, I netted a damselfly that was lurking low in a thick stand of *Sparganium* (bur-reed). Once again at the microscope, and in very good company with the Westfall & May book and the MSU entomology department, it turned out to be ***Ischnura prognata.*** Steve Krotzer verified it a couple weeks later.

In the spirit of keeping the streak alive, I went out the following day (July 19th) and sampled an alder dominated palustrine fringe in the Tombigbee National Forest. I came up with ***Argia fumipennis***, another one not on the state list. It made for good drama, but at that point I began to wonder. Could this really be a first for an MS ***Argia fumipennis*** [It was. Ed.], which even an amateur like myself knows is not all that uncommon.

In an effort to remedy the uncertainty, step one was to check out the insect museum collection at MSU, the Odonata portion being comprised mostly of donated specimens courtesy of W. H. Cross. This turned up no ***A. fumipennis***, but I did happen upon a single ***D. spoliatus*** from Mississippi. Ah-ha! Didn't expect the unexpected. But I noticed that Cross had typed a question mark beside the name. Then I realized this specimen did not resemble my ***D. spoliatus***, at least not superficially. Side-by-side comparisons, along with a few ***Dromogomphus spinosus*** vouchers thrown in for good measure, and Cross's ***spoliatus*** gradually morphed into a ***spinosus***, primarily due to obvious differences (despite the condition and old age of the specimen) in thoracic striping, femora coloration and club flange. Verification came from Dr. Richard Brown, insect taxonomist, systematist, museum curator and professor at MSU. At that time he recommended that I contact Dr. Paul Lago in Biological Sciences at the University of Mississippi, who is in charge of the "Ole Miss" entomology collection.

Dr. Lago responded to my inquiry by first saying that their archives were "heavy on beetles", but with some Odonata mixed in, including - guess what - vouchers of ***A. fumipennis***. More surprisingly, interestingly, and importantly, he kindly directed my attention towards what I am assuming is a little known paper (Lago *et al.*, 1979), since it had been published in the Journal of the Mississippi Academy of Sciences, which I liken to a "gray publication", or one not reaching the scientific community at large. The authors examined 887 specimens total from various collectors and collections and came up with 35 damselfly species for the state, ***I. prognata*** not being one of them. It lists 11 counties in which 97 specimens of ***A. fumipennis*** had been gathered. From a quick skim through it seems there are some really good species records in there. Since the DSA MS list now contains 23 damselfly species counting the new ***I. prognata*** and also Steve Krotzer's ***Telebasis byersi*** caught Aug 4th, the Lago paper would significantly upgrade the overall state list (It'd put us ahead of Louisiana!).

As a final check for MS records of the ***I. prognata*** and ***D. spoliatus,*** I spoke with the Mississippi Museum of Natural Science but they turned up neither species.

Working with this dragonfly survey has certainly helped enhance personal resourcefulness. It was fun to re-identify something that had been misidentified. It was reassuring to do a background check for any previous state records of those three species. I think that when you're a beginner you're not only learning and taking notes on things like proper diagnostic features for effective ID'ing, you're also learning to take notes of caution when drawing any conclusions.

(Added Note: With regards to the MSU insect museum, Dr. Brown and I are currently computer databasing the collection, starting with Odonata. Hopefully we'll soon be able to know an exact quantity of voucher specimens and have a quick-easy reference tool for anyone interested!)

Reference:

Lago, P. K., Stanford, D. F., Hartfield, P. D. A Preliminary List of Mississippi Damselflies (Insecta: Odonata: Zygoptera), *Journal of the Mississippi Academy of Sciences*, 1979, vol. 24, ISSN 0076-9436, pp. 72-76.

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DAMSELFLY "PANCAKE NET" MADE WITH FIBERGLASS SCREENING MATERIAL

Paul Lederer, 33 Hamden Avenue, Staten island, NY 10306, (718) 987-1576

Using a regular insect net to capture damselflies has one BIG problem: the net gets wet! One can be collecting dragonflies and sees a damselfly skimming low over the water and PLOP! The damselfly is or is not captured, but the net is wet. To alleviate the problem of a wet net I devised a net specifically for capturing damselflies that can be dried out with one or two sweeping motions through the air. I bought a fresh water fish landing net, somewhat egg-shaped, with the net's "mouth" dimensions being 12 inches X 11 inches. I removed the netting that came with the landing net and substituted a net material made from fiberglass window screening material available at any hardware store. The net is somewhat cone-shaped (actually more the shape of a Phrygian Cap when held in the vertical position) and is free-standing, that is, made so as to maintain its cone shape and not collapse upon itself as does a normal fabric net. I used dental floss as thread to sew together the halves of the net and to sew the fiberglass screening material (net) to the net frame. The netting is free standing, since the fiberglass screening is rigid enough to maintain its "open" shape by merely pushing with my fist into the net's open position. I also used the fiberglass screening to construct a flap to fold over the mouth of the net, connected by string to the net handle, to close the net once a capture is made, making escape of the damselfly almost impossible.

The advantage of this net's construction is that once a "pancake' sweep into the water is made, one good swing of the net removes the water adhering to the net and one need not wait for the net to dry out to continue collecting damselflies.

I found that using this net on damselflies increased my capture ratio because of the time saved in drying out my regular insect net, and also because it dried out so quickly.

If you are interested in schematics, write to me.

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2002 DSA MEETING MINUTES

Sid Dunkle, Secretary DSA

The business meeting of the DSA was convened at the Brier Inn, Lewisburg, West Virginia on 21 June 2002, chaired by president Dennis Paulson. A crowd of 68 people attended the business meeting, while 7 more joined us during the post-meeting trips, for a total of 75, a new DSA meeting record!

Attending the business meeting were Ken Tennessen, Steve and Mary Jane Krotzer from Alabama; George and Phoebe Harp from Arkansas; Rosser Garrison, Andrew Rehn, Kathy and Dave Biggs from California; Mike Thomas from Connecticut; Oliver and Carol Flint from D.C.; Hal White from Delaware; Jerrell J. Daigle, Bill and Esther Mauffray from Florida; Steve and Marcia Hummel from Iowa; Jim Curry from Indiana; Roy Beckemeyer from Kansas; Carl Cook, Ellis, Teresa, and Joseph Laudermilk from Kentucky; Mike Higgins from Maryland; David Fitch and Blair Nikula from Massachusetts; Mark and Marjorie O'Brien from Michigan; Jason Bried and Laura Salmonsen from Mississippi; Duncan Cuyler from North Carolina; Mike May and Allen Barlow from New Jersey; Ailsa and Nick Donnelly from New York; Tom Schultz, Janet Schultz, Alice Phillips, Lou Gardena, Lori Brumbaugh, Barbara Natterer, Jim Davidson, Joel Wachtel, Bob Glotzhober and Dave McShaffrey from Ohio; Steve Valley, Jim Johnson, and Linda Pritchard from Oregon; Clark Shiffer and Daniel Bogar from Pennsylvania; John Abbott, Sid Dunkle, and Ryan Caesar from Texas; Erik Pilgrim from Utah; Don Miller from Vermont; Paul Bedell, Steve Roble, and Chris Hobson from Virginia; Dennis Paulson from Washington; and Hassan, Lollie, Ayne, and Jafar Amjad, Jeff Hajenga, Laura Miller, and Jennifer Wykle, all from West Virginia. Natalia von Ellenrieder came all the way from Argentina! Joining us in Elkins were Brian McDonald and Sandy Raimondo of West Virginia, and joining us for our Ohio River excursion were George Smolka from Indiana, and Patty Morrison, Lydia Little, Matt Person, and Jason Woodward from West Virgina.

The meeting began with a heartfelt round of applause for our organizer and hostess, Jennifer Wykle, followed by the introduction of the DSA officers, and the now traditional handing out of the DSA meeting button by Jerrell Daigle. An added bonus this year was free posters on Kentucky dragonflies provided by Ellis Laudermilk. The 2001 DSA meeting minutes, previously printed in Argia, were approved. Treasurer Jerrell Daigle stated in his report that after expenses for printing Argia 13(3), 13(4), and 14(1), expenses for meeting facilities in Texas and West Virginia, and a travel subsidy for our guest speaker (Natalia von Ellenrieder), our current balance in the SunTrust Bank, Tallahassee, FL, is $11,762.01. Our projected end-of-the-year balance is expected to be about $8,000. Jerrell also reminded us that all dues payments should be sent directly to him at 2067 Little River Lane, Tallahassee, FL, 32311.

The 2003 DSA Meeting will be held the third week of June in California, hosted by Tim Manolis, Kathy and Dave Biggs, and Andy Rehn. Ideas or proposals for future meetings should be sent to

Jerrell Daigle. Dennis Paulson mentioned that while public interest in dragonflies is exploding, we also need RESEARCHERS on Odonata.

Bill Mauffray said that the DSA Incorporation forms were sent in as of 21 June 2002 [DSA is now officially DSA, Inc. as of 9 July 2002]!

Nick Donnelly asked attendees "What species of North American Odonata have been extirpated from major parts of their range?" No one had sufficient information to answer that question, but recent northward range expansions of some Odonata were mentioned: ***Archilestes grandis, Enallagma basidens, E. civile, Dythemis velox, Libellula luctuosa,*** and ***Tramea lacerata***.

The business meeting concluded with a review of the Odonata species seen or collected during the field trips earlier in the day, and an announcement by Ollie Flint that copies of many scientific papers, including the classics by Kennedy, are available though him.

The evening of 22 June 2002 allowed time for 7 excellent presentations: 1) A naturalist's view of dragonflies by Hassan Amjad, 2) A video on the behavior of ***Anotogaster sieboldii*** by Naoya Ishizawa of Japan presented by Roy Beckemeyer, 3) A video on oviposition of Libellulidae and Cordulegastridae by Takashi Aoki and Naoya Ishizawa of Japan presented by Roy Beckemeyer, 4) Neotropical ***Aeshna*** by Natalia von Ellenrieder, 5) Damselflies of Africa by Nick Donnelly, 6) Odonata of western Mexico by Dennis Paulson, and 7) Odonata of Bolivia by Ken Tennessen and Steve Valley.

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DSA INCORPORATION AND NEW NAME

Jerrell J. Daigle, treasurer

As of 9 July 2002, we are now incorporated in the State of Florida as the DRAGONFLY SOCIETY OF THE AMERICAS, INC. This will be our new legal name. We are now applying for IRS recognition of exemption under Section 501(a).

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INTRODUCING THE DRAGONFLIES OF BRITISH COLUMBIA AND THE YUKON. Robert A. Cannings. 2002. Royal British Columbia Museum, Victoria, B.C. 96 pp. ISBN 0-7726-4637-6 (paper). CAN$9.95. The book can be ordered from: Royal Museum Shop, Royal British Columbia Museum, 675 Belleville Street, Victoria, B.C., Canada V8W 9W2
Phone: (250) 356-0505; Fax: (250) 356-8197

Reviewed by **Nick Donnelly**

Many readers of **ARGIA** may assume that this book is a second edition of the excellent manual by Rob Cannings and Kathleen Stuart entitled, "The Dragonflies of British Columbia British Columbia" (Provincial Museum, Handbook No. 35, 1977, 254 pp.). Not so. It is an entirely different book, lavishly illustrated with color photographs. It covers the same fauna as the previous book, with the addition of the Treeline Emerald (***Somatochlora sahlbergi***), an arctic species found in the Yukon only. Cannings has wisely included line drawings of structural details for some of the more difficult genera, making this manual indispensable for the visitor to northwestern North America. The very low price is an additional inducement to buy this very attractive small book.

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THE DRAGONFLIES AND DAMSELFLIES OF OHIO. Glotzhober, R.C. and **D. McShaffrey** (Editors). 2002. Ohio Biological Survey Bulleting New Series Volume 14 Number 2. ix + 364 p. $40 plus shipping and handling ($5) and Ohio Tax ($2.30 if applicable). Send check to Ohio Biological Survey, Inc., P.O. Box 21370, Columbus, OH 43221-0370. Specify whether you want the spiral bound version for easy opening in the lab, or the Smythe-Sewn (stitched) version with a label on the binding; both versions are soft cover. Quantity orders of ten or more copies are available at a 30% discount.

Reviewed by **Nick Donnelly**

This excellent manual will serve workers over a wide range. Although based on Ohio, the fauna of this heartland state is essentially the same from Ontario to Tennessee, and from Missouri to New Jersey. In addition to the 162 Ohio species, there are 18 found in neighboring states that are included in the keys, helping the lucky finder of a new addition to the state odonate fauna.

The introduction of the book recounts the long and illustrious history of Ohio odonatology, with memorial accounts of two recently deceased students of Ohio Odonata: Robert Alrutz and Bernie Counts.

The heart of the book is the keys to species and species descriptions (larvae are keyed to genus). The book is lavishly illustrated, with 460 line drawings and wing scans. State maps show the distribution of all the species in Ohio, and the descriptive accounts includes generous information on the natural history of each species. There are 88 color photos of adults (mainly from Clark Shiffer's excellent collection). The serious amateur anywhere in the northeastern United States and eastern Canada will find that this book will serve as the only reference needed for almost all species encountered in a wide region. It is an excellent accomplishment.

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DRAGONFLIES: THEY'RE RAVENOUS, A LITTLE SCARY AND OH-SO-HELPFUL

Bugs have an appetite for pests and no real drawbacks, experts say

Michael E. Young (from theThe Dallas Morning News 21 July 2002) myoung@dallasnews.com

Forget Eight Legged Freaks and say hello to the Six Legged Carnivores – zooming aerial acrobats and nonstop eating machines that, despite their name, are really, really nice.

OK, they do scare the daylights out of kids (and many adults). But dragonflies, bursting forth in amazing numbers in this somewhat soggy year, are that rarity in the natural world: They come with virtually no downside.

"From the time they hatch to the time they die, they're eating something, and it's always something they've caught," said James Lasswell, a senior research associate in entomology at Texas A&M University's Stephenville extension center.

"They eat gnats and mosquitoes and flies. They love mosquito larvae. They're great things to have."

And this year, we have them, in ample numbers.

For that, thank the bounteous rains and the temporary pools and patches of standing water. They're just perfect for at least a couple of dragonfly species that are buzzing around suburban neighborhoods and open land right now, eating every bug in sight.

"What you're seeing now are the flights of the Wandering Glider and a similar dragonfly, the Spot-winged Glider," Mr. Lasswell said. "Both lay their eggs in temporary pools and such. And this year, they've had ample opportunity to lay their eggs."

Some dragonflies have drawn-out life cycles, spending as much as five years in the naiad stage before reaching adulthood and flying away. But not these two gliders.

"With these, the cycles are very short," Mr. Lasswell said. "On farms and ranches, you'll find their larvae in stock tanks – not stock ponds, but the metal tanks. You'll even find them in birdbaths. Their life cycle is very quick."

And that means they live lives of great purpose – feeding and mating, laying eggs, then perhaps mating again for another brood. There's no time to waste.

"We just got a letter from a man in San Antonio who said he was watching thousands of them migrating – and the Wandering Glider does migrate, in response to what, we're not sure.

"It might be to find food, or maybe they're flying toward a thunderstorm in anticipation of having a place to lay eggs," Mr. Lasswell said.

In cities and suburbs, people often see dragonflies in a frenzied swarm, darting and turning seemingly for the fun of it. More likely, Mr. Lasswell said, they're picking up dinner on the fly.

"You'll see them in the late afternoon or early evening, and they've found a bunch of gnats or something else concentrated in that one area, something we can't see," he said. "They'll be zooming around, four, five, six feet off the ground. I've seen fields just completely covered."

Dragonflies eat incredible numbers of insects, making them a valuable summer ally. Best of all, they don't bite, don't sting and don't carry human diseases, Mr. Lasswell said.

"The only thing they do is scare the kids," he said.

That's because they're big and fast and not particularly shy around people. And the buzz of those gossamer wings will send the strongest man swatting.

"We got an e-mail saying they had a dragonfly move in, and now they couldn't use their pool at different times of the day.

"People need to understand they will not hurt you, they don't carry any diseases, they eat other insects, and they're good to have," he said, repeating a well-practiced list of dragonfly virtues.

And, they're very cool.

They were buzzing around before dinosaurs appeared – fossil records show dragonflies with 27-inch wingspans – and except for being much smaller, the basic dragonfly has changed little.

But they can sport color schemes as dazzling as anything in nature.

Dallas and neighboring counties are home to the electric-red Neon Skimmer, the burnt-orange Flame Skimmer, the orange and black Halloween Pennant and the vivid green and blue Eastern Pondhawk.

"If you look for them, you'll see them," Mr. Lasswell said. "This is a peak time for dragonflies. There are a lot more of the species out now than at any time of the year."

But don't bother catching them for a colorful collection, he warned. When dragonflies die, their colors fade. In death, all dragonflies are gray.

Besides, they're too beneficial to kill. So be kind.

Most of all, "Don't freak out," Mr. Lasswell said.

Dragonflies really are nice. Honest.

BULLETIN OF AMERICAN ODONATOLOGY: just published (vol. 6, no. 3)

ODONATA IN THE GREAT PLAINS STATES: PATTERNS OF DISTRIBUTION AND DIVERSITY

ROY J. BECKEMEYER

ABSTRACT: Through the March, 1999 cutoff date of this study, a total of 320 species of dragonflies and damselflies, 73% of the Nearctic fauna, had been recorded as occurring in the 13 states comprising the Great Plains of the United States. These species are listed together with the Great Plains states in which they occur and the larger biogeographic region to which they belong. A significant latitudinal gradient in species richness was found to be present in the central Great Plains, with 194 species in Texas and 55 in North Dakota. A suite of similarity and diversity measure were mapped to visually display patterns of relationships of the state faunas. This process led to the identity of four faunal groups in the central Great Plains: Texas; Kansas - Oklahoma; Nebraska - South Dakota – Colorado - Iowa; and North Dakota. In terms of Nearctic biogeographical affinities, 43% of the Great Plains odonate fauna is of eastern origin. The large number of tropical species (42) in Texas contributes 14% of the Great Plains total. Northern transcontinental, western, south-western, transcontinental, and central groups contribute 11%, 9%, 8%, 8%, and 7%, respectively. The Great Plains is home to major faunal boundaries and regions of overlap, many occurring in the central tier of states from Oklahoma north through North Dakota. The Bicks' 1957 assertion that the 32 to 36 inch precipitation isolines correlated with the area of overlap of eastern and western species groups in Oklahoma appears to hold true for Kansas as well.

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TRAMEA

With all the discussion about migrating Anax junius recently, we all should consult the North American Dragonfly Migration Project: http://members.bellatlantic.net/~dbarber/migrant/mig.html

Idaho is now represented by a website: http://imnh.isu.edu/digitalatlas/bio/insects/drgnfly/dragfrm.htm This is the "Digital Atlas of Idaho Dragonflies". Written by Mark Lung and Stefan Sommer, it has an introduction to dragonflies, an Idaho checklist, a family tree, visual key and glossary.

A dragonfly site for Denmark is http://home1.stofanet.dk/erland_refling/danish_dragonflies.htm. It is written by Erland R. Nielsen, Kolding, Denmark

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