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ARGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF THE AMERICAS

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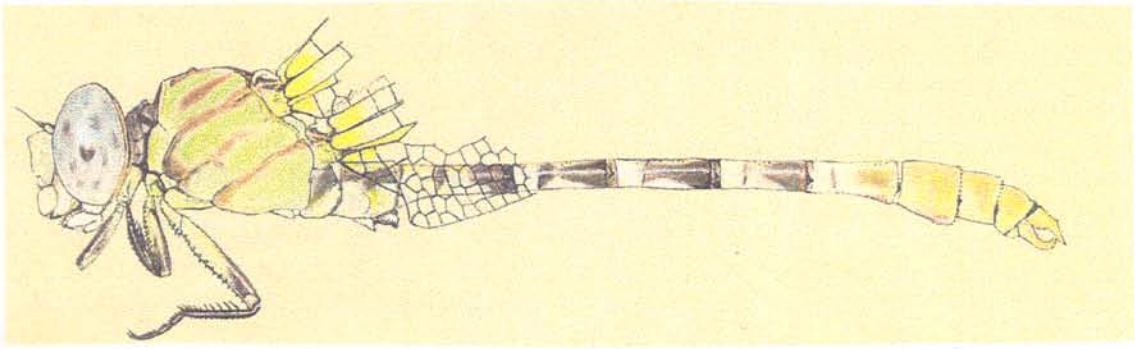

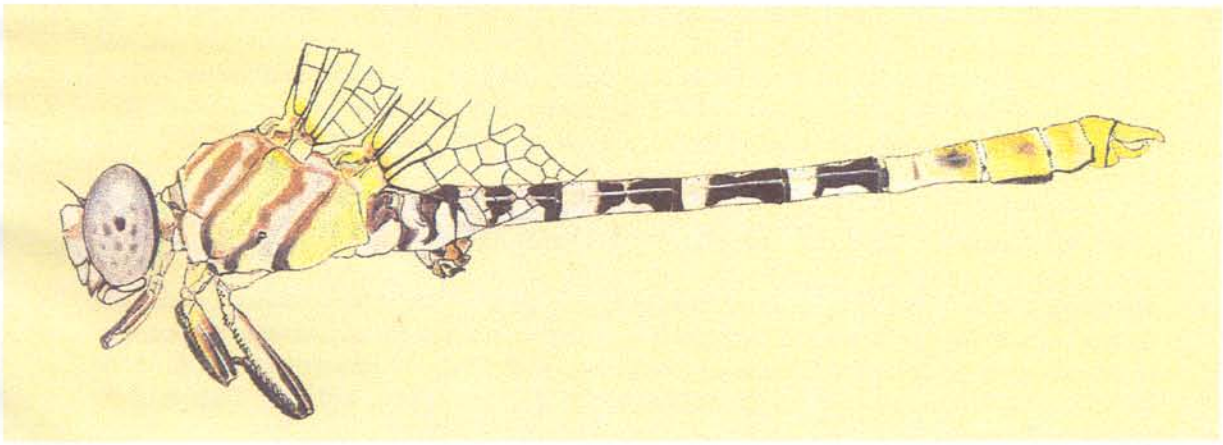

PUBLISHED BY THE DRAGONFLY SOCIETY OF THE AMERICAS

THE DRAGONFLY SOCIETY OF THE AMERICAS

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

JOURNALS PUBLISHED BY THE SOCIETY

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

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

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

MEMBERSHIP IN THE DRAGONFLY SOCIETY OF THE AMERICAS

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

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

Cover: In the Spring a young man's fancy turns to gomphids. . . Pastel drawings of ***Erpetogomphus designatus*** and ***compositus*** by Rosser garrison.

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

IN THIS ISSUE

Well the millennium came and went and no one even noticed that I misspelled the word 'millennium' on the cover of the last issue. However, posters announcing New Year's celebrations here in Binghamton also used both spellings. That's the problem with words we only use every 1000 years. When Y3K comes, I will spell it the other way. . .

The DSA meeting in Vancouver Island should introduce our membership to a lovely place few of them have ever visited. The Pacific Northwest is a fine area, and the post-meeting field trip to eastern British Columbia promises to mix great scenery and great bugs.

There will be two regional DSA meetings this Spring – the Southeastern in the Great Smoky Mountains, TN, and the Northeastern in the Hudson Highlands of Orange County, NY. We urge all people who can join one or both of these trips to do so. Mark your calendars!

Dave Wagner is hosting a dragonfly workshop on the Connecticut River in late May. There should be plenty of gomphid larvae and exuviae to study.

We were saddened by the death of Margaret Westfall after a long illness. Margaret was a good friend to many of us and we offer our condolences to Minter and his children.

The dot map project is now nearing completion. I show two sample maps – one showing the coverage of our data and one showing the recorded range of our most widespread odonate, ***Anax junius***.

The examination of three suspicious specimens in the University of Nebraska collection gives us some very interesting records from the mid-continent. This is another illustration of the importance of collections.

In previous issues **ARGIA** has reported on new species taken in the United States. This time Dennis Paulson supplies us with not one but two new records from the Florida Keys. This emphasizes further just how incomplete our knowledge is of our own fauna.

One of the observations we are all making is that many species of odonates are appearing to increase their ranges. There may be several explanations, including fact that we are collecting far more things now. Some species might simply be taking advantage of man's modification of the environment. But some are genuinely pushing north. The most interesting group consist of tropical species whose ranges might be limited by winter low temperatures, which cause larval mortality. Bob Behrstock documents the rise in temperature in suburban Houston and suggests that some tropical odonates whose ranges appear to be expanding in east Texas might reflect this rise.

I report on the continuing quest for color variants in the three circum-Caribbean species of Orthemis, a skimmer that had been perceived to be so common that it did not merit careful examination. Keep tuned – as of the moment the problem is wide open. But if you want to contribute – net them! And photograph them!

Ginger Carpenter reports on her impressive Rhode Island Odonata Atlas project. This teensy-weensy state has turned out to be a dragonfly wonder world. Richard Orr describes another fine locality in Maryland, a state which has some surprisingly fine habitats.

Ken Tennessen reports on yet another very successful trip to South America – this one his second Bolivian trip. It will be a long time (if ever) before trips down there do NOT turn up new species.

Jane Walker and Joe Smentowski enjoyed a trip to the Boot-Heel region of Missouri, finding swarms of ***Pantala*** and many other good things. Yes, you can collect dragonflies from a canoe if you have good balance.

I give a brief report on a late-season trip to the remote Miskito coast of Honduras. Forests in this area have apparently never been sampled for odonates – in fact there is an area the size of New Jersey that has not been touched, except for some specimens from lagoons just behind the ocean.

Fred Sibley updates us on the Virgin Islands. When I worked there years ago I did not find the odonates very interesting, but he has made a number of stimulating observations.

We have not one, but two, accounts of ***Enallagma*** doing strange things during tandem pairing. In my own experience this sort of thing seems more common among gomphids. Perhaps further observations will be forthcoming.

Mark O'Brien tells the sad story of Leonard's dissertation on the tropical damselfly genus ***Acanthagrion***. His treatment of this speciose and widespread genus has caused years of gried for many tropical workers. This tale should serve as a cautionary reminder to keep one's specimens and observations clearly documented.

We finish with some book notices and an account of a popular article by Rosser Garrison.

A final note: for those of you that like wine (should we have a section entitled "oenea"?), a wine from Giovello appeared a year or so ago. Ailsa found it in a local wine store, and a few members also discovered it. It is an Italian Pinot Grigio, in a blue bottle, with a lovely ***Cordulegaster*** on the label. It is pretty good, if you don't mind a few Calcium tartrate crystals. Noting the raging success of a dragonfly wine, an upstate New York vineyard came out with their own "Moonglow". The vivid label features two dragonflies that looked like they first appeared on black velvet in Gatlinsburg. I am not in the business of reviewing wines, but I will state that only ***Plathemis Lydia*** could exist in this stuff.

CALENDAR OF UPCOMING EVENTS		
26-27 May	Odonata workshop, Connecticut River CT	Dave Wagner
26-31 May	SE meeting, Great Smoky Mts. TN	Jerrell Daigle
9-11 June	NE Meeting, Sterling Forest NY	Karen Frolich, Paul Novak
28-30 July	DSA Annual Meeting, Nanaimo BC	Gordon Hutchings, Dennis Paulson

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VANCOUVER ISLAND DSA ANNUAL MEETING (with possible Okanagan side trip): 27-30 July 2000

Gordon Hutchings, <sea-trek@islandnet.com>
1-250-995-1413

The first Annual DSA meeting of the Y2K will be held in British Columbia, the furthest western province of Canada. We will meet in Nanaimo, which is a strategically located large town on Vancouver Island with adequate access via ferries and flights from the mainland, as well as an easy 1 1/2 hour drive north from Victoria, the provincial capital of tourist fame. International flights can booked into Seattle, Vancouver, or Victoria. Rental cars are available in these cities as well as in Nanaimo itself. We will check in Thursday evening, July 27 at 6:00 pm at the Malaspina College housing facilities and make sure most people have arrived and distribute maps. At that time, we will arrange to meet the following morning at 10:00 in a central parking lot on campus, to get out and collect. Some of the species to be found locally for the next 3 days will be ***Somatochlora semicircularis, S. walshi, S. albicincta, Ophiogomphus occidentis, Cordulegaster dorsalis, Aeshna canadensis, A. multicolor, A. palmata, A. sitchensis, A. tuberculifera, Leucorrhinia glacialis, L. hudsonica, L. intacta, L. proxima, Libellula forensis, L. julia, L. lydia, Sympetrum illotum, S. madidum, S. obtrusum,*** and ***Ischnura erratica.*** Chris Carson, Syd Cannings, Rob Cannings and myself will be available to lead one or more of the groups. Please bring appropriate clothing, liquids and packed lunch for all trips.

Friday, July 28: We will visit the Nanaimo Lakes district which is rich in wetland diversity ranging from bogs, streams, a large river, lakes and ponds, all of which are within a half hour drive. We will have a meeting at 7:00 to 10:30 pm at the lecture theatre on campus after finding meals in Nanaimo which has a great variety of places ranging from sit-down restaurants to several of the well known fast-food chains.

Saturday, July 29: Driving north about 45 minutes to an hour, we visit Summit Lake, and Great Central lake area along Highway 4, passing through Cathedral Grove/MacMillan Park and the town of Port Alberni. Those who are fast, may want to collect at Sunday's scheduled sites on the way back. We will have our last meeting, same place and same time, at which we can conduct DSA business and include some talks and slide shows.

Sunday, July 30: Driving north along Highway 19, we will visit Hamilton Marsh near Coombs and Bowser Bog in the town of Bowser. Some may switch around the previous days sites for this day. For those continuing east, there are regular ferries departing from Nanaimo, going over to the B.C. mainland where we can drive to the Okanagan, approximately 4 to 5 hours away.

Dennis Paulson will be taking over for the Okanagan portion of the trip.

At the time of this writing, I am still nailing down a list of optional motels, hotels and campgrounds but for now, Malaspina College has offered co-sponsorship for this event giving us single bedrooms at $19.95 Canadian per person/per night with a shared bathroom per two rooms. The lecture theatre, which holds about 100 people, will be

rented to us at no cost. At this time of the year, the campus has no food service but there are literally hundreds of choices in Nanaimo itself. For anyone arriving early or staying longer and wanting any ideas of further collecting sites, tourist attractions or any other activities, please don't hesitate to contact me so that I may help out in any way. More details will be worked out for the next **ARGIA** issue. I look forward to seeing everyone again and hope the weather will come through for us all.

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ACCOMMODATIONS IN NANAIMO, BC
(rates in Canadian dollars)

BEST WESTERN DORCHESTER
70 Church St.
(250)754-6835
Toll Free (Reservations Only) 1-800-661-2449
Email: dorchhtl@nanaimo.ark.com
Rate $90-160

BLUEBIRD MOTEL
995 Terminal Ave N.
(250)753-4151
Toll Free 1-877-764-3832
Rate $53

BUCCANEER MOTEL
1577 Stewart Ave
(250)753-1246
Toll Free 1-877-282-6337
Email: bucaneer@nanaimo.ark.com
Rate $55-89

COAST BASTION INN
11 Bastion St.
(250)753-3601
Toll Free 1-800-663-1144
Email: cbastion@nanaimo.ark.com
Rate $85-155

COLONIAL MOTEL
950 Terminal Ave N.
(250)754-4415
Toll Free 1-877-281-4858
Email: colonial@island.net
Rate $50-63

DAYS INN HARBOURVIEW
809 Island Hwy S.
(250)754-8171
Toll Free 1-800-329-7466
Rate $86-90

DEPARTURE BAY MOTEL
2011 Estevan Rd.
(250)754-2161
Email: depbaymo@islandnet.com
Rate $45-50

HOWARD JOHNSON HARBOURSIDE HOTEL
1 Terminal Ave
(250)753-2241
Toll Free 1-800-663-7322
Email: tally_ho@nanaimo.ark.com
Rate $88-118

LONG LAKE INN RESORT
4700 Island Hwy N.
(250)758-5010
Toll Free 1-877-758-5010
Email: reservations@longlakeinn.com
Rate $109-149

MOBY DICK SEASIDE HOTEL & MARINA
1000 Stewart Ave
(250)753-7111
Toll Free 1-800-663-2116
Email: mobydick@direct.ca
Rate $70

SHERATON FOUR POINTS HOTEL
4900 Rutherford Road
(250)758-3000
Rate $125-300 (twin)

TRAVELODGE NANAIMO
96 Terminal Ave N.
(250)754-6355
Toll Free 1-800-667-0598
Email: Travelna@vquest.com
Rate $82-103

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NORTHEAST DSA MEETING IN ORANGE CO. NEW YORK, 9-11 June 2000

The Northeast DSA meeting will be held on the weekend of 9-11 June in the Sterling Forest, Orange Co. NY. The leaders will be Karen Frolich (New York State Biodiversity Research Institute) and Paul Novak (New York Natural Heritage).

Sterling Forest was one of the largest contiguous private land holdings in the New York downstate area. It has recently come into state ownership and is now being assessed for biological diversity. Most of it is rugged Hudson Highlands) with a forest cover and with small lakes, bogs, and streams. It was the site of the discovery in 1989 of a population of ***Gomphus rogersi***. There is also ***Ladona exusta, Enallagma traviatum, Nasiaeschma pentacantha,*** and ***Cordulegaster obliqua*** at or around an unusual and beautiful small hill-top lake in the Hudson Highlands. Come and discover why Orange County has the one of the highest Odonata diversities in North America.

On Sunday Allen Barlow has agreed to lead a group to the Wallkill NWR on the New Jersey- New York border. This promises to be an adventure – there are good insects there!

We have reserved 4 rooms (under DRAGONFLY SOCIETY) AT:
American Budget Inns
Harriman/Monroe Off NY 17 near exit 131; closest hotel to Woodbury Common, Thruway, Harriman
(800) 836-3860; (914) 783-3211 ($59.99 daily)

Here is another possibility: The New Continental Hotel ($55 for one double bed), Route 210 Greenwood Lake, NY 1-914-477-2456

Contact: Nick Donnelly (tdonnel@binghamton.edu) or Karen Frolich (kfrolich@MAIL.NYSED.GOV)

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THE DSA 2000 SOUTHEASTERN REGIONAL MEETING

Jerrell J. Daigle, 850-921-9479,
<jerrell.daigle@dep.state.fl.us>

The DSA 2000 Southeastern Regional Meeting will be held in Townsend / Cades Cove, Tennessee from May 26-31. The purpose of this event will be to conduct an informal Odonata inventory of the Great Smoky Mountain National Park as part of the ATBI (All Taxa Biodiversity Inventory) project. We have a ranger cabin/house reserved for us somewhere in Cades Cove at no charge. It sleeps 6 people, maybe more with sleeping bags, and it has everything except linen or sleeping bags, towels, and food. For the less adventurous, Townsend is 2 miles to the west and it has restaurants and motels, such as: SCENIC MOTEL (423/448-2294), DOCK'S MOTEL (423/448-2234), HEADRICK'S RIVER BREEZE MOTEL (800/879-0047 or 423/448-2389), plus WEAR'S MOTEL AND COTTAGES (423/448-2296). Hotels such as Hampton Inn, Family Inns, and Best Western are available in Townsend.

Please let me or Ken Tennessen know if you plan to attend, or if you have any questions. This will be a really informal meeting similar to last year's in Bolivar, Tennessee. An agenda is still in the works and if you have any ideas or presentations, please let me know. Any updates might be posted on Bill Mauffray's IORI website. See you there!

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MARGARET WESTFALL: 1921-2000

Mike May

Margaret (Shepherd) Westfall was born in Corning, NY, on August 5, 1921 and passed away in Gainesville, GA, on February 9, 2000, after an extended illness. All of us who knew her will miss her gentle good humor, her generous hospitality, and her strength of spirit. She was a person of very deep Christian faith, which she practiced rather than preached. As students of Odonata, we also recognize her contributions to that enterprise through her long and unwavering support and assistance of her husband, Minter Westfall.

Margaret and Minter met in Ithaca, NY, while both were attending Cornell, she as an undergraduate, he as a graduate student. They were married on September 29, 1945. Margaret graduated in 1946, and their son, David, was born at the end of that year. After Minter completed his Ph.D. studies, they moved to Gainesville, FL, in 1947, where they lived for 49 years and where daughters Carol and Holly were born. Also in 1947, Minter published the description of ***Macromia margarita*** in Maraget's honor, from specimens collected some years before near Brevard, NC.

During the early years at Ithaca and Gainesville, Margaret assisted Minter in many aspects of the preparation of the "Manual of the Dragonflies of North America" (for those of you who have not read the Preface, her name is first among the acknowledgments). Later she helped with the typing and editing of many of his papers, drew or redrew illustrations for the Odonata chapters of Merritt and Cummins' "Introduction to the Aquatic Insects of North America" and Stehr's "Immature Insects", assisted with dragonfly curating and keeping up-to-date Minter's extensive reprint collection and bibliographic entries (I well remember her hours typing cards in his office), and co-edited the newsletter, SELYSIA, from 1979-1986.

Margaret was also Minter's companion and co-collector on many research trips, most notably their summers in 1956 and 1959 in Arizona and Colorado, where much of the early research for the "Damselflies of North America" was begun, and trips to Cuba in 1959, Hawaii in 1976, and Venezuela and Ecuador in 1980. Also, they attended together every International Symposium of Odonatology from 1973 in Karlsruhe through 1993 in Osaka, and Margaret truly became part of the international community of odonatists.

It was my personal privilege to know Margaret for 44 years, since my parents moved to a house in Gainesville a block down the street from the Westfalls. As a nine-year old with a passion for "bugs", I soon gravitated to their home and was always made welcome (sometimes with a piece of Margaret's wonderful cake). Margaret's interest and caring spirit were important to me then and continued to be throughout the years. So I speak especially for myself, but also, I'm sure, for all the Westfall's many, many friends in the world of odonatology in extending to Minter, their three children, and 10 grandchildren our most sincere condolences.

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WORKSHOP ON DRAGONFLIES AND DAMSELFLIES OF LOWER NEW ENGLAND, 26 and 27 May, 2000

Leaders: Blair Nikula, Ken Soltesz, Mike Thomas, and Dave Wagner

Friday, May 26th: The morning will emphasis adults and the afternoon nymphs. Each three-hour session will include a general slide talk that reviews natural history, observation tips, collecting techniques, conservation issues, etc. Most of the time will be given over to a "lab identification session" of the southern New England fauna. Friday night, after dinner, Blair Nikula will give a slide talk on the odonate fauna of the Northeast.

Saturday, May 27th: Weather permitting, field trips will be held on the second day of the workshop. One group will visit the Connecticut River to look for exuviae and emerging adults. A second group will head east and visit a local population of ***Williamsonia lintneri***. If it rains we will have a exuviae-fest. It will be a time to wrestle with all those exuviae that have been sitting in vials and plastics bags up on your desks for months (years). Blair has collections from across New England that he wants to tackle. Bring your unknowns: adults, nymphs, exuviae, photographs, etc.

Cost: $50.00. The registration fee will pay honorariums, defray costs of distributed literature (keys), purchase coffee and donuts, etc. (any profits will go to the University's Center for Conservation and Biodiversity.)

Information: Details regarding the program, directions, etc. will be sent to registrants.

Please register early. The last workshop on dragonflies and damselflies filled quickly. To register, send registration information and your check made out to the University of Connecticut, to Burma Stelmak at the Department of Ecology and Evolutionary Biology, U-Box 3043, University of Connecticut, Storrs, CT 06268. Questions regarding registration can also be sent to Ms. Stelmak at sande@uconnvm.uconn.edu. Phone (860-486-2139) or e-mail David Wagner (dwagner@uconnvm.uconn.edu) if you have specific questions regarding the workshops.

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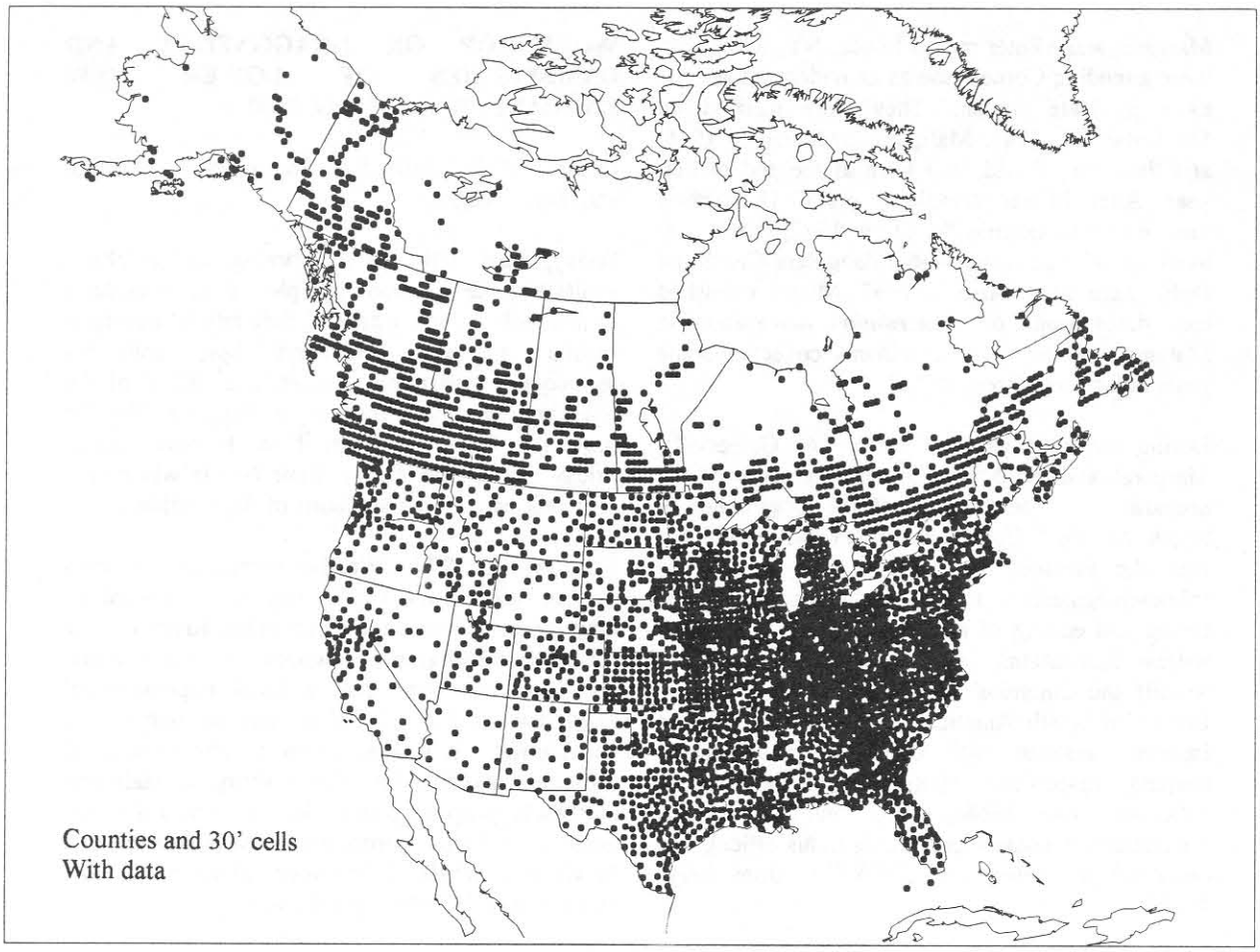


DOT MAP PROJECT NEARING COMPLETION!

NICK DONNELLY

A flurry of e-mails has announced to the participants of the dot-map project that the data set is assembled. There are more than 102,000 records for North America.

I am currently in the process of going over the records and moving some of them into a doubtful category, which means they won't be plotted. Most records in this category are old ones for which the identification is questionable.

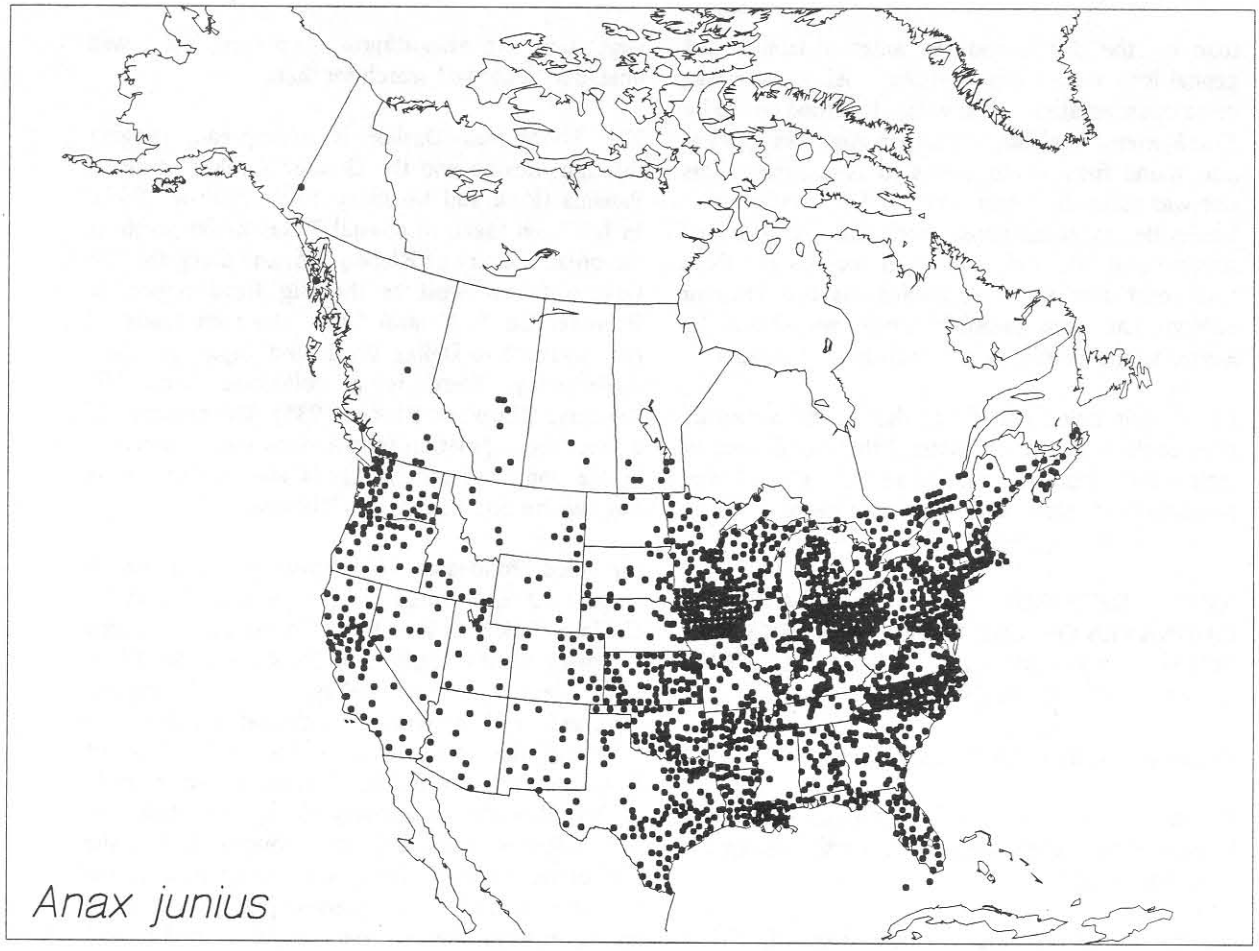
There are some surprises. Many more species than I had expected show a tendency to vagrancy, suggesting that we should re-think our concept of "range" as it applies to Odonata. Several species surprised me by having disjunct populations, and others are common at the extremes of their range and relatively scarce in the center.

I have discussed taxonomic problems in earlier issues of **ARGIA** as well as through e-mail. Some subspecies might be treated as species, and some sibling species perhaps deserve to be subspecies. I will devise a way of showing the results in a useful manner without making my prejudices more than a suggestion.

Accompanying this article are two sample dot maps, showing the Albers projection that I have decided to use. The first shows the location of US and southeastern Canadian counties, and Canadian and Alaskan 30' cells, from which I received data. There are data from 94 % of all conterminous US counties, with only eight states lacking more than four counties (Georgia, Illinois, Indiana, Kentucky, Mississippi, Nebraska, South Dakota, and Texas). I think you will agree that the coverage is fairly good.

The second map is of the range of ***Anax junius***, which is the North American odonate with the most records. This doesn't show, of course, its considerable range south of North America. Note that it has a well-defined northern limit in the East, it is relatively scarce in the Rockies and northern Great Plains, but has been found in Alaska.

I have several records that list Odonata from state only, with more specific location. Some of these are old and remind us of a time when precise localities were not customary. An example is Hagen's 1875 record of ***Tachopteryx thoreyi*** from



Massachusetts ("Uhler Coll."), which is the northeastern limit for the species.

After I consolidate the corrections, I intend to publish a series of maps in the Bulletin of American Odonatology.

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DISJUNCT ODONATA RECORDS – THE AGONY AND THE ECSTASY

Nick Donnelly

One of the little tasks that has fallen on me in compiling the dot map is to try to clean up some of the suspicious old records that have been floating around. I have flagged many suspect records as "highly disjunct", meaning that they seem to be located from the nearest population. This has resulted in a fascinating e-mail correspondence. Records for which the specimen has disappeared (if ever it existed) are being dropped. Others involve a specimen correctly identified, but with the possibility that the specimen was mislabeled.

Recently Roy Beckemeyer asked the kind people at the Nebraska State Museum (misleadingly abbreviated UNSM) to send me three troublesome specimens for confirmation. The first was a ***Gomphus lividus*** from "War Bonnet Canyon, Nebraska" (Don't you just love the name!). It was a female with the last half of the abdomen missing. The details of the face, occipital region of the head, and the front of the pterothorax makes it a ***graslinellus***. This is not very surprising – but ***lividus*** would have been a very disjunct record.

The second was labeled ***Libellula flavida***. It had been taken 25 mi S. of Valentine, which was, coincidentally, the very place the DSA met two years ago in the dreadful hot spell. This specimen was taken on 3 Sept. 1960 by a collector whose name is unclear on the label. (W.T. Atyeo?). It is a ***Libellula auripennis***! I am just slightly less surprised than most of you, because recently I determined this species from Carter County, Missouri. This is a specimen that just loves cold, spring-fed lakes, and there are a few other populations quite a distance from the Atlantic coastline, where it is most commonly found.

The third was even more intriguing. I was unable to believe a record of ***Brachymesia gravida*** from Nebraska. This species lives close to the coast from Maryland to Texas, but penetrates to OklahomaNew Mexico, and Arkansas. This identification didn't seem correct. There was deeper infumation on the basal half of the wing

than on the distal, and the anterior lamina and genital lobe were slightly wrong. Also, there was more open venation in the wing. It turned out to be ***Brachymesia herbida***, a common Antillean species, also found from south Texas to Argentina. This one was taken On 2 Aug. 1914 by E.G. Anderson at Louisville, in easternmost Nebraska. Outside of south Texas, the only other US records are from very south Florida. This reminds us that ***Tramea calverti*** has been taken in Iowa; we should be alerted to the possibility of storm-driven vagrants.

I can't help being grateful to these early collectors who could not have understood the significance of their efforts, but were willing to collect, label, and preserve their catch. This is how we learn.

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NEW RECORDS OF NEOTROPICAL ODONATES ON THE UPPER TEXAS COAST WITH COMMENTS ON RECENT TEMPERATURE INCREASES

ROBERT A. BEHRSTOCK

Recent observations on the Upper Texas Coast have yielded range extensions of several widespread southern species.

Thornscrub Dasher (***Micrathyria hagenii***): On 5 May 1999, during a biological census for the Harris County Flood Control District, I encountered a small farm pond (c. 25 x 7 m) in a narrow strip of partly wooded land between Sims Bayou and Bellfort Rd, SE Houston, Harris Co. In tall, weedy vegetation near the pond, I observed a female ***hagenii***. Being well away from this species' normal range, I wrongly passed it off as a well-marked female ***Pachydiplax***. A minute later, I approached the edge of the pond and was surprised to see no less than eight male ***hagenii*** defending territories from emergent vegetation and branches over the water. Introduced Chinese Tallow trees (*Sapium sebiferum*) shaded the pond, Rattlebox bushes (*Sesbania drummondii*) up to c. 4 m tall and rushes provided perches. Between 10:00 and 10:20, I collected three males, subsequently confirmed by Sid Dunkle. On 7 May, I returned to the site and photographed one male which may be viewed on the Internet at:
http://stephenville.tamu.edu/~fmitchel/dragonfly/Libellulidae/mhag1m1t.htm
A female photographed there 28 May can be seen at:
http://stephenville.tamu.edu/~fmitchel/dragonfly/Libellulidae/mhag1f1t.htm

Returning to the site early on 16 September 1999, I noted that the pond had dried to a small, shallow pool c. 3 m diameter, with no perches or emergent vegetation. No ***Micrathyria*** were seen, but I was unable to linger and search for them.

The Thornscrub Dasher is widespread, ranging through Mexico and the Greater Antilles south to Panama (Bick and Mauffray 1999, Paulson 1997). In has been taken in coastal Texas as far north as the brush country of Kleberg Co, and along the Rio Grande as far west as the Big Bend region of Brewster Co. In Central Texas, there are scattered records north to Dallas, Erath, and Taylor counties. Additionally, there is a collection from NE Arkansas (Harp and Rickett 1985). The presence of a breeding population (copulations were observed) in the soggy eastern lowlands attests that Texas ***hagenii*** are not restricted to "thornscrub."

Pin-tailed Pondhawk (***Erythemis plebeja***): On 4 August 1999, I visited the Joseph S. and Lucy H. Cullinan Park in N Fort Bend Co, where I observed odonates intermittently from 10:45 a.m. to 12:30 p.m. Several private lakes, a small airport, farmland, and extensive residential development surround this park, only a few miles SW of Houston. Upon arriving, I encountered a male ***plebeja*** defending a territory about 20 m diameter, and including open and plant covered water, the end of an elevated boardwalk and an observation platform. It landed infrequently, perching once on emergent vegetation (where I photographed it) and four times on the boardwalk railing. Shortly after noon, I observed a copulating pair in flight over water, and minutes later, a second copulating pair flying over emergent vegetation c. 30 m distant. While watching the second pair, the first male I encountered was flying nearby, so apparently, at least two pair were present. Elsewhere in Fort Bend Co, ***plebeja*** was seen and photographed 8 July 1999 on Elm Lake, Brazos Bend State Park, pre-dating my record by a month (pers. comm. David Heinicke).

Erythemis plebeja ranges from Florida, Texas, and the Greater Antilles south to Bolivia and Argentina (Bick and Mauffray 1999; Paulson 1997, 1999). Along the Texas coast, it has been observed as far north as Victoria Co. near the intersection of the Guadalupe River and U.S. Hwy. 59. There, on 23 Aug 1997, I photographed one of several individuals present at a small farm pond. (On 9 Nov. 1999, this pond was dry.) Recently, Donnelly (1999) discussed finding ***plebeja*** at Palmetto State Park, Gonzales Co., Texas. It has also been taken in Bexar Co., and Kerr Co. slightly to the northwest of Bexar (Abbott 1999). Fort Bend, Bexar, and Gonzalez counties lie in a neat East-West line defining the species' NE limits in Texas. Apparently, ***plebeja*** has penetrated both the Eastern Hill Country and the Gulf Coastal Plain where it may spread northeastward.

Great Pondhawk (***Erythemis vesiculosa***): This widespread tropical species ranges from Florida and the south-central U.S. to Argentina (Abbott 1999, Bick and Mauffray 1999, Paulson 1999). [It has also been taken in New Mexico, Oklahoma, Colorado, and Arizona. Ed.] Although unrecorded on much of the Gulf Coast, Krotzer (1999) reported its recent occurrence in Alabama. It is well established on the Texas Gulf Coast (Abbott 1999), where it appears to be spreading eastward, occurring in temporary freshwater marshes, weedy fields, sun-dappled forest understory, and, in Chambers Co., at the margins of coastal salt marsh (pers. obs.). Recently, Bill Mauffray told me that ***vesiculosa*** has not been collected in Louisiana. During the last several years, I have seen and photographed this species on many occasions in coastal East Texas, noting it in Fort Bend Co. (including Brazos Bend SP and the abovementioned Cullinan Park), and at several sites in East and North Harris Co. Twice, (including 21 August 1999), I have seen 6-10 individuals in coastal live oak and hackberry mottes at High Island, extreme E Galveston Co. On 26 September 1999, I observed at least five in the understory of Sabine Woods, a coastal live oak motte in southeastern Jefferson Co. Sabine Woods is only c. 4.5 miles from Cameron Parrish, Louisiana where ***vesiculosa*** may already occur.

Possible Orange-bellied Skimmer (***Orthemis discolor***): Species limits within ***Orthemis*** remain unclear and surprisingly controversial. Only recently has ***discolor***, a "crypto-species" hidden within populations of similar appearing Roseate Skimmers (***O. ferruginea***), been recognized as occurring in the United States. Paulson (1998) collected a male 17 Aug. 1977 in Fayette Co., TX, and Dunkle (1998) took a male 20 Oct. 1976 in Gonzalez Co., TX. During April 1999, Nick Donnelly (1999, and in litt.), a longtime observer of ***Orthemis***, observed what he refers to as a red form of ***ferruginea*** (or possible an undescribed species of ***Orthemis***) in Weslaco, Hidalgo, Co., TX. On the individuals he collected, the thoracic markings were those of ***ferruginea*** and quite different from ***discolor***.

On 25 Oct. 1999, Paulson posted to dragonflies@listbot.com, a scan of side-by-side, hand-held ***ferruginea*** and ***discolor***, netted in Mexico, commenting: "males of these two species are abundantly different in life, much more so than examination of preserved specimens indicated. There was surprisingly little variation in those we observed in Veracruz, each male easily identifiable as one or the other at moderately close range." This instructive scan may be viewed at:
http://www.ups.edu/biology/museum/Orthemisdisfer.jpg.

On 16 September 1999, I photographed two male ***Orthemis*** including a bright red individual. The images, shot within minutes of each other at woodland edge above the bank of Sims Bayou near the intersection of Telephone and Bellfort roads in SE Houston, Harris Co., TX, depict free-flying, live individuals matching both of Paulson's Mexican captives. Slides of both were sent to Paulson who concurred that one individual exhibited the suite of externally visible field marks by which he feels discolor may be differentiated from ***ferruginea***; red (not dark) eyes, red (not dark) face, red (not pruinose pink) abdomen, reddish (not pruinose purple) thorax, paler reddish legs and all black (not blank and orange) wing venation. A side-by-side comparison of my slides may be viewed at the Digital Dragonflies web site at:
http://stephenville.tamu.edu/~fmitchel/dragonfly/Libellulidae/od_of_m.htm.
On 11 Nov. 1999, I returned to this site seeking a specimen of the ***discolor***-like form. As earthmoving equipment rearranged the landscape, I encountered at least twenty typical ***ferruginea*** but no additional red individuals. During the last several years, I have observed hundreds of ***ferruginea*** in the Houston area; in late summer, they are especially common in weedy fields near water. I have seen only one red ***Orthemis***. Complicating the picture even further is the existence of an undescribed red Antillean ***Orthemis*** found in S Florida. Further collecting in the Houston area will be necessary to confirm the presence of red ***ferruginea***, ***discolor*** or superficially ***discolor***-like individuals of an undescribed species.

Rainpool Spreadwing (***Lestes forficula***): On 5 May 1999, at the abovementioned ***M. hagenii*** site, I collected a female ***Lestes forficula*** (specimen in Dunkle collection). Returning on 28 May, I photographed two male ***forficula*** at c. 11:00 a.m. These images may be viewed on the Internet at:
http://stephenville.tamu.edu/~fmitchel/damselfly/image/lfo_2m1.htm
and
http://stephenville.tamu.edu/~fmitchel/damselfly/image/lfo_1m1.htm.

On 11 Nov., by which time the above mentioned pond was probably dry, I located two additional males in a small, barren, recently created pool just S of Sims Bayou but close to the original site. I collected one male (specimen to John Abbott).

On 14 October 1999, I collected a male ***forficula*** in NE Harris Co. at a shallow, weedy, recently created pond on property managed by the Harris County Flood Control District (specimen to John Abbott). This site is 5.1 miles east of U.S. Hwy. 59, and c.

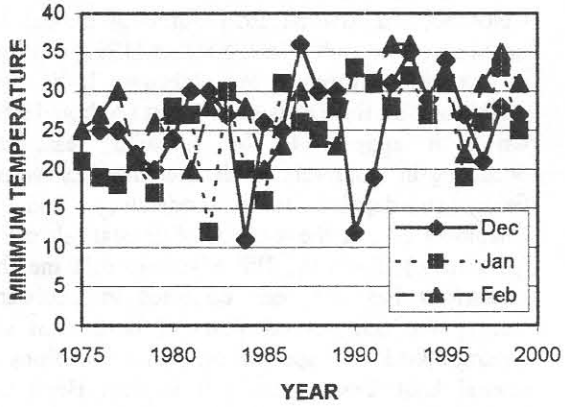
17.3 miles north of the Houston ***forficula*** location. Other Zygopterans on the pond that day included Double-striped Bluet (***Enallagma basidens***), Familiar Bluet (***E. civile***), Citrine Forktail (***Ischnura hastata***), and Rambur's Forktail (***I. ramburii***).

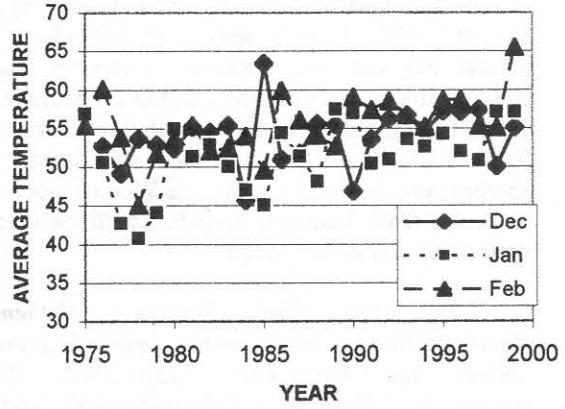
Rainpool Spreadwing ranges south from Mexico and the West Indies to Peru and Argentina (Paulson 1999). In Texas, it is locally common in the lower Rio Grande Valley at open and shaded pond edge and shaded forest understory (pers. obs.). Coastally, forficula has been taken only as far north as Aransas Co. with inland records north to Bexar, Brazos, and Leon counties (Abbott 1999). As with the above species the presence of multiple individuals within and just north of metropolitan Houston is of note.

Some readers may be interested to know that two Neotropical Lepidopterans, Mallow Scrub-Hairstreak (Lycaenidae: *Strymon columella*), also called *S. istapa*, and White-striped Longtail (Hesperiidae: *Chioides catillus*), both at the northern limits of their range, were also recorded at the Houston site that produced four of these Neotropical Odonates.

Factors causing range expansion have been discussed recently in the dragonfly email bulletin: dragonflies@listbot.com. There, Donnelly summarized several possible scenarios (2 Sep. 1999), including true expansions due to increased habitat availability, possible expansions associated with increased observer coverage, temporary straying of wanderers, and periodic invasions at irregular intervals; finally hypothesizing expansion along the northern border of a species' range due to a northward shift in the isotherm that determines winter survival of larvae. Dijkstra and Kalkan (14 Sep. 1999) demonstrated that increased observer coverage in The Netherlands uncovered at least 10 species whose ranges have spread either slowly or dramatically during recent years, or which have reappeared after a long absence. The trend cited by them and others is a northward expansion of southern generalists, often accompanied by a decline in northern and eastern habitat specialists. They refer to favorable climate and habitat availability as the two factors crucial to the success of expanding species, arguing in the process that increased summer, not winter temperatures are responsible for increased survival and dispersal.

Observer coverage in East Texas has not been intense, yet pond habitats have been examined sufficiently for us to know that none of the abovementioned species has been broadly dispersed for many years. At the same time, ditching of roads and fields, and construction of livestock ponds, ornamental water gardens, and water retention ponds increased habitat availability for aggressive southern generalists.





The figures present National Weather Service temperature data from Houston's George Bush Intercontinental Airport (29° 58' N Lat., 95° 21' W Long.). Monthly low and monthly average temperatures for winter (Dec., Jan., and Feb.) are plotted from Jan. 1975–Feb. 1999. Calculations were made for the five-year clusters: 75-79, 80-84, 85-89, 90-94, and 95-99. During the 24 winters, the group minimum temperatures increased: 22.6, 24.8, 26.2, 29.3, 28.1, (the fifth group is a bit lower). The grouped average monthly temperatures also rose: 50.7, 52.5, 53.7, 54.6, and 56.1, representing an increase of about 5 degrees for the total 25-year period. After 1990 we registered 20 degrees or below in two months (for ten years). Before 1990 we registered 20 degrees or below in ten months (for fifteen years). A five-degree temperature increase in winter lows may enhance the ability of some aggressive southern odonates to spread northward.

I wish to thank the staff of the National Weather Service in League City, Texas for making climatic

data available, and Ralph J. Taylor, Harris County Flood Control District, Houston, TX, for giving me the opportunity to make a number of these observations. David Heinicke shared his recent record of E. plebeja. Thanks also to Dennis Paulson and Nick Donnelly for sharing their thoughts on Odonate distribution and identification. Additionally, Donnelly helped me present the temperature data in a more practical and meaningful style than did my original attempt.

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THE HUNT FOR RED ORTHEMIS

Nick Donnelly

(I liked Richard Orr's title so much that I have decided to recycle it.)

Several of us are in the midst of a long-running debate about the colors of the various species (named and unnamed as of this moment) of ***Orthemis*** – the large dirt-common skimmer found around every mud puddle in the circum-Caribbean area as well as the southern United States. As I outlined in an article in **ARGIA** in 1995, there are two named species – ***ferruginea*** and ***discolor*** – from the US south to South America (Argentina, in fact), and a still-unnamed species in the Antilles. Part of our on-going discussion has to do with the various colors of these three entities.

To start with, we lack a good nomenclature for the various colors we are seeing. Red is pretty straight forward, but one form is what I clumsily call "pale gray magenta", and other forms are a medium to pale purple. What we really need is someone who buys lots of nail polish or lipstick to give us a set of trendy names that we can use. We are pretty much agreed that ***ferruginea*** tends to be purplish and ***discolor*** a more reddish color, but we needed observations on the still-unnamed Antillean form.

In Puerto Rico and the Dominican Republic both a "purplish" and a red form have been seen. Are these the same, or is there yet another unnamed species lurking on these islands? Deciding that the snow covering our front fence was a sign from above to leave, Ailsa and I went first to Grenada and then to Puerto Rico to scope out the problem and catch a few rays at the same time. In Grenada we found only one color form, which was mainly red – with a hint of purple. Don't you love this already? In Puerto Rico we found mainly bright red forms, but in the southwestern corner of the island we found purple (I called them "pale gray magenta") and red forms flying together. They seemed to interact at times, but the red forms seemed to stay back from the water for the most part, while the purple forms rarely left the water's edge. The wings of the red form seemed fresher – clearer in color (not yellowed) and not ragged. The wings of the purple forms were often quite ragged and often yellowed – both signs of age.

I conclude that the red form is a juvenile (NOT teneral) stage that "purples" with age and comes to the water's edge to engage in territorial activity. This shift in body color seems nearly unique among the world's Anisoptera. Why red and purple in the first place? Red is at the top edge of insects' color spectrum, so these must seem rather dark and dull to other insects, as well as to each other. Perhaps the red is useful for scaring away birds. But the pale gray magenta probably reflects lots of ultraviolet (it fairly glows in a long-wave ultraviolet lamp) and might seem very bright to other ***Orthemis***. So maturation may be accompanied by "brightening" - to them, but perhaps not to us.

For the moment, it would be premature to consider using the shades of red and purple or whatever for

the purposes of identification. This includes the frons color, which is variable in Texas ***ferruginea***. The three taxa can be nicely distinguished in the hand using the characters I showed in my 1995 article.

We know of other color morphs of libellulid species (***Orchithemis pulcherrima*** of SE Asia has a red and a dull gray morph), but we don't know if maturation is involved in this or other cases. This idea will remain only an idea until someone spends the necessary weeks (probably months) observing these bugs and marking them, in order to understand what seems to be an interesting life history. I think this would be a great topic for someone with patience, a distaste for cross-country skiing, and a love of rice and beans.

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FIRST RECORDS OF TWO TROPICAL DAMSELFLIES FROM THE UNITED STATES

DENNIS PAULSON

On a recent winter trip to southern Florida, Netta Smith and I found so many odonates of interest that I am writing up the results of the trip for publication. The most interesting finds were two damselflies (Coenagrionidae) not reported previously from Florida or the United States.

A single male ***Nehalennia minuta*** (Tropical Sprite) was collected at a tiny sinkhole in pineland near Blue Hole, Big Pine Key, Monroe County, on 6 January 2000. This species was known from the Bahamas, Cuba, the Cayman Islands, and Hispaniola in the West Indies and from San Luis Potosí and Nayarit, Mexico, south to Brazil on the mainland.

The other species is a more surprising occurrence. A male ***Chrysobasis lucifer*** (no common name yet) was collected in a cypress swamp in the Fakahatchee Strand west of Copeland, Collier County, on 10 January 2000. This species was known only from Belize, Guatemala, and Costa Rica, where it is an inhabitant of swamp ponds. An occurrence in Florida, so far from the known distribution, is quite surprising, and I speculate that the species might occur in western Cuba, where several other Central American species are known to be present.

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RHODE ISLAND ODONATA ATLAS: 1999 RESULTS

Ginger Carpenter

This past field season was by far the most exciting on record for Odonata studies in Rhode Island. 1999 was the second year of the 5 year Rhode Island Odonata Atlas, a year which brought phenomenal results in all aspects of the project. From the very beginning it appeared that 1999 would be an unusual year, with early emergence of the first Ringed Boghaunter (***Williamsonia lintneri***) dragonflies to severe drought conditions that brought streams to a halt and wetlands to their lowest levels in years. And when I look back at the year I realize that the accomplishments of a relatively small but intrepid crew of volunteers are perhaps unequaled in my 20 years of work with Odonata.

Despite its focus on a spectacular faunal group, the Rhode Island Odonata Atlas is very much a people project. In the course of two sessions in March 1999, 40 volunteers were trained in field and laboratory techniques, dragonfly and damselfly natural history and ecology, identification, etc. These volunteers come from a variety of backgrounds, from professional and amateur naturalists or biologists to healthcare workers, highly skilled computer analysts, company executives, homemakers, moms, dads, and children. They chose to contribute to the project in various capacities. Some worked in the field, slogging bogs, streams, and ponds while others worked diligently behind the scenes on the tedious task of managing, updating, and analyzing the database, labeling and bagging countless specimens, and spreading the word through the media. Literally hundreds of volunteer hours went into the Atlas in 1999, and the work continues as I write this, with two volunteers completing taxonomic ordering of all 1998 and 1999 material, and another volunteer analyzing our cumulative data for gaps in geographic and taxonomic coverage, abundance, township lists, etc. The Rhode Island Odonata Atlas project is almost completely volunteer based.

The scientific results of the 1999 Atlas are incredible. Over 2300 odonate specimens were collected during the season, spanning 87% of the species known from the state. Since the beginning of the project in 1998, approximately 3600 specimen records have been entered into the database. In total, 8 new species were added to the Rhode Island Odonata list in 1999, bringing the state total to 129 species. All but one of these species were expected here; i.e. they occur in neighboring states and/or habitat is present in Rhode Island. These new additions are the Southern Pygmy Clubtail (***Lanthus vernalis***), Dusky Clubtail (***Gomphus spicatus***), Arrowhead Spiketail (***Cordulegaster obliqua***), Beaverpond Baskettail (***Epitheca canis***), Coppery Emerald (***Somatochlora georgiana***), Canada Darner (***Aeshna canadensis***),

Rambur's Forktail (***Ischnura ramburii***), and Blackwater Bluet (***Enallagma weewa***). The Blackwater Bluet is especially significant as it represents the first record of this southern damselfly in New England. Specimens of the Blackwater Bluet were not discovered in the 1999 material until mid November when they surfaced in a pile of unidentified specimens, making for great post-season excitement. The Coppery Emerald discovered in Exeter is only the 6th record of this emerald dragonfly north of Virginia. Not included in the list of Rhode Island newcomers are two very significant specimen records for the fiery red Comet Darner (***Anax longipes***), which was previously known in the state only by a (reliable) sight record.

One of the first specimens contributed in 1999 served to document a new population of the globally imperiled Ringed Boghaunter (***Williamsonia lintneri***), an early flying dragonfly of cold, acidic, sphagnum-rich fens. The new record is the first population from Newport County. This species is known from only 50 locations range-wide, with 20 (40%) of those in Rhode Island. Its extant distribution, until recently, included only New England states. However, in 1998 and 1999, several populations were located in Wisconsin and Michigan, forming an interesting disjunct Great Lakes population. Ringed Boghaunters are the first odonate to take the air in Rhode Island, and in1999 they were out on April 15, about 5 days earlier than usual.

Also intriguing were numerous new records for the lovely and restricted Scarlet Bluet damselfly (***Enallagma pictum***), which had been reported from just three ponds in the state prior to this year. This species occurs in only 6 northeastern states, generally in the coastal plain. All three pre-1999 Rhode Island occurrences were in classic coastal plain ponds in South Kingstown and Charlestown, very typical to the species' preferences range-wide. In 1999, 10 new Scarlet Bluet populations were discovered here, expanding the local distribution of the species all the way to Foster and Burrillville and out of the realm of coastal plain pond habitat. In addition to new records for globally rare species, the 1999 Atlas produced additional populations for 5 locally uncommon species previously known from just one or two localities in the state.

In the course of the 1999 dragonfly season, a few hotspots of odonate diversity have surfaced which have led to conservation actions on the ground by multiple conservation agencies. One example is a pond and wetland system in Foster that has produced 51 species of dragonflies and damselflies, including one of the new state records (Canada Darner) and three species considered globally imperiled. This wetland system includes a grassy pond with relatively southern coastal plain pond characteristics, a more northern beaver swamp, and a pristine forested stream. Because of the diversity of habitats and the mix of northern and southern vegetative and aquatic features, this site supports extraordinary diversity and numbers of dragonflies and damselflies. As a result, we observed an interesting mix of northern and southern species at this site. In a single swarm of giant darner dragonflies, the striking northern Canada Darner was flying side-by-side with the more southern and coastal Mottled Darner (***Aeshna clepsydra***).

Several fun and well-attended Atlas events took place this year. Volunteers gathered one evening each month at the Conservancy office to view fully prepared specimens and occasional living material, learn identification, and discuss issues or problems. In addition, monthly field trips brought the group together at local ponds and streams across the state. Volunteers were kept updated on progress and what to look for by monthly newsletters. Yet despite the successes of the early years of the Odonata Atlas, more field and lab help is needed. The call for Atlas Year 3 volunteers is out and on April 1, the 2000 season will kick off with a training and organizational meeting. Anyone interested in participating in the Year 2000 Atlas (and beyond) should contact Ginger Carpenter at The Nature Conservancy, at 331-7110.

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THE DRAGONFLIES AND DAMSELFLIES OF FINZEL SWAMP (MARYLAND)

Richard Orr, richard.l.orr@usda.gov

"I think I am going to like this place." These are the first words recorded on my pocket field recorder about Finzel. It was the morning of July 5, 1995. I had just stepped out of the car near the Saw-Whet Owl sign welcoming me to Finzel Swamp. At my feet feeding at the edge of mud pools were over 30 Baltimore Checkerspots and a handful of Compton Tortoise Shell butterflies. The call of an Alder Flycatcher drew my attention away from the rare Maryland butterflies towards the swamp and marshy habitat which was filled with plants that were more at home in upstate New York than the mid-Atlantic.

The 500 acres of Finzel Swamp contain one of the last relict ice age plant communities left in Maryland. Fifteen thousand years ago the great ice sheets, which extended down into Pennsylvania, started their long retreat northward, taking with them the majority of those plants which love the cold. But at Finzel the cold remained, protected from the warming climate by an unique set of

topographic features which formed a cold micro-climate. When the rest of Maryland warmed, Finzel stayed cold. If you wish to see northern plants like larch, wild calla, and Canadian burnet in Maryland, Finzel is the place to go.

The wetlands of Finzel consist of an extensive cold-water swamp, an old abandon farm pond and large areas of marsh. 333 acres are currently protected by the Nature Conservancy. I was asked by the Conservancy and the Heritage Division of the Maryland Department of Natural Resources to survey Finzel for dragonflies and damselflies during the 1995 and 1996 field seasons. They only needed to ask once.

During the two field seasons, I recorded 40 species of dragonflies and damselflies at Finzel Swamp. One species ***Enallagma antennatum*** is known from Maryland only from Finzel and the adjacent surrounding area. The aptly named Rainbow Bluet is reasonably easy to find at the farm pond flitting among the emergent vegetation.

A full list of the odonate species seen at Finzel are as follows: ***Arigomphus villosipes, Gomphus exilis, Aeshna canadensis, A. tuberculifera, A. umbrosa, Anax junius, A. longipes, Boyeria vinosa, Epiaeschna heros, Cordulegaster diastatops, Didymops transversa, Macromia sp.*** (not able to capture for identification), ***Cordulia shurtleffi, Epitheca cynosura, E. princeps, Somatochlora tenebrosa, Celithemis elisa, Leucorrhinia intacta, Libellula julia, L. luctuosa, L. lydia, L. pulchella, L. semifasciata, Pachydiplax longipennis, Sympetrum obtrusum, S. vicinum, Tramea lacerata, Lestes rectangularis, L. vigilax, Amphiagrion saucium, Argia fumipennis violacea, Chromagrion conditum, Enallagma antennatum, E. aspersum, E. civile, E. geminatum, E. hageni, E. signatum, Ischnura posita,*** and ***Ischnura verticalis***.

Finzel is a wonderful place to visit and is open to the public for birdwatching and nature walks year around. Although you will have to leave the net in the car (no unauthorized collecting), be sure to bring a sweater and a pair of close focusing binoculars; I can promise you an enjoyable visit. Finzel borders on Garrett and Allegany Counties near the city of Frostburg. Just go east on 40 out of Frostburg until you get to 546. Turn north on 546 and go 1.7 miles then turn right just as you pass a baseball park. Follow this dirt road for approximately ½ miles to the preserve sign.

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JUST A FEW BOLIVIANOS SHORT

Ken Tennessen, 1949 Hickory Ave. Florence, AL 35630

Bill Mauffray and I decided to make a second trip to Bolivia because we had encountered many intriguing Odonata on our 1998 excursion (see **ARGIA** vol. 10, no. 4, Dec. 15, 1998). So we returned in November, 1999, accompanied by Steve Valley and Paul Miliotis. We rented two vehicles because Bill and Lic. Julieta Ledezma, the Director of El Museo de Historia Natural "Noel Kempff Mercado", at the Universidad Autónoma "Gabriel Rene Moreno" in Santa Cruz had prearranged for us to be accompanied by two new students. The three-week survey we planned would be the first opportunity for Ingrid Vaca González and Malisa Coca Bruno to learn about dragonfly habitats, how to identify dragonflies and how to collect and preserve them for scientific study.

We began by heading north of Santa Cruz to San Ramón, in hope of getting all the way to Parque Nacional Noel Kempff Mercado in northeastern Bolivia in the next few days. The area northeast of Santa Cruz is relatively dry forest and is somewhat hilly; it has been largely developed for agriculture, especially cattle production. Streams are not abundant here, and with the prolonged drought that Bolivia experienced in 1999, we found very little flowing water habitat to explore. Some of the streams that we visited last year had very little flow. Some were even reduced to small pools and some were dry; several appeared to be further degraded by increased cattle production. Still we saw many of the same species that we encountered in this area last year, and added ***Macrothemis lutea***, a new record for Bolivia, and a second new ***Epipleoneura***. On our second day, however, a cold air mass swept in; we shivered in the chilly wind and rain as I showed Ingrid and Malisa how to collect larvae. I hope this did not dampen their enthusiasm for studying larvae. Of course we did not see a single adult that day, as the actual air temperature was about 5°C -- this air had to be straight up from Tierra del Fuego!

The next day we were in San Ignacio de Velasco, a beautiful little town. There is a small central square surrounded by gorgeous flowering trees and other plants, and a large Catholic church with huge wooden doors is situated on one of the corners. The morning was still quite cool, so we went to the Noel Kempff office to make arrangements to visit the National Park. We were told the best road to the area was the one going north out of Santa Rosa de la Roca. By noon the air had warmed quite a bit and so we collected for a while at Lake Guapamo,

which is in San Ignacio. We saw numbers of ***Diastatops intensa***, with its all-black wings (except for red veins in the base of the hind wing) and red abdomen, along with other libellulids and some interesting coenagrionids. I got a small libellulid which I can not place to genus at present. South of town we saw several species of ***Erythrodiplax*** and ***Micrathyria, Miathyria simplex*** and ***Nephepeltia flavifrons,*** and one male that may be ***Oligoclada xanthopleura***. Everything seemed normal this day, so I suspect that the odonates in this region are adapted to unusual cold spells such as we experienced the day before.

So the next day we proceeded west of San Ignacio, visiting several shallow ponds and wetlands along the way. We found the beautiful ***Coryphaeschna perrensi*** (thorax of rather strange appearance with reddish over green), ***Anax concolor, Erythemis haematogastra,*** several ***Erythrodiplax*** species including ***E. ochracea, Micrathyria*** spp. including ***M. eximia*** and ***M. spuria, Tramea*** spp., ***Lestes bipupillatus*** and ***L. forficula, Acanthagrion*** spp. including one species that is near ***minutum*** but may be undescribed, a ***Helveciagrion*** that is not ***chirihuanum,*** and ***Telebasis carmesina, T. carmenita,*** and one other that keys to ***T. fluviatilis*** St. Quentin in the Bicks' key (1995). We also saw but could not catch ***Planiplax***, no species of which is recorded for Bolivia. I think the many wetlands in this area are worthy of further attention. Bill might not want to go back here -- he was at one end of a pond and let out a loud screech, yelling "I think I stepped on a cayman!!"

Late that afternoon we drove on to Santa Rosa de la Roca, as we were told that it is the only place with overnight facilities and a gas station before steering north for the National Park. The only place we could find to spend the night was an "open air" restaurant that also had small wooden "cabañas." I am not exaggerating when I say there was not one thing clean about this establishment, and chickens were running around all over the place. Steve dubbed it "The Chicken Ranch". Guess what we had for supper. We learned something very important at supper however. Two fellows who spoke English stopped in the restaurant, and upon learning that we were planning to visit the park, told us that you have to haul your own gasoline as there is none available anywhere along the road or in the vicinity of the park. OK, decision time -- were we going to buy large cans and haul gasoline, or forego this part of the journey? After much discussing and reasoning, and lamenting, we decided we would have to visit the park on a future trip.

However, we decided we would go north of Santa Rosa a short distance to get some idea of what the habitat was like in this area. We drove about 70 km and stopped at the Rio San Martín, where we spent most of the day. Here we saw many expected species, but also found several we had not yet seen in Santa Cruz dept., such as ***Diastatops pullata, Oligoclada pachystigma, Erythrodiplax anatoidea,*** and an ***Orthemis*** yet to be identified. After leaving the river, we zipped through Santa Rosa, hoping to spend the evening in Concepción. Crossing the gravel road was the largest tarantula I have ever seen -- it looked like a Volkswagon with big hairy legs! Steve and I noticed several large, unusual trees, with trunks constricted at the base and swollen higher up. They looked a lot like a Coca-Cola bottle. We asked Ingrid if she knew what it was, and she told us it was called the "toborochi" tree. We thought she said "Doborochi". Much later, when we learned the correct spelling, we applied our new word "Doborochi" to everything else that was good on our trip. When we got to Concepción, we decided to head back to Santa Cruz. Bill was not feeling well, and there was a strange clanging coming from underneath the vehicle Bill and Paul were driving. The next afternoon it was over 40°C, a change of over 65°F in two days! Neither odonate nor odonatologist was flying.

The next day I got what Bill had. We were both pretty weak, and did not want to venture far from a commode. Besides, it was hotter than the day before, way too hot to go collecting or even drive; we stayed in San Ramón for another day. On the 15th, Bill and I were feeling better, and we drove to Santa Cruz, exchanged the vehicle, got resupplied and headed west toward Villa Tunari in Cochabamba dept. On our way, we collected at a small forest stream near Sajta. Some of the more interesting things here were an unidentified corduliid, ***Phyllocycla anduzei,*** several red-eyed species of ***Argia,*** and ***Mecistogaster linearis***. For the next week we used Tunari as a place out of which to work, and made daily excursions in all directions. I'll just mention some of the more interesting species we found: ***Cora irene, Polythore boliviana, Philogenia buenavista, Gomphomacromia fallax, Progomphus*** sp.?, ***Acanthagrion abunae*** plus a wonderfully strange new species of ***Acanthagrion, Micrathyria dido, Oligoclada abbreviata*** and ***O. walkeri, Argia*** spp., ***Mnesarete regina, Misagria*** sp.? (only one female), ***Palaemnema*** sp.? (family and genus new for Bolivia), ***Lestes jerrelli,*** and a ***Protoneura*** and a ***Micrathyria*** I can not identify. I also saw another ***Planiplax***, but could not catch it. . The biggest thrill I got was at the Rio Chipiridi, N of Tunari. I was digging up gomphid larvae, and had just gotten a few ***Archaeogomphus*** (genus unrecorded for Bolivia, unfortunately I was unable to rear these). On the next scoop, I came up with a 2-foot long

electric eel!! I slowly lowered my dip net, let it swim out, and stood very still

But the most spectacular species of the whole trip for Steve, Ingrid and myself was a polythorid we found in the mountains west of Tunari, on a day when Bill, Paul and Maly went in another direction. We found them at a small tributary to a rocky stream at about 4300'. When the males flew, their wings gave off brilliant iridescent blue flashes, but when the wings were flapped together, the damselfly could barely be seen. And when perched, the wings showed only a trace of iridescence, as our photographs disappointingly show. Upon studying a specimen at home, I found that it is ***Cora terminalis***. In the field I did not even recognize it as a ***Cora***, mainly because the thorax is dull green with dark stripes; I can find no mention in the literature of the wing flashing.

With just 3 days left on our trip, the money crunch hit. Between the four of us we had just enough Bolivianos for gasoline to get us back to Santa Cruz. There are no banks in Tunari nor anywhere near that accept a credit card for cash. Reluctantly we headed back to Santa Cruz, hit an ATM machine, and spent our last two days in the drier country around Samaipata which Bill and I had visited on our previous trip. Despite rather cool and mostly cloudy conditions, we saw many of the same species, including the spectacular ***Castoraeschna januaria***, which I subsequently reared. We also picked up a small purplish ***Argia*** that lives in a hillside seep above the Rio Achira (I have not yet been able to match it with any of Rosser's drawings).

Our species list for Bolivia is growing, and we have explored very little territory. So far we have about 280 species recorded for the country. About 120 (>40%) belong to the Libellulidae, but Coenagrionidae is also well represented. We plan to publish the new records, and there are species to be described. It seems a certainty that many discoveries are yet to be made -- Doborochi!

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SWINGING NETS IN THE "BOOTHEEL"

Jane Walker and Joe Smentowski

The "Bootheel" of Missouri is a large floodplain of the Mississippi River that abuts the Ozark Mountains. Once a vast area of wetlands, it is now intensively drained and cropped with rice, soybeans, cotton, and corn.

Joe and I left for the Bootheel to collect odonates on the morning of August 13, 1999. A cold front had just come through St. Louis and we followed it as it moved south. The sky remained cloudy for the first hour of our drive, and then we drove ahead of the front and out into the sunshine. The temperature was mild for Missouri in August, mid 80's.

All of a sudden we were seeing dragonflies out of the car window, flying in front of the car, and flying along the edge of the road. Most of the dragonflies appeared to be ***Pantala*** sp. with an occasional ***Tramea lacerata*** trying to pace our car. Sometimes they seemed to rise up in clouds out of the plants beside the road as we passed.

We reached our first destination, Cane Creek in Butler County about mid morning. The temperature was beginning to rise and the day promised to be hot. As we pulled off the road, we saw ***Pantala flavescens*** everywhere, around the bridge and over the adjacent soybean field, but not over the creek. Around the bridge I counted about 50 dragonflies swarming over the area. Almost all were ***P. flavescens***, but in the same swarm we also caught ***Tramea lacerata*** and ***P. hymenaea***. Some were perched on the roadside plants, but most were flying from knee level to just above our heads (2.0 m). All of the specimens were teneral.

Our next site, Allred Lake, is a small cypress/tupelo swamp surrounded by a small, floodplain, hardwood forest. Over the adjacent cropland we saw large swarms of ***Pantala flavescens***. Most of the time they were between 1.0 m and 2.5 m off the ground. In the woods and the swamp, ***P. flavescens*** gave way to ***Libellula vibrans***, ***L. incesta***, ***Pachydiplax longinpennis***, and ***Perithemis tenera***.

We dropped our canoe over the boardwalk rail and glided out into the lake. Moving in and out among the five hundred year old cypress trees, the dominant species we saw were ***Perithemis tenera***, ***Pachydiplax longipennis***, and ***Enallagma civile***. It was hot, the temperature was 96 degrees in the shade. Due to drought, the lake was shallow and we were not able to move back into the cypress and tupelo as we usually do.

Across the lake we saw our first gomphid. It had landed on the muddy shore, but the water was too shallow to approach. As we backed out, it flew up and around a large cypress to our right. We continued to back out into the lake and the maneuvered around the tree. We slowly drifted in and re-sighted the gomphid perched on the tip of a twig six inches out of the water. The twig was in the sun and the gomphid, later identified as ***Arigomphus submedianus***, assumed the obelisk position. We continued to drift forward, I leaned slowly over the bow of the canoe, net out for a swing. Oh, no! A male ***Perithemis tenera*** landed on the tip of the gomph's tail. The gomph twitched

and the intruder hovered up and re-landed. The gomph's eyes appeared to slide back and forth and it twitched again. Again the intruder went up and re-landed. Swing now! We captured the gomph, and the ***P. tenera*** escaped.

The next morning the cold front had caught up with us. The air was cool (lower 60's), windy, and the sky cloudy. Driving southeast, we pulled over where a highway crossed the Black River.

As we got off of the highway and pulled around the bridge, dragonflies arose out of the grass and ragweed around us. Again, the dominant species was ***Pantala flavescens***. In these large groupings, one hundred plus, we also caught Tra***mea lacerata, P. hymenaea,*** and ***Anax junius***. In addition to these three, we collected several libellulids around the bridge and around a nearby borrow pit.

Access to the river was almost impossible due to steep mud banks, so we decided not to use our canoe. We did collect ***Stylurus spiniceps*** next to a private boat ramp on the river.

We drove to our next site on a diversion channel of the St. Francois River. It was cloudy and very windy. ***P. flavescens*** was there in numbers waiting for us. They were flying low between the six to ten foot sand ridges parallel to the riverbank. The river was very shallow with a muddy bottom. Joe stalked and caught a ***Gomphus vastus*** in the willow along the bank of a large sand bar.

After lunch we drove down further into Dunklin County and stopped along the main diversion ditch, a series of five parallel ditches separated by 100 feet wide strips of land. The ditches had very little water in them and were somewhat inaccessible. The wind was brisk and chilly. An entourage of ***P. flavescens*** was facing into the wind trying to get below the horizon when possible. The wind at this point made finding other odonates impossible so we moved on. Our last late afternoon stop along a drainage ditch produced a few damsels, including ***Enallagma signatum***.

Our final day in the Bootheel brought only a few new species. We headed for Pemiscot Bayou, the only portion of the Pemiscot River remaining after the 1812 New Madrid earthquake. A nearby ditch was dry, mowed, and plowed over. The foliage between the bridge and the water's edge was brown from herbicides. ***P. flavescens*** was flying over the soybean and cotton fields as well as taking cover from the wind behind a row of trees along the edge of the bayou. A few ***P. hymenaea*** were mixed in with the others.

We continued on to our last destination, Wolf Bayou. Wolf Bayou is an ancient oxbow of the Mississippi River. While the temperature as warmer when we arrived, we still had a brisk wind. We canoed the long, narrow, oxbow lake on the leeward side.

Our biggest find and catch of the day was ***Dromogomphus spoliatus***. Our first one made a beeline in front of us from across the lake. It landed on the mud shore with its head down and oriented to the water with its abdomen cocked slightly upward. Leaning over the bow of the canoe with the net dragging parallel to the shore, Joe dug in his paddle to hold the canoe steady while I flipped the net over. We caught our first one! Up ahead we saw a pair in tandem land in a tree along the shore. We paddled hard to get in position for the approach. Just as we started to get close, the pair left the tree and flew back toward us. They separated briefly and right over Joe's head they went into a wheel. Joe's dilemma: do I continue to hold the canoe in place with the paddle or do I swing now? Joe let up on the paddle, grabbed the net and swung. A split-second decision, but the right one, as he came up with both dragonflies in his net. A splendid way to end the trip. One of the most memorable events of the weekend was the swarms of ***Pantala flavescens***. Sometimes almost appearing like flotillas, we encountered them almost everywhere. They appeared early in the morning, regardless of temperature, angle of sun or degree of cloudiness. They were flying even in the wind, but usually on the lee side of a line of trees, or house, or barn. ***P. flavescens*** seemed to dominate, but scattered in each grouping were a few ***P. hymenaea, Tramea lacerata***, and ***Anax junius***, all teneral. Most of the time they did not appear to be hunting insects or traveling, but just remaining aloft from 0.5 m to 2.5 m above the ground. Many times they were perched in the plants alongside the road or fields and would rise up when disturbed by a passing car. We believe they were pushed ahead of the cold front coming through during the weekend. We looked in every likely place for exuviae, but found no evidence of recently emerged ***Pantala*** of either species.

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VISIT TO A LITTLE-KNOWN AREA – THE MISKITO COAST OF HONDURAS

NICK DONNELLY

In late October of 1999 I visited eastern Honduras to see a Nature Conservancy project in one of the largest areas of contiguous rain forest north of South America. The date was late in the rainy season, which is generally not a good time to visit the tropics for any reason. We flew to a tiny grass landing strip in eastern Honduras and traveled several hours up the Río Plátanos in a "pipante" (the local name for a boat hollowed out of a log)

with a motor. Our small group stayed two nights in a small house owned by local Indian people who accommodate the few hardy visitors that come by, hoping for a bit of rain-forest adventure.

I was able to spend a few hours in the local rain forest looking for odonates. It was not promising; at this late date the sun was low and at no time was there much light down at the level of the tiny streams in the forest. I had to search diligently to find any odonates at all. The only dragonflies were some ***Orthemis discolor*** around the village itself. In the forest proper there were only eight species of damselflies. However, my brief hunt turned up six new records for Honduras: ***Heteragrion erythrogastrum, Argia adamsi,*** and ***Argia johanella*** (the most common ***Argia***) were recorded for the first time north of Costa Rica. ***Metaleptobasis bovilla*** and ***Heteragrion albifrons*** were likewise new to Honduras, but neither are northern records. ***Hetaerina miniata*** and ***titia*** were also there. Perhaps most surprising was an apparently undescribed species of ***Argia*** – a dusky, small form which seems to resemble the Panamanian ***popoluca*** most closely. Not bad for a stroll in the woods!

We returned down the river the following day, idly watching several types of kingfisher flashing by and pausing to follow sun bitterns from time to time. On a sand bar I saw my first New World crocodile – a four foot youngster sunning himself on a sand bar.

I was sitting in front and caught the attention of the young "boat boy" who was watching for snags in the river. He happily wolfed down my trail mix and, for a reason that I can't recall, he insisted that I teach him the words to the Spanish version of "Happy Birthday" – a mind-bending five hours down the river.

At the river mouth we made our way to another small house to spend the last night. Seeing a frigate bird right over our heads, I remarked to a Spanish ornithologist traveling with us that in the West Indies the sight of a frigate bird over the land is a sure sign of a coming storm. The next morning we made our way to the airstrip in a very heavy rain and happily managed to take off just ahead of tropical storm Katrina. When they get names – watch out! This area has the look of a great odonate place, but one would have to visit it in the summer, when the sun is high and the rains have only just started.

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ADDITIONAL COMMENTS ON THE DRAGONFLIES OF THE BRITISH VIRGIN ISLANDS

Fred C. Sibley, 203-729-3582 25 Shirley Street, Naugatuck, CT 06770

In an **ARGIA** note of a year ago I discoursed on an odonate invasion of The British Virgin Islands (BVI) during a strong storm in October 1997. The present note adds to and expands on the BVI list presented there and describes an invasion of ***Pantala flavescens*** following Hurricane Jose.

LIST ADDITIONS -- The previous note proposed the naive view there were no really permanent water sources on Tortola (the largest and tallest island in the BVI). Fortunately publishing this view resulted in several people suggesting the purchase of a map and what to do with it. Not all of the recommended sites have been visited.

The botanical garden in Roadtown, Tortola, has a small permanent pond and this supports a variety of dragonflies. During two visits in mid-October eight species were found at the pond. The three widespread and common temporary pool species (***Ischnura ramburii, Erythrodiplax umbrata,*** and ***Orthemis ferruginea***) were present but uncommon. ***Brachymesia furcata*** and ***Brachymesia herbida*** (both new species for the BVI) were the most conspicuous species. Two individuals of ***Perithemis domitia*** (new as a resident species) were present on both visits. ***Tramea abdominalis*** and ***Pantala flavescens*** were only represented by 1-2 individuals, but the 17 exuviae recovered represented 13 ***Pantala flavescens***, 3 ***Tramea abdominalis*** and 1 ***Brachymesia herbida***. Only one ***Pantala flavescens*** was circling the pond, but when it was collected another appeared in less than a minute.

1999 was an unusual year with rain showers at regular intervals for months rather than the usual few intense showers followed by long periods with no rain. As a result the temporary roadside puddles and ditches had contained water for months rather than the few days or week of a normal year. Dragonflies were exceptionally numerous, conspicuous and widespread. In addition to the normal three species of temporary pools three species normally rare to non-existent; ***Erythemis vesiculosa, Pantala flavescens*** and ***Tramea abdominalis***, were encountered in several places.

At Brewer's Bay, Tortola a small, normally seasonal, stream contained a narrow pool some 100 feet long. In August Lianna Jarecki, biology professor at Tortola Community College, had found larval dragonflies here, so we revisited in mid-October. ***Ischnura ramburii*** were abundant (commoner than I have seen them at any site) and ***Erythrodiplax umbrata*** common. The third of the

ubiquitous species, ***Orthemis ferruginea***, was absent. One pair of ***Tramea abdominalis***, several ***Pantala flavescens*** and several ***Erythemis simplicicollis*** completed the list. Four of the five species were laying eggs but there were no larvae found despite extensive searching.

On Guana Island there are several steep gullies (ghuts) which have small pools after heavy rains. A check of all the major ghuts revealed only one pool still in existence a few days after the last rain. This was a tiny, but deep, rock pool with lots of algae. Sweeping this produced large larvae of ***Tramea abdominalis***. However only ***Erythrodiplax umbrata*** and ***Orthemis ferruginea*** adults were present at the pool. ***Orthemis ferruginea*** larvae (2) were found in a tiny, heavily shaded, semi-permanent, garden pool. Thus in what may have been the best year ever for dragonflies on Guana Island there were fewer than a dozen larvae developing and all in pools that were not present in other years. As in other years the small freshwater seep where the vast majority of the dragonflies congregated and lay eggs was oil coated and didn't have larvae. Only one ***Ischnura ramburii*** was seen this year on Guana Island. This and the scarcity of larvae would support my previous position that the adults seen on the island are all immigrants from other breeding sites.

The BVI list now contains one damselfly and ten dragonfly species. Larvae or exuviae have been found of only 4 species but all except ***Pantala hymenaea*** and ***Tramea calverti*** are now considered to be resident or regular transient breeders. A sight record of ***Anax*** sp? (***junius***) in 1997 and a sighting after Hurricane Jose of an ***Aeshna*** sp? (Oct. 21, 99 on Guana Island) indicate the list is still very incomplete.

RESPONSE OF ***PANTALA FLAVESCENS*** TO STORMS -- The small size of Guana Island and limited water habitat provides an opportunity to document the sudden appearance of dragonflies after a hurricane. In the predawn of October 21 the minimal hurricane Jose passed directly over the island and for most of the day there were sw winds of 30-50 mph but very little rain.

Pantala flavescens suddenly appeared in numbers within hours after the passing of the hurricane. There were 15 in one spot and the species was widespread on the island. In the afternoon a single female was laying eggs at the seep. Prior to the hurricane there had been sightings or possible sightings on only 5 of 14 days and never more than 2 individuals. The only egg laying was a female at the recently painted dining room floor.

On the morning of the 22nd (24 hours after the eye of the hurricane had passed) it was sunny and calm and there were at least 6 pairs at the seep and several unattached males patrolling. Four of the females laid in tandem, one with male guarding and one separately.

It appears that the storm conditions stimulated the individuals to move, congregate and breed. The species was certainly uncommon on Guana prior to the storm and although more common on Tortola there were no concentrations or egg laying observed. Unfortunately we left the island at 10AM the 22nd and were not able to watch the conclusion of this buildup.

ACKNOWLEDGEMENTS
We want to thank the Jarecki family, the Falconwood Foundation and Skip Lazell of The Conservation Agency who in different ways combined to make our trip to the British Virgin Islands possible. Thanks to Nancy Woodfield of the National Parks Trust for information on the botanical gardens, and to Lianna Jarecki for information about Brewers Bay.

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MISMATCHED MATING ENALLAGMA

edited from an e-mail from **Fred Sibley**

During an afternoon of canoeing the length of Cayuta Lake [Schuyler Co. NY] I found several ***Enallagma*** pairs and caught two of several seen. All were having an awful time flying. I kept expecting them to crash into the water where I could easily scoop them up. The males were tiny compared to females and even with a slight wind were having trouble staying airborne and following any sort of direct path. They were amazingly difficult to catch, but that's part of the problem of being alone in a canoe. The lake at this point has a loosestrife border and swampy ground back from lake. The water is 2-6" deep and full of emergent vegetation and floating weeds.

When examined the next morning, the pairs turned out to be ***Enallagma carunculatum*** and ***E. geminatum***. Being a beginner, I realized that the female of the ***geminatum*** pair must be something else but didn't question the ***carunculatum*** pair. Now with a complete check of 1999 material the female "***carunculatum***" is really ***Argia moesta*** and the "***geminatum***" female is ***exsulans***. Mismatched pairs are mentioned here and there in the references, but I thought were normally closely related things (i.e. ***Sympetrum***). Assuming I'm wrong on that, and an occasional ***carunculatum / moesta*** pairing would be expected, does it often happen that you have a group of mismatched pairs

together? The two I caught were certainly not the only ones, and at least two pairs were in sight simultaneously after that. The stretch of shore where they were encountered was 100 yards or so long. Sorting out repeated sightings of the same pair is difficult but a minimum number of 5 pairs and perhaps 10 if one assumes pairs did not come out a second time from shore. Both pairs caught were flying in tandem and observed for 30 seconds to a minute before being caught.

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THE OCCURRENCE OF A MALE - MALE TANDEM PAIR OF *ENALLAGMA* DAMSELFLIES IN MECOSTA COUNTY, MICHIGAN.

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In the various species of damselflies (order Odonata), the coupling of male and female partners prior to sexual contact is accomplished by the male of the species grasping the female in a specially fitted area behind the head on the first thoracic plate. At this time the coupling is termed to be "in tandem" and the pair may fly about for some time in this manner before mating and laying eggs. Male-female couplings are a common sight around the edges of and over lakes, marshes, temporary ponds, streams and rivers.

However, on rare occasions, male-male tandem couplings have been recorded. Corbet (1999) lists male-male couplings of conspecifics in 16 species among seven genera and heterospecific couplings in eight species in four genera. In the listing (Table A.11.13), the male-male coupling of species in the genera ***Enallagma*** is not noted, either as a conspecific or heterospecific.

On 22 June 1999, I collected an unusual appearing pair of blue male bluets (***Enallagma*** sp.) on Townline Lake, Mecosta County, Michigan (Section 6, Colfax Township, T15N, R9W). On this evening, large numbers of *Enallagma* damselflies were observed over the weedy portions of the lake, over lily pads and among the vertical rushes; many were in tandem. Thousands of exuviae were also observed gripping the rushes. The following ***Enallagma*** species were caught and/or observed (identified with hand lens – catch and release): Skimming Bluet (***Enallagma geminatum***), Hagen's Bluet (***E. hageni***), and Slender Bluet (***E. traviatum***). Numerous other species of both damselflies and dragonflies were also active. Upon identification under a microscope (verification by Mark O'Brien, Univ. of Michigan Museum of Zoology, Insect Division, Ann Arbor, Michigan), I found the tandem pair to be a male-male coupling of the Skimming Bluet and Slender Bluet. Corbet's table of male-male parings draws from nine sources, none of which lists the genera ***Enallagma***. This pairing of two different ***Enallagma*** species may be a previously unrecorded generic heterospecific coupling observation.

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Acknowledgements: Thanks to Mark O'Brien of the UMMZ for verification of the species.

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LEONARD'S *ACANTHAGRION* SPECIMENS PRESENTS CONTINUING PROBLEMS FOR THE UMMZ

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Over the past several years, I have fielded several requests for loans of some of the species described by Justin W. Leonard in his 1977 publication, "A revisionary study of the genus ***Acanthagrion*** (Odonata: Zygoptera). Univ. Mich. Mus. Zool. Misc. Publ. 153, 1977." Unfortunately, that publication has caused me a great many problems due to its underlying nature. Although our type collection is in great condition, and our Odonata collection is now very accessible, the same cannot be said of the ***Acanthagrion*** specimens. The result is due to a number of questionable decisions made by people with good intentions. Leonard's work was published posthumously by the Museum, due to the work of Leonora K. Gloyd and B. E. Montgomery. Justin Leonard started work on ***Acanthagrion*** in 1932, as a student of E. B. Williamson. Williamson's untimely death in 1933 did not deter Leonard from his study of the genus, which he completed in 1937. It is very unusual to publish a revisionary thesis 40 years after it was written (which Gloyd acknowledges in the text) and even more critical, is the fact that little of the material in our collection was labeled by the Leonard. Subsequently, anyone working with the ***Acanthagrion*** specimens used by Leonard has had to decipher his cryptic species designations from his notes, as Montgomery had attempted to do, but apparently Gloyd did not (It is unclear if she attempted to so). One might get the impression that the thesis was basically ready to be published, but in fact, Gloyd spent a considerable amount of time editing the thesis, as well as assembling it for publication after Leonard died in 1975. In Leonard's obituary (Gloyd, 1976), stated that "... Nevertheless, being a very capable student and

artist, he wrote a thesis of high quality well illustrated with 163 beautiful and accurately drawn figures. In it, he described 14 new species. Because of insufficient funds at that time, it was not published by the Museum. During the years since then only two or perhaps three of these species have been described by other authors. Because so few may be synonyms, the thesis has now been accepted for publication as a memorial number of the Miscellaneous Publications of the Museum, with only a minimum number of minor changes and without attempting to update it or to include the hundreds of specimens of this genus now awaiting determination." How usual it is for a revision to be accepted when known synonyms exist in the ms.? Gloyd did add an appendix to the publication, and she indicated which species might be synonyms of species described since 1937.

Ultimately, the author of a revision is expected to properly label and designate the specimens used in the revision. How else can subsequent systematists correlate the text of a revision to the actual specimens purported to be studied? In this case, that final bit of protocol never took place. Not only was Leonard deceased, but also he had never labeled the specimens he'd studied with his new names. Certainly, many of them bear "species c," "species e," etc. on the triangles, but many did not. Furthermore, as specimens get moved around over time, I have no way of knowing if what we have is in the same order that Leonard left the material in. I presume that Leonard would have completed that facet of his work, had he published his thesis, but he never did. Anyone working with that material must have been quite frustrated and I suspect that Gloyd, as fastidious as she was about proper procedure, let emotion overrule common sense when it came time to honor Leonard. This is really very unfortunate, since the principals involved in the matter are all now deceased, and whatever thoughts they held about publishing the thesis are gone. In addition to the specimens that Leonard worked with for his thesis, there are many hundreds of ***Acanthagrion*** collected subsequent to his thesis, but were not examined by him. Rosser Garrison has searched through most of the Leonard material but had not found the types for ***A. jessei***, ***A. rubrifrons*** and ***A. abunae*** Leonard.

This is not to put down Leonard's work on the genus, which was thorough for its time (1937) and I have been told by Rosser Garrison that the descriptions are very well done, so that one can readily discern the species from his keys and illustrations. It is unfortunate that he never published the thesis in a timely manner. However noble their intentions, Gloyd and the UMMZ editorial board should have left an outdated thesis alone, rather than giving Leonard a "tribute" by publishing his thesis after his death, and then not properly curating the material afterwards. Furthermore, the Museum of Zoology should never have published the posthumous manuscript without outside review. It is indeed ironic that instead of a tribute to Leonard's hard work, we have a confounding number of specimens that still await identification and correlation with a manuscript.

The lesson here is that an author of a revisionary work is responsible for ensuring that the specimens under his or her care are part of that work, and the revision is not finished until the specimens have been properly labeled and corroborated with the published work. Otherwise, future systematists will face problems similar to those above and question the integrity of the work. Since Leonard had died, there is no way he could have performed that final task, and the actions of Gloyd were reckless in not considering the ultimate disposition of the specimens.

This story need not have an unhappy ending. I am hopeful that someday, someone will want to spend a few weeks at our collection poring over the ***Acanthagrion*** specimens, and he or she will finally assign the right specimens as types, and sort the myriad of undetermined ***Acanthagrion*** into Leonard's and others' species.

REFERENCES

Gloyd, L.K. 1976. Obituary - Dr. Justin W. Leonard. Odonatologica 5(3):287-290.

Leonard, J.W. 1937. A revisionary study of the genus ***Acanthagrion*** (Odonata: Zygoptera). Ph. D. Thesis, University of Michigan, 267 pp., 9 plates.

Leonard, J.W. 1977. A revisionary study of the genus ***Acanthagrion*** (Odonata: Zygoptera). Univ. Mich. Mus. Zool. Misc. Publ. 153. 173 pp.

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BOOK NOTICE

COMMON DRAGONFLIES OF CALIFORNIA, A BEGINNER'S POCKET GUIDE, by **Kathy Biggs**

If you have friends or relatives in California (or a state bordering California) whose interest in dragonflies you'd like to encourage, then you might be interested in Kathy Biggs' new book "Common Dragonflies of California, A Beginner's Pocket Guide" which will be available starting May 8th. The softbound book (5.75" X 4.5") has 96 pages, and is designed to be taken into the field in a pocket. There are 58 pages with photos covering a total of 77 of California's most common dragonflies and damselflies. A checklist of all California

species is included. The book contains 111 color photos (including many by DSA's own Bob Behrstock), with scanned live dragonflies on the 6 family pages. For each included species there is information on size, denoted both in mm and by a graphic line, a description of the male and female, a comparison to similar species, habitat information, current known flight period, and remarks on behavior. This is the first guide available for this western area. The book has a companion website with distribution maps, which are updated twice yearly and additional information. If you have Internet access you may order the book through the website: California Dragonflies and Damselflies http://www.sonic.net/dragonfly. Otherwise, those interested can send a check or money order for $10.95 plus $2.00 shipping to Kathy Biggs c/o Azalea Creek Publishing, 308 Bloomfield Rd, Sebastopol, CA 95472-5161 or call Kathy at 707-823-2911. A special presale discount price of $9.00 plus shipping is available only through May 1st using the website order form or by mentioning "**ARGIA**" on the order.

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GEORGIA ODONATA UPDATE (1999)

Bill Mauffray, International Odonata Research Institute, Gainesville FL, <iori@afn.org>

The preliminary list covering the Odonata of Georgia (Mauffray, 1998-2000) was published on the Internet about two years ago. Since then numerous additions of data have been added by a variety of contributors: Giff Beaton, Bob Behrstock, George Bick, Jerrell Daigle, Sid Dunkle, Steve and Mary Jane Krotzer, Dennis Paulson, Dirk Stevensen, Ken Tennessen, Minter J. Wesrfall Jr., myself, and others. You could say that an unofficial Georgia Odonata Survey has been formed. Georgia is the only southeastern state which has not had an extensive survey of its Odonata. Additional records have been obtained from literature, and from data obtained personally from the University of Georgia collection in Athens, Ga., plus from the FSCA and IORI collections in Gainesville FL., and during the summer from 1999 from the USNM. Eight species have been added to the list (Mauffray, 1998a, 1999).

During 1999, several have reviewed the web site and have made a number of recommended changes and corrections. These were implemented during the fall and winter of 1999

I expect to run the web site list for a couple of years before publishing a hard copy in B.A.O. Please view the list at www.afn.org/~iori/galist.html. If you have any additions for the list please send them to Bill Mauffray iori@afn.org

References:

Mauffray, B (1998-2000). The Dragonflies and Damselflies (Odonata) of Georgia. http://www.afn.org/~iori/galist.html

Mauffray, B (1998a). Some new Georgia Odonata Records. Argia 10(3): 24

Mauffray, B (1999). Georgia Odonata Update (1999). Argia 11(1): 29

SPECIAL OFFER FOR STUDENTS: A REDUCED RATE SUBSCRIPTION TO ODONATOLOGICA

Bill Mauffray, Gainesville FL, <iori@afn.org>

Students in the Americas (Central, North, and South) can now qualify for a reduced cost subscription to Odonatologica for 2000. Any student (not already subscribing to Odonatologica within the last 2 years) who would like to obtain a subscription can apply for the special student rate of $56.00 (includes postage and handling). The conditions are that the student must provide a brief statement of their interest and work in Odonata and must make a commitment to provide the IORI library with at least one copy of all reprints, articles and their thesis covering Odonata subjects. This rate will continue for up to four years and will adjust annually with the normal subscription rate: regular rate - $28.00. The difference is paid by the IORI.

As an added incentive, an additional 10% discount will be added to all publications purchased through the I.O.R.I. during 2000-2001. This includes the forthcoming revised Manual of the Dragonflies of North America (see article in this issue) due out in June; and this is over an above any other advertised discounts. This will reduce your net subscription cost to about $47.50 if you buy the "Manual."

This special is valid only in the Americas. The Odonatologica Subscription/ Foundation-SIO application can be copied from the web site at: www.afn.org/~iori/siomemb.html or you can simply write a note requesting a subscription along with a brief description of your studies or interest in Odonata and at which university, school, or institution. Please include your name, mailing address, phone number, fax number and e-mail address and send along with a check or money order in US funds to:

Bill Mauffray, International Odonata Research Institute, % Div of Plant Industry, P.O. Box 147100 Gainesville FL 31614

UPDATED MANUAL OF THE DRAGONFLIES OF NORTH AMERICA: EXPECTED JUNE-2000 NOW TAKING ADVANCE ORDERS

DRAGONFLIES OF NORTH AMERICA by James G. Needham, Minter J. Westfall, Jr., and Michael L. May 2000 ca. 650+pp. ca. $80.00

The long-awaited monographic revision of the classic "Manual of the Dragonflies of North America", by Needham and Westfall (1955) is expected in June of this year. It will include numerous additional species described, or discovered within the area treated, since 1955. Including northern Mexico and the West Indies. A total of about 360 species will be treated. Revised keys to species and revised diagnoses will allow identification of all adults and known larvae of these important aquatic insects. Revised by Westfall and May, this work is the companion volume to the new book on damselflies of North America, published in 1996. Numerous new illustrations are included for all added species, plus several pages of color plates. The work will include a revised checklist to species, an extensive bibliography, glossary, and index.

The IORI, by special arrangement with the publisher, is now taking advance orders at a discount from the estimated publication price of $80.00. Our price is $77.50 (includes P&H) in the United States, and $80.00 Outside the U.S. (includes S&H). [See special price to commemorate the DSA 2000 meeting below] There is a chance that page and production cost will drive the cost up, and postal rates may also go up; but, if you order in advance, you will be protected from the potential price increase. This offer is valid until, July 31, 2000.

Make your check to I.O.R.I. and send it along with a note requesting the updated manual to:
Bill Mauffray, International Odonata Research Institute, % Div of Plant Industry, P.O. Box 147100 Gainesville FL 31614

Credit card orders will be taken for orders placed from outside the United States only for Master and Visa cards. Please be sure to include your mailing address, phone number and e-mail address. Your copy(s) will be shipped within a week of receiving them from the publisher.

IORI BOOK SPECIALS TO COMMEMORATE THE DSA 2000 MEETING

Since I am flying to the British Columbia meeting, I will not be taking a lot of "extra baggage", so I will not be peddling books and supplies at this meeting; however, the following special offer is made to commemorate the 2000 DSA meeting. [This offer is not published on the IORI web site]

Order the revised dragonfly Manual by Needham, Westfall, and May described above for $77.50 U.S. or $80.00 Outside the U.S. (Includes P&H) and get 100 free 3.25 x 6in cellophane envelopes. Order Sid Dunkle's "Dragonflies through Binoculars" for $30.00 U.S., $34.00 Outside the U.S. (includes S&H) and get 100 free 3.25 x 6in Poly envelopes for your specimens.

Check out the web site for ordering instructions and other specials www.afn.org/~iori. Please mention this article to get the special. Credit card orders will be taken for orders placed from outside the United States only utilizing Master and Visa cards only. Please be sure to include your mailing address, phone number and e-mail address. Your copy(s), with envelopes will be shipped within a week of receiving them from the publisher.

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HELP! 2001 DSA MEETING PROPOSALS NEEDED!

Jerrell J. Daigle, <jerrell.daigle@dep.state.fl.us >

We need 2001 DSA host proposals for presentation at the Vancouver meeting this July. The 2001 host region is the South West United States. This area covers states such as California, Nevada, Utah, Colorado, Arizona, Hawaii, New Mexico, and Texas.

If you would like to host the meeting, please submit your proposal either to me, Rosser Garrison, or Nick Donnelly. Keep in mind that we have been averaging about 45-50 people the last several years with 64 being the attendance record. Thanks!

As the meetings coordinator, I am soliciting proposals for the DSA national meeting being held in the South East United States in 2002. Also, I am seeking proposals for the SE regional meetings for the years 2001 and 2002. Please let me know if you want to host a meeting in the South East! Thanks! See you soon!

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ARTICLE NOTICE: AERIAL DRAGONS, BY ROSSER GARRISON, in **Terra, Natural History Museum of Los Angeles Co., Summer 1999**

This is an interesting article with excellent photos of odonates from Chile, Thailand, and the southwestern US.

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TRAMEA

Nick Donnelly

There is relatively little to report in this TRAMEA. The most important new site is the USGS site, which has county-level data for the United States of all North American species. The site has been the subject of considerable discussion on the e-mail chat site, ListBot.Com.
http://www.npwrc.usgs.gov/resource/2000/dfly/dflyusa.htm#maps

Another site shows an ingenious wire sculpture of a dragonfly. This site was submitted by Dennis Paulson.
http://www.coolight.com/dfly.htm

The British Dragonfly Society has checked in with a long and detailed discussion about creating and maintaining backyard ponds for dragonflies. I just checked it out (15 March) and noticed it had been updated the previous day! This is one of the most complete discussions I have seen.
http://www.dragonflysoc.org.uk/

Ethan Bright found a web site that displays USGS topo maps. I couldn't get mine to print out well (It may depend on your internet connection), but the display is just like looking right at the map. It will do anything in the US. It's the next best thing to owning a huge stack of maps.
http://www.topozone.com/

Having trouble translating that paper by Ris? Dennis Paulson suggested this translation service. I tried it out and present some phrases that might be useful in the field:
À quelle distance est-il au Gomphus le plus proche?
Meine Erlaubnis für das Sammeln der Libellen ist zurück im Hotel.
Pienso que acabamos de encontrar un Epipleoneura nuevo, Pedro.
Que você esperou? Naturalmente meu suitcase é enchido com o coke da dieta.
Questa jeep realmente è attaccata.
http://babelfish.altavista.digital.com/cgi-bin/translate

Some illustrations of Finnish dragonflies (I can't translate this into Finnish) are at:
http://personal.inet.fi/taide/karjalainen/dragonflies.html

Need a Tee shirt? The National Wildlife Federation is having a sale on its dragonfly tee-shirts and pullovers ($29.97 for pullover; $14.97 for the tee shirt). See it on their website at
http://catalog.nwf.org/201008.html

Voici une adresse française de E-mail de langage pour permuter des nouvelles et des questions au sujet des libellules. Envoyez un message blanc de E-mail à
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