

ISSN 1061-8503

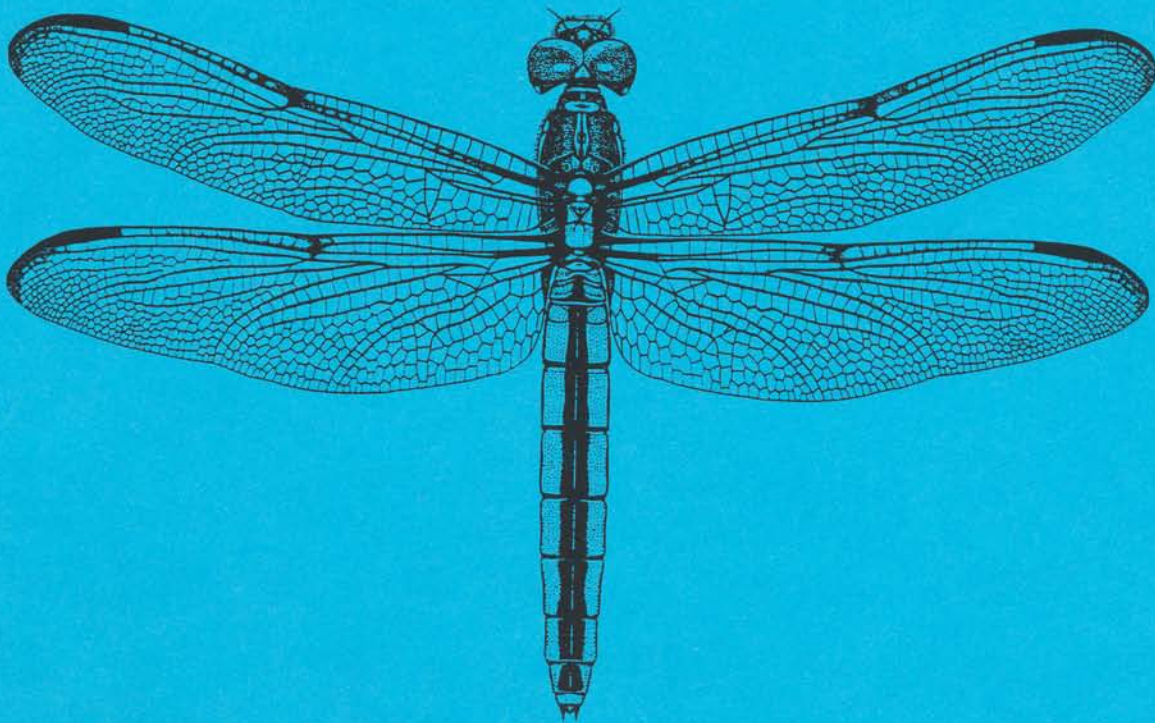
ARGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF THE AMERICAS

VOLUME 6

15 October 1994

NUMBER 3



PUBLISHED BY THE DRAGONFLY SOCIETY OF THE AMERICAS

an affiliate of the

SOCIETAS INTERNATIONALIS ODONATOLOGICA

THE DRAGONFLY SOCIETY OF THE AMERICAS

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

EXECUTIVE COUNCIL 1991-1993

President	G.L. Harp	Jonesboro AR
President Elect	K. Tennessen	Florence AL
Past President	T.W. Donnelly	Binghamton NY
Past President	C. Cook	Center KY
Vice President, SIO Affairs	M. Westfall, Jr.	Gainesville FL
Vice President, Canada	R. Cannings	Victoria, British Columbia
Vice President, Latin America	R. Novelo G.	Jalapa, Veracruz
Secretary	S. Dunkle	Plano TX
Treasurer	J. Daigle	Tallahassee FL
Regular member	R. Glotzhober	Columbus OH
Regular member	M.L. May	New Brunswick NJ
Regular member	T.E. Vogt	Cypress IL

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 and 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 above) 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 are \$10 for regular membership and \$15 for contributing membership, payable annually on or before 1 March of membership year. Institutional (e.g. libraries or universities) membership is \$15 per year. All members receive **ARGIA** via surface mail at no additional cost. For delivery by first class in the U.S. there is an additional charge of \$4, and for Air Mail delivery outside the U.S. a charge of \$10.

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

POSTMASTER: Send address changes to D.S.A., c/o T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903

Cover: *Libellula incesta* Hagen, drawn by Jean-Michael Brunnelle of Halifax, Nova Scotia

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

IN THIS ISSUE

Even though Winter is poised to strike -- the geese have been flying for two weeks and we have had our first hard frosts -- our thoughts are still with the dragonflies. On a geology field trip last weekend I saw what was probably my last bug for the year - a *Sympetrum vicinum* perched on a handsome pegmatite I was showing my students.

George Harp appointed a committee to prepare a set of Guidelines for Collecting based on an earlier set and several written responses. Richard Orr has submitted a draft of the proposed Guidelines, which are, we hope, the penultimate version. Please, if you have criticisms of them, pass them along to Richard so he can prepare the final set for adoption by the Society.

I have also started us down what I hope will be a useful and rewarding path: the preparation of a Dot Map for US Odonata. I am satisfied with the mechanics of the process, and now we need a lot of assistance to make this project a reality.

To remind me of the summer I have received several interesting accounts of trips which I am happy to include in this issue. If nothing else, they will make the frosty days seem a bit warmer as we recall standing with our legs immersed in the warm water of ponds and streams.

Jerrell Daigle has contributed an article on a trip to Wisconsin, Sid Dunkle a trip to the Texas "Hill Country", and John Michalski, the first part of an account of a two-month trip to New Guinea. So interesting is John's article that I didn't want to cut a word. However, because of its length I have divided it into two parts, with the second part in a future issue (depending when the rest of his specimens arrive in the mail).

Ken Tennesen has contributed yet another useful tip for collecting gomphids in rocky streams. When you have just about given up, try simulating a rock. It seems to work for Ken. Maybe I should not wear my hat and let them perch on my head.

Ken sends another note on *Erythemis* larvae which are apparently not house broken. Watch your coffee cup, as he warns.

The account of the North Carolina trip last year reminds us how successful these gatherings have become. Rediscovering *Ophiogomphus edmundo* was a special bonus - thanks to Tim Vogt for that.

This reminds us that we have next year to look forward to. The trip to New Mexico and Arizona in August (timed so as to avoid conflict with the German S.I.O meeting - also in the issue) promises to be, well, a Bonanza!

The Southeastern trip will be in Georgia next Spring. The northeastern trip has not yet been scheduled.

There are a few notes about interesting occurrences of Odonata. Dwight Moody tells of a discovery of *Ischnura kellicotti* in Ohio. This is one of our most interesting damselflies, and anyone who has seen the deep yellow of the newly emerged insect's wings has had a real treat.

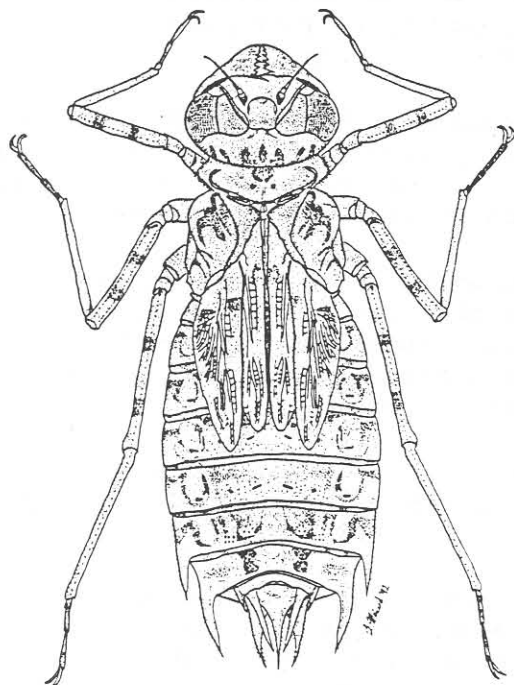
Some additional notes hint at the impressive vigor of activity in Canada - Quebec in this case. Raymond Hutchinson and Benoit Menard continue to make good discovery after good discovery.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

PANTALA TEE SHIRT - A FIRST FOR LARVAE?

All of us have our own little collection of dragonfly tee shirts. I have worn the two "Second Skin" shirts for so long that my wife is now threatening to declare them an environmental hazard. My personal favorite shirt has been the *Ophiogomphus howei* shirt of the Wisconsin Nature Conservancy. However, a novelty is my first ever larva tee shirt - a fine white shirt with the larva of *Pantala flavescens*. If you can't identify it as it jogs past (in my case, shuffles), the name boldly identifies it for all viewers. It is the work of the Quebec odonatist and illustrator Benoit Menard (who has supplied cover illustrations for ARGIA).

Raymond Hutchinson informs me that there are a few shirts left for \$12 U.S. If you are interested write Raymond Hutchinson, 12 La Savane Apt. # 12, Gatineau, QUEBEC, J8T 1P7 CANADA.



Pantala flavescens (on Tee shirt) by Benoit Menard

PANTALA FLAVESCENS BREEDING IN QUEBEC

When Raymond sent me the tee short he included the news that *Pantala flavescens* presently breeds in Quebec. He and Benoit Menard have reared both this species and *hymenaea* from a small pond near Gatineau. This record is especially interesting in that Walker speculated that the eggs and larva of the tropical species *flavescens* would not be viable in Canada.

HELOCORDULIA SPECIES CONTINUE TO PRESENT IDENTIFICATION PROBLEMS

Users of the Needham & Westfall Manual of Dragonflies have long known that the figures for *Helocordulia selysii* and *uhleri* have the labels reversed. It was recently called to my attention that the Canadian volume of Walker and Corbet, which discusses only *uhleri*, uses the figure of appendages of *selysii*. This figure was traced from the incorrect figure of the Needham & Westfall.

The confusion caused by this switch has apparently caused some Canadian collectors to think that they have discovered undescribed species!

CANADIAN ODONATA COLLECTIONS AVAILABLE

I have also received from Benoit Menard the information that he is prepared to furnish collections of Canadian odonata. These consist of 70 species, represented by both adult specimens in cellophane envelopes and exuviae or dried larvae mounted and pinned in boxes. People interested in acquiring such a collection should consult directly with Benoit to find the price and availability. He has furnished two addresses: Benoit Menard, 253, Boul. de L'Hopital, J8T 7C7 Québec, and 58 Smith, Gatineau, J8T 3A1 Québec.

DRAGONFLIES AND THE NEW YORK CITY PARKS DEPARTMENT

Several people sent in a clipping from a recent New York Times telling the story of park ranger Ron Zych, who leads tours for the City Parks and enthusiastically introduces the public to dragonflies. His tour in the High Rock park of Staten Island is called "Dragons of Summer", and the account of it describes a lively, exciting experience. By the time the clippings reached me, the tour had, of course, long since taken place. But if you are in New York next summer you might keep your eyes open for what promises to be a rewarding experience - a tour with Mr. Zych.

WILLIAMSONIA SAFE IN NEW HAMPSHIRE

Another newspaper clipping from Peggy Myers tells of the acquisition of a fen near Durham, NH, by the Nature Conservancy. This fen features a population of the "banded bog skimmer", AKA *Williamsonia lintneri*, a threatened bog species of the northeastern megapolis. The article is an account of a trip to the fen guided by Patrick McCarthy of the local Nature conservancy office. It is nice to know that the Nature Conservancy continues its practice of acquiring good habitats, which, in the long run, will do far more to preserve threatened species than will other efforts to designate individual species as "endangered". Habitat is everything, as this article makes clear.

McCarthy's facile collection of many exuviae might cause a bit of pain for Hal White, who found

just one after an arduous search and described the larval stage from it. Hal will also enjoy the further comment that, holding a pile of exuviae in his hand, "He accidentally breathed in their direction and the handful of shadows scattered into the grass."

ALASKA TO HAVE A STATE DRAGONFLY - *LIBELLULA QUADRIMACULATA*

Would you believe that our 49th state is about to have an official insect and that it will be a dragonfly? No less than *Libellula quadrimaculata*, which ranges all over my own county in New York (not to mention Europe, Asia, and most of the northern US and Canada). Kudos to the Alaskans for rejecting more obvious and appropriate fauna (such as the bedbug), but they certainly could have picked a more typical insect - like one of the *Aeshna* species that literally darken the sky during their brief, sunshine-laden summers. State legislatures typically pick species that the enthusiast would not have picked. In New York the state insect is (perhaps appropriately) an undocumented alien - the Chinese mantis.

CAPE COD NEWSLETTER

Ginger Carpenter kindly sent along a copy of **ODE NEWS**, "An occasional newsletter for dragonfly enthusiasts in southeastern Massachusetts", edited by Blair Nikula and Jackie Sones. The news is extensive: first sightings for the year of several dozen species, notes on occurrences of less common species, behavioral notes (cannibalism is rife on the Cape), a special section on *Celithemis*, and the news that *Aeshna mutata* occurs on the Cape. This last is especially interesting because of an old record of its sibling species *Aeshna multicolor* (see next note) on the Cape.

***AESHNA MULTICOLOR* FROM CAPE COD**

Recently I was looking over the Beatty Collection at Penn State University (see attached note), which has several specimens of interest. John Gillespie (a friend of George and a fine collector active in the 1940's) took *A. multicolor* on a pond near Edgartown, Martha's Vineyard, Cape Cod on 20 August 1943. There is no doubt as to the identity of the species, as Walker himself examined the specimen! This occurrence might be part of a pattern which is worth pursuing: occurrences of

western species along the Atlantic coast. there are multiple records, for example, of *Sympetrum corruptum* along the Atlantic coast.

BEATTY COLLECTION OF ODONATA AT PENN STATE NOW AVAILABLE FOR STUDY

This summer Dr. Steve Moulton, recently appointed curator of the insect collection at the Frost Entomological Museum of Pennsylvania State University, contacted me regarding the Beatty collection of Odonata, which is now in the possession of the University. Dr. Moulton has asked me to convey to the odonate community the availability of this collection for Odonata studies. The address for enquiries is: Dr. Steve Moulton, Frost Entomological Museum, 501 ASI Building, Penn State University, University Park PA 16802.

Between the mid 1940's and mid 1960's, George Beatty assembled possibly the single largest private Odonata collection in this country. In the first stage of his work, he collected extensively in New Jersey and Pennsylvania, with many trips to Florida. Through his marriage to Alice Ferguson, he acquired abundant Texas material. He also exchanged widely, and acquired much Brazilian and other New World material. The second stage, starting in 1957 and continuing at least until 1968, consisted of several trips to Mexico with extensive and truly impressive Odonata collecting.

Because he has been out of touch with other workers for several years, it was not certain how much undescribed material was in this collection, nor the overall state of the material. I recently traveled to State College to examine the collection. I found that several of his "new species" were either old Selysian species whose identities had long been in doubt, or species that have subsequently been named by others. However, in a brief examination I confirmed that there are undescribed gomphids in three genera and at least two or three new Zygoptera. Dolly Gloyd had already been over the genus *Argia* in detail.

This material puts Penn State in a league with the other major institutional collections in the country. The major collections of the US number five: two huge, active collections (Florida, National Museum of Natural History), the largely historic Museum of Comparative Zoology collection, the large collections at Ann Arbor (assembled largely by

Williamson) and Cornell (assembled by Needham). In my estimation the Penn State collection now joins these five as the sixth important collection. This is probably the largest collection of Mexican odonate material north of the border.

Much curatorial work needs to be done. The US material, especially New Jersey and Pennsylvania, is in good shape now for loan and study. The Mexican material will require variable amounts and the South American material extensive amounts of curating.

OLD RECORD OF *TRAMEA CALVERTI* FROM MARYLAND

Clark Shiffer has a specimen of *Tramea calverti* from Ocean City, MD, taken on 22 August 1976. Somehow this older record was overlooked during the recent multiple records of the species in New Jersey and Staten Island, New York.

***ERYTHRODIPLAX MINUSCULA* FROM PENNSYLVANIA**

Now that we seem to have adopted the habit of considering this a distinct species, it is appropriate to note that this tiny dragonfly has been taken again in central Pennsylvania. Once it occurred at the famous Ten Acre Pond, near State College. Clark Shiffer took another at Beaver Lake, Sullivan County, on 19 July of this year.

OREGON *AESHNA* LARVA THREATENED BY THE BAIT INDUSTRY?

Steve Valley recently sent in a packet of letters concerning a fight he has been waging out in Oregon against the fish-bait industry. It seems that bait collectors roll over logs and remove the abundant *Aeshna* larva found clinging to the bottoms. These are of three species: *palmata*, *umbrosa*, and *interrupta*. Steven found a drastic decline in the populations of all but *palmata* at Todd Lake (site of our 1993 DSA gathering). He is currently pursuing this topic. The Oregon Dept. of Fish and Wildlife is "very interested" but their "budget does not allow for funding." Is this *deja vu* or what?

PUBLICATION ON WASHINGTON D.C. ODONATES

Richard Orr is the author of an article on dragonflies that appeared recently in the **Audubon Naturalist**, the newsletter of the Audubon Naturalist Society (Chevy Chase MD), which serves the central Atlantic states. The cover of the issue features a photo of the familiar ten-spot dragonfly which is clear enough to count all twelve spots, and several more photos by Bob Honig inside. This long article is an excellent summary of the order and is written to attract and inform the general naturalist.

Richard presented a class on 4 August followed by a field trip on 6 August to Patuxent Wildlife Refuge. The Washington area is one of the finest Odonata localities in the country and Richard's article ought to attract much attention.

There is an accompanying box on the Cape May dragonfly migration project, organized by Mike May and Ken Soltesz. We hope to be hearing more about this project in the future.

***NANNOTHEMIS BELLA* IN VIRGINIA**

Steve Roble has recently published (Banisteria, No. 3, 1994, VA Natural History Society) an account of the rediscovery of *Nannothemis bella* in Virginia after not having been seen for more than a century. Steve found a population in Caroline County.

FUTURE DSA FIELD GATHERINGS

Our field gatherings have long been the most successful activity of our society. Starting with biennial meetings and increasing to annual meetings, we have added in recent years annual regional meetings (Northeastern and Southeastern). We are mandated to have an annual, official meeting once a year. Beyond that, we can meet as often as it suits us, and it seems to suit us to meet more and more.

Our next annual meeting will be in New Mexico, moving on to Arizona (see **BONANZA!**, below). Beyond that, we have no firm plans. However we have many suggestions, including Hawaii, several locations in the continental US, and some in Canada.

There is always room for one more trip. If you would like to host a trip, or volunteer someone else to host a trip, just drop us a line (Please don't volunteer me, however!).

VISITING MICHIGAN TO LOOK AT THE WILLIAMSON COLLECTION

One of the droll pleasures of life is in looking at old museum specimens. Recently Ailsa and I went to a wedding in Michigan, which gave me a chance to visit a favorite aunt and uncle and also to look in at the famous Williamson Collection at the University of Michigan. Because I was in the throes of finishing my end of Ken Tennesen's and my *Macromia* paper (shortly to appear in the BAO), this seemed to good opportunity to look over Mr. Williamson's holding in this genus. It was a gold mine, as the paper will reveal, but it also gave me a few chuckles. Most of the specimens are still in their original paper triangles, some of which are a century old and crumbling a bit. But there is history in these specimens. I have a few gems to share with you. The first concerns field notes. How many of you keep good field notes? Any field notes? Here is what Mr. Williamson recorded for one particular fine day:

"Eli Captain and I collected from about 6 AM till 5 PM. Worked from Studebaker farm near Ed Huffmans where river and road meet down stream to second pool below mouth of Six Mile Creek. Day hot and generally sunshiny, little wind. Caught and saw the most between 10-12 AM when there was more wind than rest of day. Except for these two hours, *Macromias* were rare and flight erratic. Preceeding Sunday PM was cloudy and very windy but Eli saw many *Mac.* at a pool where we saw none today and they patrolled (not erratic). Eli and I give up trying to tell what a "good" *Macromia* day is. They often fly on hot still sunshiny days, but not on all such days. They may fly in the rain, but not often. In June Eli has seen them flying at 3:30 AM and we have seen them flying after sunset when darkness made them almost invisible."

You are asking, "What is so remarkable about those notes?" Only that they were written on one of the triangles itself!

Another triangle with one of the original *australensis* had a note written by Frank Collins, who was "a boy who did some collecting for me" and whose "home in 1907 was a camp along the

Poteau River [Oklahoma]. . ." On one triangle containing a fine male of *australensis* Frank wrote:

"This larg ones Aug. 3 date is all caught on the river haft to use boats in or out in the middle of the stream with large nets 20 feet handles"

And we thought Tim Vogt was a sight to see!

DNA STUDIES NOW IN PROGRESS

Two recent communications informed me that DNA studies have been undertaken to shed light on the phylogeny of two US odonate genera. Ralph Charlton, of the Dep. of Entomology, Kansas State Univ., Manhattan KS, 66502-4084, has undertaken a study of *Libellula*. I haven't heard any preliminary results, but everyone will agree that Kennedy's attempt to subdivide the genus was admirable but hardly adequate. We hope that a more satisfactory result will come from mitochondrial DNA. Ralph is also starting a study of *Enallagma*, which is one of the largest genera in the New World.

Mark McPeck of the Dept. of Biological Sciences, Dartmouth College, Hanover, NH 03755, has started an *Enallagma* study which has already yielded some interesting but very preliminary results. *E. vernale* [which I placed as a subspecies of *cyathigerum*] seems to be much closer to boreale than to *cyathigerum*, leaving the puzzle as to what *cyathigerum* is up to. Possibly my intergrades were not that at all but some other form of variation. Also, there is a striking variability among North American *cyathigerum* - just compare western US with Alaska forms. This study, which is in collaboration with Jonathan Brown of Bucknell and Mike May of Rutgers, might finally straighten out this immensely interesting genus. They are also including *Ischnura* and some other potential out-group species.

Both of these workers would probably appreciate help - especially with the supply of suitable material. McPeck says that preservation in 100% ethanol will be suitable for a month.

It is gratifying to see that odonate phylogeny is finally taking the sensible course that it has needed (and never had) for at least a century.

GRANT TO STUDY *CORDULEGASTER SAYI*

The U.S. Fish and Wildlife Service has awarded a small 1-year grant to Dr. Minter J. Westfall and the International Odonata Research Institute in Gainesville, Florida, to conduct a status survey of Say's Spiketail (*Cordulegaster sayi*) in Alabama, Georgia and Florida. The species is known presently from about half a dozen Florida localities. There is a reported capture from near Vidalia, Georgia, but this needs to be evaluated.

We are requesting any collection information on this species from our colleagues. Please send any records you might have to the following address:

Bill Mauffray, IORI
Division of Plant Industry
1911 SW 34th Street
Gainesville, Florida 32608

13TH S.I.O. SYMPOSIUM IN GERMANY

The 13th biennial symposium of the International Odonata Society (S.I.O.) will be held in Essen, Germany, on 20 to 30 August 1995. The symposium will consist, as been the custom, of formal meetings and field trips. Because of very strict collecting regulations in Germany, this may be the only chance that many people will have to swing a net in this country.

Prices and accommodations have not yet been announced. People interested in attending or wanting further information are invited to write *as soon as possible to:*

Prof. Dr. Eberhard Schmidt
Biologie Didaktik, FB-9
Universität Essen
D-45117 ESSEN
GERMANY

You should include telephone and (if available) FAX numbers to facilitate communication.

=====

PROPOSED DSA COLLECTING POLICY (GUIDELINES)

Richard L. Orr, 9334 Farewell Rd., Columbia, MD 20145, (410) 730-7290

Few, if any, concerns have sparked discussion and written comments in *ARGIA* as has the creation of the **DSA** policy on collecting. George Harp, President of the **DSA**, initiated the Collecting Ethics and Related Topics committee (**CERT**) in May of 1994 to address this and related issues.

The primary purpose of the **CERT** was "... to bring discussion of collecting ethics to a satisfactory conclusion". George also suggested that the committee might do this in two steps 1) develop a consensus position with respect to a collecting policy and 2) publish the proposal in *ARGIA* with a request to have the membership provide comments.

The **CERT** committee consists of Nick Donnelly, Rosser Garrison, Mike May, Tim Vogt, and myself Richard Orr, as chairperson.

The committee has carefully considered previous articles written in *ARGIA* and the numerous

letters received from the **DSA** membership concerning the collecting policy.

The proposal, published in this issue of the *ARGIA*, is the result of the committee's work. The basic structure of the proposal was derived from the latest rewrite of the collecting policy of the **Lepidopterists' Society** which was written with the goal of providing guidance on the collecting of all invertebrates. In the majority of cases the **CERT** was hard pressed to improve on the wording of the **Lepidopterists' Society**. Specific changes were required in a few cases to make the proposal more relevant to the **DSA**.

Please look over the proposal and send me any changes which you feel are important. I would appreciate your comments before March 1, 1995. After which, the committee will review the comments and, if warranted, make changes. The final draft will then be voted on by the membership either through the mail or at the next annual **DSA** gathering.

DRAFT STATEMENT FOR COMMENT

THE DRAGONFLY SOCIETY OF THE AMERICAS

Statement of Committee on collecting Policy

PREAMBLE

Our ethical responsibility to assess and preserve natural resources, for the maintenance of biological diversity in perpetuity, and for the increase of knowledge requires that Odonatologists examine the rationale and practices of collecting Odonata, for the purpose of governing their own activities. While we recognize that historically most threats to preservation of odonate species have been a consequence of habitat destruction, we believe that there is a need for responsible collecting practices. To this end, the following guidelines are outlined, based on these premises:

0.1 Odonata are a renewable natural resource.

0.2 Any human interaction with a natural resource (eg. Odonata and their environment) should be in a manner not harmful to the perpetuation of that resource.

0.3 The collection of Odonata:

0.31 is a means of introducing children and adults to awareness and study of their natural environment;

0.32 has an essential role in gathering of scientific information including the advancement of taxonomic knowledge, both for its own sake and as a basis from which to develop rational means for protecting the environment, and maintaining the health of the biosphere;

0.33 is a recreational activity which can generally be pursued in a manner not detrimental to the resource (eg. Odonata and their environment) involved.

GUIDELINES

Purposes of Collecting (consistent with the above):

1.1 To create a reference collection for study and appreciation.

1.2 To document regional diversity, frequency and variability of species, and as voucher material for published records.

1.3 To document faunal representation in environments undergoing or threatened with alteration by human or natural forces.

1.4 To participate in development of regional checklists and institutional reference collections.

1.5 To complement a planned research endeavor.

1.6 To aid in dissemination of educational information.

1.7 To provide material for taxonomic studies.

1.8 To provide information for ecological studies.

Restraints As To Numbers:

2.1 Collection (of adults or of immature stages) should be limited to sampling, not depleting, the population concerned; numbers collected should be consistent with, and not excessive for, the purpose of the collecting.

2.2 When collecting where the extent and/or fragility of the population is unknown, caution and restraint should be exercised.

Collecting Methods:

3.1 Field collecting should be selective and should minimize harm to non-target organisms.

Live Material:

4.1 Rearing to elucidate life histories and to obtain series of immature stages and adults is encouraged, provided that collection of the rearing stock is in keeping with the guidelines.

4.2 Reared material in excess of need should be released, but only in the region where it originated, and in suitable habitat.

4.3 Because of such concerns as introduction of disease and adverse redistribution of genetic resources, release of excess reared material is not encouraged unless it is done in conjunction with a planned restoration program, and under supervision of knowledgeable biologists.

Environmental and Legal Considerations:

5.1 Protecting the supporting habitat must be recognized as essential to the protection of a species.

5.2 Collecting should be performed in a manner such as to minimize trampling or other damage to the habitat.

5.3 Property rights and sensibilities of others must be respected (including those of photographers and observers).

5.4 All collecting must be in compliance with regulations relating to public lands (such as state and national parks, monuments, recreational areas, etc.) and to individual species and habitats.

5.5 Importation and movement of exotic species must be in compliance with international, national, or regional laws prior to importing live or dead material.

Responsibility For Collected Material:

6.1 All material should be preserved with full data attached, including parentage of immatures when known.

6.2 All material should be protected from physical damage and deterioration, as by light, molds, and museum pests.

6.3 Collections should be made available for examination by qualified researchers.

6.4 Collections or specimens, and their associated written, electronic, photographic and other records, should be willed or offered to the care of an appropriate scientific institution, if the collector lacks space or loses interest, or anticipates death.

6.5 Type specimens, especially holotypes or allotypes, should be deposited in appropriate institutions.

Related Activities Of Collectors:

7.1 Collecting should include permanently recorded field notes regarding habitat, conditions, and other pertinent information.

7.2 Recording of observations of behavior and of biological interactions should be encouraged and receive as high a priority as collecting.

7.3 Photographic records, with full data, are also encouraged.

7.4 Education of the public about collecting and conservation, as reciprocally beneficial activities, should be undertaken whenever possible.

Traffic In Odonata Specimens:

8.1 Collections of specimens for exchange should be performed in accordance with these guidelines.

8.2 Rearing of specimens for exchange should be from stock obtained in a manner consistent with these guidelines, and so documented.

8.3 The sale of individual specimens or the mass collection of Odonata for commercial purposes (e.g. fish bait), and collection or use of specimens for creation of salable artifacts, are not included among the purposes of the Dragonfly Society of the Americas.

=====

THE US DOT-MAP PROJECT

Nick Donnelly

The present level of understanding of the distribution of US Odonata is the state listing, such as was presented in Needham and Westfall's excellent 1955 manual. This level of understanding was all that was possible at that time, but is woefully inadequate to characterize the ranges of US Odonata today. The intensity of collecting activity has increased between ten and twenty fold in the last 40 years, and we now face the problem of presenting these new data, as well as older data which have never been presented in a really usable fashion.

Several of us have been discussing the prospect of preparing a **DOT MAP FOR NORTH**

AMERICAN ODONATA. Such a map would be a great value to all of us for various reasons. For one thing, it would place firmly in our minds the degree of sympatry or allopatry of closely related species. It would help to solve long-standing questions on the disjunction of some odonate populations. Finally, it would help us to establish priorities for further field work.

At what level should the dot map be prepared? If there were to be a dot for every occurrence, then the labor required would be prohibitive. Also, the clustering of dots around the home bases of some of the more vigorous workers would give a misleading idea as to the occurrences themselves.

I suggest that for the "Lower 48" the county is a good level for presentation. The counties of the Lower 48 are mainly fairly equant, and fairly uniform in size in broad regions (They tend to be larger in the west).

How should the information be presented? A customary method is to fill in each county that has an occurrence with solid black. Again, the labor required would be stupendous. There are over 3000 counties in the Lower 48 states, and single dots for a county with an occurrence would produce a highly readable map.

I have already begun the preparations for such a map. To start with, I have obtained a good geographic data base for the base maps. I use the "share-ware" MWDB data file prepared by Fred Pospeschil and Antonio Rivieria from a much larger data base which is not suitable for micro computers. It shows coast lines, state boundaries, country boundaries, and large rivers and lakes.

For map projections I transform the MWDB data using Mercator or Lambert Conic Conformal projections. For the Lower 48 states I prefer the Mercator because it leaves many state boundaries either as vertical or horizontal lines, which is how we are mainly used to seeing them. When we add Canada, then we should switch to the Lambert because of increasing scale distortion to the north. The product is X Y coordinates for the map. The algorithms are not difficult for a personal computer.

My *modus operandi* has been to assemble state information as a matrix with rows being the species (or subspecies) and columns the counties. The program for producing my matrix is QUATTRO-PRO, but any spread-sheet program would work. I can also produce the matrix using a program written in QUICK BASIC 4.5; I also edit and correct data matrices using the latter program. I assemble the coordinates for the plot using another QUICK BASIC program, which produces two columns of X and Y coordinates for each species.

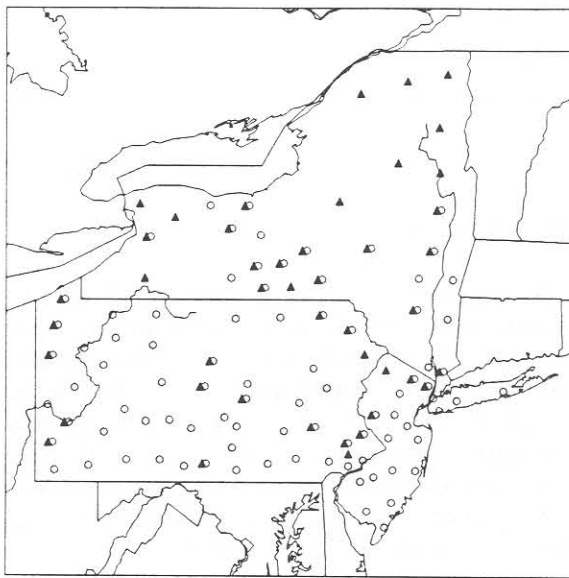
I obtained county locations on a tape provided by the US Geological Survey containing the entire contents of the US Concise National Gazetteer. I distilled the 3120 county locations from a single file of about 42,000 lines.

I plot the information using a program called COPLOT. The final map is an overlay of the base map and the relevant dot patterns for the species.

In addition to the usual problems of assembling data there are additional problems. What do you do with subspecies? How do you handle old records of species which we now split? The odd city-counties of Virginia present a problem I have not faced yet. Old records, for example, from the Dismal Swamp refer to Nansemond County, which no longer exists.

My software package would be suitable for anyone with the programs which I use. The spread sheet manipulations can be done in any language, but my number-crunching, collating, and editing programs are written in QUICK BASIC 4.5.

As a demonstration, I include with this article a sample dot map. Instead of the entire US, it is of three states only: New York (using my data from the BAO paper brought up to date), Mike May's database for New Jersey, and Clark Shiffer's updated notebook sheets for the old Beatty Pennsylvania data base. Preparing the spreadsheet for the latter was an especially useful exercise, because the data is arranged by county, and the order of listing of species is (for me) non-standard. Simply figuring out how to handle it without going out of my mind was a useful learning experience, as they say.



My sample dot map is not for one but two species. These are the sibling species *Enallagma civile* (open circles) and *carunculatum* (solid triangles).

The map reveals a clearer picture than I carried in my head: *carunculatum* extends further north and is generally absent in the south, in this area, while *civile* is more southern. We all knew that, but none of could have sketched a map of the ranges. Now we can. We can also see where we need more data.

The goal of the project is to do this for the entire US, with the hope and aim of extending it to Canada, and, ultimately, to Mexico. A problem with Canada is that very little of the published data refers to counties, and the Canadian data will have to be arranged in manageable cells for presentation. Any ideas? The problem with the Mexican data is that it is very unevenly distributed, because the geography of the country makes systematic survey work very difficult.

I prefer at this time not to get into arguments about showing old and new data by different symbols. The presentation itself would be very easy; the problem is that for each state there will be a different definition for "old" and "recent".

Although I have lumped two species together for the sample map, it is likely that, for a US map, these species should not be lumped. Some largely allopatric sibling species (e.g. *Libellula pulchella* and *forensis*) or highly disjunct related species (e.g. *Tachopteryx thoreyi* and *Tanypteryx hageni*) might be lumped to save space and/or for our improved understanding.

I would also propose to use a selection of base maps. The US map would be for transcontinental species (like *Anax junius*), but many of the eastern gomphids (such as *Gomphus viridifrons*) would be better displayed on a map whose southwestern corner may be Kansas, for example. I envision a set of about eight different base maps to cover various ranges.

I would be happy to share my programs and further details with interested persons, but I am more interested in obtaining additional data. I know of several states with data bases which should be essentially complete (Delaware, Maryland, Tennessee, Kentucky, Alabama, Ohio, for example), and other states whose data bases are in a rudimentary state (North and South Dakota, Georgia, West Virginia, Nevada, Utah are examples).

We now need workers, especially computer-literate workers. The conversion of spread sheet data to dots is now an established methodology. At the moment I have no financial support, but it is possible that an agency might be interested in helping these data to be assembled and presented.

The bulk of the labor will be in preparing the spread sheets. I envision people with particular interests in specific states to undertake this preparation effort. Please send me whatever comments you have on this project, and please let me know of the level of your potential participation.

=====
=====

NORTH CAROLINA 1994 ANNUAL MEETING

Jerrell Daigle

The highly successful 1994 Dragonfly Society of America (DSA) meeting was hosted by Tim Vogt and Jerrell J. Daigle on June 3-5, 1994, in Sparta, North Carolina. An informal meeting took place Friday evening in the Alleghany Inn parking lot to exchange introductions and discuss possible collecting locations for *Ophiogomphus edmundo*. The Saturday and Sunday business meetings took place after dinner at the Sparta Restaurant.

At the evening meeting, the DSA council voted to change our name to the **Dragonfly Society of the**

Americas to better represent North America, Central America, and South America participation. We also discussed the possibility of re-publishing U.S. Fish and Wildlife dragonfly reports, such as Ken Tennessens' fine work on *Gomphus sandrius* and *Ophiogomphus acuminatus*, for distribution to our members. The last bit of business was selecting the 1995 DSA meeting location. Silver City, New Mexico was voted 29-1 by the rowdy dinner crowd (the lone holdout was for Hawaii)! The tentative dates are August 4-7, 1995 and it

will be co-hosted by Jerrell J. Daigle, Sidney W. Dunkle, and Ralph Fisher.

Nancy Adams bought us up-to-date on her efforts to computerize data on the odonata specimens in the National Museum. Carl Cook briefed us about his new society (which is dedicated to introducing some common sense to the increasingly difficult and unreasonable collecting regulations which are springing up all around us), and his *Macromia* studies. Bob Glotzhober discussed the Ohio Odonata Survey and invited us to attend their June 11 meeting/workshop. Tim Vogt mapped out new *Macromia* and *Ophiogomphus* collecting locations.

Thirty (30) people attended the Sparta, North Carolina meeting. They were Steve Krotzer and Ken Tennessen from Alabama plus Sandy Garrett, Gary Wagner, Phoebe Harp, and George Harp from Arkansas. A big Florida contingent included Lyn Burton, Jerrell J. Daigle, Carol Mauffray and Bill Mauffray, Randy Payne, Margaret and Dr. Minter J. Westfall, Jr. Co-host Tim Vogt came from Illinois. Beth Huff and George Smolka arrived from Indiana with their two baby raccoons, Hansel and Trouble. Carl Cook, John Enz, Paul Florence, and Barry Nichols drove from Kentucky while Ailsa and Nick Donnelly arrived from New York. Local North Carolina residents, Duncan Cuyler and Logan Williams attended the meeting. From Ohio came Bernie Counts, Bob Glotzhober, and Tony Minamyner. Clark Shiffer came down from Pennsylvania along with Steve Roble of Virginia. Representing Washington, D.C. was the Smithsonian's very own Nancy Adams.

Several people have reported their catches to me and most people collected *Gomphus (Gomphurus) lineatifrons*, *G. (G.) vastus*, *Macromia illinoensis* (Nancy Adams caught 5 males!), and *Hylogomphus viridifrons*. Much of the collecting was done on the Little River near Floyd, Virginia and the New River near Sparta. Sandy Garrett and Gary Wagner collected *Ophiogomphus rupinsulensis* (George Harp got one also), *Dromogomphus spinosus*, *Gomphus (Gomphurus) lineatifrons*, and saw several uncatchable *Macromia margarita* zooming into the stratosphere. Dr. Westfall snagged a few *Hylogomphus viridifrons*, *Ophiogomphus mainensis*, and cleaned up on the wary, brilliant green *Calopteryx angustipennis*. Lyn Burton collected the only blue and yellow *Chromagrion*

conditum that I know of. Steve Krotzer, Randy Payne, and Ken Tennessen found some *Ophiogomphus aspersus* on the South Fork of the New River in Ashe County.

Additional collecting was done further south in the vicinity just north of Morganton, North Carolina. At Wilson Creek and nearby Upper Creek, the following species were taken: *Argia moesta*, *Basiaeschna janata*, *Calopteryx angustipennis*, *C. dimidiata*, *C. maculata*, *Cordulegaster maculata*, *Didymops transversa*, *Dromogomphus spinosus*, *Enallagma divagans*, *Gomphus lividus*, *Hagenius brevistylus*, *Helocordulia uhleri*, *Hylogomphus parvidens*, *Macromia illinoensis*, *M. margarita*, *Ophiogomphus edmundo*, *O. howei*, *O. incurvatus*, *O. mainensis*, *Progomphus obscurus*, *Tachopteryx thoreyi*, and *Stylogomphus albistylus*.

Ophiogomphus edmundo, *O. mainensis*, and *Macromia margarita* were highlights, especially the long lost *O. edmundo*, the Holy Grail of the dragonfly world! Kudos to the team of Tim Vogt and Duncan Cuyler for catching the first specimens (ARGIA 6:1-2) and letting the others know where to find *O. edmundo*! I can account for 10 males and 4 females collected by Carl Cook, Duncan Cuyler, Nick Donnelly, Bill Mauffray, Ken Tennessen, Tim Vogt, and myself. Did I omit any other *O. edmundo* catches and collectors?

For the record, I would like to briefly present some observations about this very rare species. On June 4 at Upper Creek, Bill Mauffray collected his two females at 1015 and 1100 but caught the two males later at 1230 and 1245. I got my three Wilson Creek males perching on small rocks at the head of a long riffle at 1406, 1413, and 1446 on June 8. They were very unwary, unlike the spooky *O. mainensis*.

In life, the eyes are aqua above and gray below, not grass-green as in *O. mainensis*. The green frons abuts the blue-gray labrum. The upper dorsum is emerald-green but grades to yellow-green at the abdomen. Segment 2 has a grayish-blue tinge with light bluish-gray pale lateral spots and light tan dorsal spots. The dorsal pale spots on segments 7-10 are yellowish-orange and the corresponding lateral spots are tan. The superior appendages are also tan. The legs are black with dark tan flexor surfaces. There is a tinge of yellow at the base of the fore and hind wings.

I went back to Wilson Creek June 26-27 and I did not see any *Ophiogomphus edmundo* or *O. mainensis* males at the riffles, despite excellent weather. I did catch 4 very old *O. mainensis* females just barely able to oviposit at the riffles. I am convinced that the flight season was over for *O. edmundo* and *O. mainensis* and the best time to collect *O. edmundo* would be in early June. I am planning a return trip next year to explore new sites. Anyone care to join me?

All in all, the 1994 DSA meeting was very enjoyable! We were all glad to see old friends again and meet many new ones! We hope to see everybody in Silver City, New Mexico next year and don't forget to bring your cowboy drawls, hats, and sun-block!

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

A COLLECTING TIP FOR GOMPHIDS

Ken Tennessen

Adult Gomphidae flying at riffles are notoriously hard to catch. Even experienced collectors, who are familiar with techniques such as swinging at flying individuals from behind and "pancaking" perched ones from above, often miss their quarry. Camouflaged nets and clothing would seem to be useful tools, as perhaps dragonflies are less likely to see such materials approaching. Most collectors use various shades and combinations of green, brown and/or black material. Ken Soltesz introduced the squirt gun technique (see ARGIA, 1992, vol. 4, no. 3, p. 15). I would like to offer another technique that has brought added success to some of my recent collecting efforts.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

BONANZA!

Jerrell Daigle

The 1995 Dragonfly Society of the Americas (DSA) meeting will be held in the ponderosa pine forest mountains of Silver City, New Mexico along the Continental Divide. It will be hosted by the Cartwrights (Jerrell J. Daigle, Sidney W. Dunkle, Rosser W. Garrison, and the local resident

While attending the recent DSA meeting in Sparta, North Carolina, I used my tropics net which has an all-white bag, and noticed that if I held my net out low with the bag held tight against the handle, numerous patrolling males of *Gomphus adelphus*, *G. viridifrons*, *Ophiogomphus aspersus*, and *O. mainensis* flew toward it and either attempted to land or actually landed right on the netting. An easy upswing was all that was necessary to bag such a male. I suspect that the attraction of the flat, light-colored net is that it appears to be a convenient perch site, such as a rock or log. I have since used this technique to "bait" other species including *Ophiogomphus rupinsulensis* and *Gomphus quadricolor* in Wisconsin. However, the trick does not work on all gomphid species, or all individuals; and I have yet to attract a female.

Color of netting might be important in this regard. For example, collecting with me at the South Fork New River on June 4 were Randy Payne and Steve Krotzer. Randy was using a net with a black bag attached by black cloth around the rim. Very few male gomphids came toward this net, and none came close. Steve had a green bag with white cloth around the rim. A few individuals came flying toward his net but none came within easy reach or tried to land. The difference in the dragonflies' behavior toward the different nets was quite striking.

Holding out a white net has an added advantage. Male gomphids flying low over riffles are often difficult to follow with one's eye and are easily lost from sight; they can even go totally undetected. By holding a white net out over the riffle, such males might be attracted to land. I collected several males of the above-mentioned species this way without even knowing they were flying over the riffle.

collector, Ralph Fisher, Jr.). The DSA meeting itself will be from August 5-8 at either the Drifter Motel or Holiday Motor Hotel in Silver City, depending on the best deal and availability of a conference room. We hope to collect *Erpetogomphus heterodon* and *Hesperagrion*

know of is near Gomez Farias, Tamaulipas, Mexico, about 500 miles south, but I have a note from Minter Westfall indicating that he saw *fusca* in Nuevo Leon also. One of the Texas males had the typical red face of *fusca*, the other had a blackish red face. Male *Erythrodiplax minuscula* have a black face, and the nearest population of that taxon that I know of is in Colorado Co., TX, about 115 SE of Miller Creek. Going from east to west, there are four very similar taxa of *Erythrodiplax*, *E. justiniana* in the Antilles, *E. minuscula* in the SE U.S., *E. fusca* in Texas, and *E. connata* in Arizona. If *fusca* is regarded as a separate species, as I presently do, then since the range of *fusca* is between those of *minuscula* and *connata*, I shall have to regard *minuscula* as a separate species also. This is a taxonomic problem that needs biochemical clarification.

The Texas *fusca* were found on private land, and the rancher drove down to see what I was doing. I never met James Needham, but this man looked just like the pictures I have seen of the aged Needham. Unfortunately as he drove into the creek bottom his pickup truck got stuck in the mud. Embarrassing for me, to say the least! I thought I was really in the soup, with my trespassing being the cause of his bogging down his pickup truck. Very fortunately, he turned out to be a nice person and allowed me to stay and collect. It did not take him too long to pull the truck out of the mud with his tractor. After collecting here, I found the police waiting for me by my truck. I thought maybe the rancher had reconsidered our relationship; however, the deputy just chided me for parking at such a busy intersection. He also had a report from the neighboring county that my truck had been seen parked by a stream over there. You can't get away with nothin' unseen in the Hill Country!

I spent a lot of time looking for *Neoneura aaroni* and *Protoneura cara*. I never did find any *P. cara*, but finally found just a few *N. aaroni* on the South Fork of the Guadalupe River. I even got 4 photos of a male *N. aaroni* before he took off! Five species of gomphids were in evidence, *Dromogomphus spoliatus* and *Erpetogomphus designatus* at several places, *Phyllogomphoides albrighti* at 2 places, and *P. stigmatus* and *Hagenius brevistylus* at only one locale each. No *Progomphus obscurus* or *Aphylla* were found on these rock-bottomed streams, as could be expected. No *Stylurus plagiatus* were seen, and rather

surprisingly I do not recall ever seeing this species in the Hill Country though it occurs both to the east and the west. The only aeshnids seen were *Anax junius*, all of which seemed to be patrolling or feeding, not migrating.

Hetaerina titia was more widespread in the Hill Country than I had realized, but no *Calopteryx* were seen. *Enallagma exsulans* and *Ischnura posita* at Kerrville, and *Enallagma signatum* at Hunt must be near the western edges of their ranges. I had found previously at two places a new species of *Argia* that Rosser Garrison is describing, but only 1 male at each place. The same thing happened again on this trip, with only 1 male being found in the Hill Country Natural Area, in spite of a careful search after it turned up. Males of this species look a lot like *Argia sedula*, but with more and paler blue. It is a job to look through dozens of *A. sedula* trying to find the new species, of which I have never seen a female. *Argia barretti*, a big beautiful blue *Argia*, was found at a few riffles of the larger rivers, but was absent at a place on the Guadalupe River where I had seen large numbers previously.

I went to the West Frio River near Leakey specifically to collect and photograph *Argia cuprea*. Amazingly, there they were in abundance, and I collected all the ovipositing pairs I wanted and took photos at only 2 riffles in only a couple of hours. This is the way collecting is supposed to be but seldom is! Male *Argia cuprea* and male *Hesperagrion heterodoxum* get my vote for the knock-your-eyes-out beauties of the Texas zygops. *Hesperagrion*, though, occurs west of the Hill Country. Among the libellulids, *Libellula comanche* and *L. croceipennis* were present at a few places. Male *L. comanche* patrolling a stream segment at a distance look quite a lot like an *Aeshna*, and I had not remembered that they have a touch of white at the base of the hindwing, nor that they were so quick and strong on the wing.

At one stream, shadowy blurs seemed to appear and disappear over the water, and it took me some moments to realize that I was actually seeing something, and even longer to see that it was two male *Dythemis fugax* chasing each other. They flew with incredible speed, such that their red face and green-spotted bodies appeared as a small black blur. These awesome chases went on for 3 minutes or more, and the humming and snapping of their wings could be heard as they passed. I later saw

these flight-prowess demo flights at other places, and done by *D. velox* too. The libellulids that were scarce or absent surprised me more than those that were present. *Brechmorhoga mendax* was scarce, and I saw no *Macrothemis*, including no *M. tessellata* at Lost Maples State Natural Area where Boris Kondratieff and Richard Baumann had found it last year for the first time in the U.S., as reported in a previous ARGIA. Although I have collected *Dythemis nigrescens*, *Libellula saturata*, and *Paltothemis lineatipes* in the Hill Country, none at all were seen on this trip. Finally, I should say something about the Imported Fire Ants *Solenopsis invicta* that are still spreading westward across Texas. Quite a few of the zygops I caught had a fire ant head attached to a leg, and whenever I lie on the ground to take photos, I am usually stung by these nasty creatures. If I pose a specimen to take photos, I have to continually defend it against the fire ants, and I have also seen odonate larvae trying to emerge that were being attacked by these ants. If the fire ants are putting this kind of pressure on aquatic insects like odonates, what are they doing to other terrestrial insects, many of which are odonate food sources?

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

**FORCED EJECTION OF FECAL PELLETS
BY NYMPHS OF ERYTHEMIS
SIMPLICICOLLIS**

K. J. Tennessen & M. K. Painter

During an experiment to test for possible effects of a mosquito larvicide (*Bacillus thuringiensis israelensis*, or **Bti**) on non-target aquatic insects, we observed an unusual behavioral trait of late instar *Erythemis simplicicollis* nymphs, namely long-distance, forced ejection of fecal pellets. Corbet (1963) reported that *Anax imperator* nymphs project pellets at least 30 cm. out of the water, but did not speculate on the adaptive value of such a habit.

In order to subject the entire life cycle of a mosquito predator to weekly treatments with **Bti**, we collected eggs from mated females of *E. simplicicollis* and raised them to maturity in the laboratory in small glass dishes containing algae. The nymphs grew quickly, and after 4 to 5 weeks molted to the F-2 instar. It was at this time that we noticed fecal pellets up on the sides of the larger

rearing dishes into which we had transferred the nymphs and in which the water depth was 1.8 cm.

It was in the F-1 and final instars that we observed pellets hitting the plastic petri dish covers, or if the covers were ajar, flying out of the water and hitting the wall or the floor. We estimated that some of the pellets flew 19 cm vertically and at least 60 cm horizontally. When in proximity of these unexpected, rapid discharges, it was wise to wear safety goggles and cover one's drinking cup.

As was Corbet, we are puzzled why nymphs should shoot fecal pellet such inordinate distances. One possible explanation is the removal of fecal waste from the immediate vicinity of the nymph, as the pellets are quite large (at least 2 x 4 mm in final instar) relative to the nymphs, and could "foul" the surrounding microhabitat. Both *Anax* and *Erythemis* are lentic dwellers, an environment where waste buildup might be a detriment, especially compared to a lotic environment. Comparative studies of fecal pellet discharge in dragonfly species adapted to these two habitat types might be enlightening. It would also be interesting to see if there are differences in fecal pellet discharge between species that crawl about vegetation versus epibenthic species.

Corbet, P.S. 1963. A Biology of Dragonflies. Quadrangle Books, Inc., Chicago. 247 pp.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=

MADAGASCAR TRIP

Sidney W. Dunkle, Biology Dept, Collin Co. Community College, Spring Creek Campus, Plano, Texas 75074 (H) 214-424-4910, (O) 214-881-5989

In a previous ARGIA, I described a collecting trip to Madagascar organized by Holbrook Travel of Gainesville, Florida. During the first 2 weeks of June 1995 I will be leading a similar trip for Holbrook Travel to some of the same areas of Madagascar and to some new areas on the island. The trip is planned so that a participant could travel with the group for one week, or stay for about 2 weeks at greater cost. The cost is estimated to be somewhere between \$3000 and \$5000. I expect most participants to be Lepidopterists, but since I am leading the trip we will be collecting near odonate habitats whenever

possible. If you are interested in going on this trip, contact me.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

NEW BOOK ON SWISS ODONATA

Rene Hoess' attractive new handbook, "Libelleninventar des Kantons Bern" or the "Atlas of dragonflies of the Canton of Berne, Switzerland" has been published. Written in German, it contains distribution maps, notes, and

records of the 58 confirmed species plus several beautiful color photographs. For more information on this book, please write to Rene at the following address:

Rene Hoess
Normannenstr. 35
CH-3018 Bern
Switzerland

This 100 page book is similar to Sid Dunkle's Florida books.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

MY TRIP

John Michalski, 90 Western Ave., Morristown, NJ 07960

[Editor's note: John's article is a very long one and is being split into two (or more) parts. In the next issue John will discuss some of the interesting dragonflies and damselflies he found on this trip.]

It had been a tough year, and I emerged from '93-'94 the way George Foreman emerged from his 1974 meeting with Ali. I needed a dose of life, and my friends and family suggested that perhaps it was time to make my trip.

When I say "my trip", anyone who's known me for more than twenty minutes will know I'm referring to Papua New Guinea.

We'll get to the bugs in a minute. I have to warn you that insect collecting was, as is usual for me on international trips, almost tertiary on my agenda. But I *did* manage to swing the net in just about every place that I stopped at for any amount of time; I did some collecting on 18 out of 55 days.

Also, any interested readers should order a copy of Lonely Planet's *Papua New Guinea: a travel survival kit* from your local book shop. The book will be everything you'll need to plan and execute a perfectly successful trip to PNG. I have used their guides in the past and would not hesitate to rely on them for whatever trip I take next time, wherever in the world that might be.

Papua New Guinea is the world's second largest island, after Greenland, and lies just below the equator, north of Australia and southeast of the Philippines. It is covered in forested mountain

ranges, fertile high valleys, and several of the world's largest rivers, including the Strickland, Fly and Sepik. The island is home to almost all of the 40 or so species of Birds of Paradise, the green Birdwing Butterflies, pouched mammals like the cuscus and wallaby, and two species of egg-laying mammals. There are also giant Cassowary birds, crocodiles, terrestrial leeches (oh boy!), and over 700 different tribes of people, each with a language as distinct from their neighbors' as French is from Japanese. And each with completely different cultures, religious practices, artwork, houses, village designs, canoe styles, and so on. The bugs are also, incidentally, pretty neat. More than 80 percent of the island is covered in tropical forests, and when you fly from one small airstrip to another, you really appreciate how much undisturbed land there is between villages. Absolutely nobody lives in those areas -- you don't even see a thatched hut.

Just one of the many exciting results of the previous 18 months was that I was seriously broke -- and this is a problem, money being something they like to see at the airline companies. I had been planning my trip for about 9 months when my employment ran out, and so I ultimately decided to see what I could do to salvage the idea. This is not the best place -- but it will have to do for the time being -- to thank Rutgers University (Dept. Entomology), the Newark Museum, Mom of course, the University of Papua New Guinea (Dept. Biology), the Papua New Guinea Banking Corporation, Ansett Airlines, the Governments of Australia and Papua New Guinea, and several

personal friends who I think might be embarrassed if I gave their names -- all of whom gave direct financial and other assistance to make my trip possible. It was *my* dream, not necessarily theirs, and they helped me make it come true. My sincere thanks to all.

I made the trip completely on my own, traveling singly and having made all my own arrangements for internal travel and accommodation - where possible - at mission stations. I very rarely saw another tourist, and almost invariably I was the only western person for miles around (in Aseki or on the Sepik, for instance, I was the only westerner for about *thirty to fifty* miles around, to be specific). As a single, relatively young, man, I was taken under the wing of the local people and treated royally, wherever I went. I suspect a lone young woman has a lot of extra considerations to factor in -- there simply is no local parallel for her behavior.

After a few days in the nation's capitol, **Port Moresby**, I flew to the gold mining town of **Wau** near the east coast. From there, by any number of means, I took five weeks to make my way from east to west across the mountainous central spine of New Guinea. Enroute I passed through -- for those of you with a map -- **Aseki, Lae, Kainantu, Goroka, Kundiawa, Kegsugl** (where I climbed Mount Wilhelm to an altitude of about 14,000 feet), **Mount Hagen, Mendi, Pimaga, Gesege, Lake Kutubu, Tari and Koroba**. I traveled mainly by public buses -- many of which were open trucks with benches in them -- which ran regularly and inexpensively. I also took a few short hops in light aircraft and motorized dugout canoes. I also did a lot of walking. At the western end of the Highlands I took a plane -- with two stops in the Star Mountains near the Irian Jaya border (the villages of **Tekin** and **Telefomin**) -- to the upper **Sepik River**, where I met a guide (as prearranged) and took his motorboat down river for the next 10 days, stopping at villages and talking with people and admiring their awesome artistic talents. Then I hopped a plane back to Mount Hagen, where the annual **Highlands Cultural Show** was being held, involving 20,000 tribespeople in full regalia, watched by around 60,000 Papuan spectators and about 60 or so westerners -- certainly not a "tourist scene", though it was highly organized. No visitor is disappointed by it. On each jaunt I met friendly and gracious local people who insisted on my

staying with them and who, generally, would accept no money for their hospitality. Several people gave me gifts of traditional weapons or artwork, or took me along to private, tribal festivals called "sing-sings".

I lived in guest rooms at mission stations, sometimes as a family's guest in a thatched hut, and very rarely in a hotel or some other tourist accommodation. Though relatively luxurious, I didn't prefer the hotels because you only end up talking with other Americans and Europeans, and I didn't come all the way to PNG to discuss O.J. Simpson or the National Crime Bill. I also felt that a singleton was more easily accepted into village life than a group would be. My strategy was always to take public transport from one town to the next, and then try to make my way to a smaller village right away.

This is a good place to say that Papua New Guinea's reputation for crime and violence seems, to me, to be greatly overstated. I would say, after two months of living *really* in the thick of things, that PNG is safer in general than the United States. Indeed, living in PNG made me realize that the island nation where I have spent so much of the past eleven years, is probably one of the more degraded and dangerous places to be, only I had always accepted its violent crime, mutual suspicion, and certain level of squalor as a normal part of the "third-world" condition. PNG showed me that other realities are possible. Indeed, wherever I traveled, local people instantly sprang into action to see that I enjoyed myself as fully as possible -- simply because I was a *foreigner*, and they want you to enjoy yourself. I would say that, if you take care to make eye contact with as many people as possible (the men love it if you take the time to come across and shake their hand), and say hello, and talk with villagers and townspeople, and introduce some notion of why you have come so far to visit with them, your security as a visitor is all but assured. Indeed, the people in the next town along may have already heard all about you by the time you arrive at that place, and the red carpet will already be laid out for you.

I say all of this because, for example, the U.S. Department of State has rarely lifted a travel advisory for PNG in 30 years. Everyone has horror stories about how so-and-so was robbed, raped, cut in two, and so on -- and this is no less true once you arrive in the country. After talking to locals,

expatriates, tourists, and missionaries of every flavor, and lived there for just a bit, I considered my sources and came to believe that some of these stories are true as reported, many more are pure hearsay, and that some people have indeed had a very bad time, but it was mainly their own fault. Papua New Guineans are nice folks and gracious hosts, but local society pays homage to speedy and unsentimental payback for perceived wrongdoings, and it is most wise to make every attempt to avoid offense. The thoughtless or arrogant foreigner is asking for trouble sooner or later. The New Guineans thought I was just nice, and I felt the same way about them. I never saw any trouble, but I was a courteous guest, and had taken a lot of time to learn the local etiquette.

So, by all means, GO to Papua New Guinea!

It is possible to get by in PNG as an English-speaker, but you'll do yourself a big favor by learning to speak Melanesian Pidgin as quickly as possible. Pidgin -- or *Tok Pisin* -- is the "lingua franca" of PNG, their only real means of speaking with each other across village boundaries, and is not difficult for an English speaker to learn in fairly short order. The locals had certain questions for me that never varied, and this had its ups and downs. *Mi hai skul tisa bilong Amerika* represented a recent career change for me, and it was a pleasure to hear myself say it; *Mi no gat waif* took some getting used to. But seeing Prince Charles referred to in the national press as the *nambawan pikinini bilong Missus Kwin* was genuine comedy. Of course, speaking the local language also helps break the ice with your prospective hosts.

The missionaries have had a profound influence all over PNG, and how you view the results depends on where you stand. But everyone I met considered themselves Christian, and they are pretty fervent practitioners -- the Bibles get a serious thumping here. Nonetheless, a Christian celebration here is a distinctly "tribal" experience, and if I hadn't understood the language, I wouldn't have been able to distinguish many gatherings from something their grandfathers would have performed in honor of the Crocodile. One is tempted to say that the New Guineans have just given new names to their old heros -- but in any case it makes for a joyous and festive experience!

By the beginning of August I had progressed as far west as Koroba and back to Tari, a highly traditional area where, for example, a man dressed only in a loincloth in front and a bundle of leaves behind, a bone dagger stuck through a broad bark belt, a necklace of boar's tusks and a central hornbill beak hanging down his back, a large oyster shell pendant hanging over his chest, his face striped in red and yellow, a wig of human hair, dried flowers and bird of paradise plumes on his head, and a long cassowary quill through his nasal septum, was standing in line next to me at the bank. When he caught a glimpse of me out of the corner of his eye, he turned to get a good look and then laughed out loud as if to say, "Jesus, willya take a look at *that*?" He was truly beautiful, like a butterfly. I wanted to tell him so.

But mostly, people in PNG dress in western clothes; the men wear secondhand clothes -- T-shirts and shorts, the women wear very colorful blouses and sort-of "mother hubbards" underneath, plus large colorful string bags called *bilums* that they hang down their back, the strap slung across the forehead. Inside the bilum are sweet potatoes, store items, perhaps a piglet or a baby -- sometimes all of these. Most people, even in the main cities, go barefoot. The bilum is a marvelous thing, and expands to hold whatever one puts into it. I used one throughout my trip whenever I went collecting. Strapped across the forehead and hung down the back, it was easier on the spine than any backpack I've ever used, and believe it or not, it was not hard on the neck or the forehead (though I padded the strap by wearing my baseball cap in between). Also, the villagers really got a kick out of seeing a white man (what they still call "*Masta*" or "*Mata*", harking back to colonial days) walking around with one of these traditional carryalls strapped to his forehead. It helped break the ice, but it was also just a practical thing on my part.

The children in PNG don't beg for money or stand around ridiculing you. Wherever I went -- especially when I assembled my insect net and began to troop around in the streams -- a *horde* of small boys would quickly assemble and proceed to accompany me for the entire day. I'm talking about 20 or 30 kids. But they never interfered with my collecting, never to my knowledge scared anything away, never appeared to be making fun of me, never asked for anything in return, and often caught one or two species that I did not get on my own, like a *Helocordulia* or some kind of tiny

forest Libellulid, like *Diplacina* or *Nannophlebia*. They had good eyes. At one place, I was surveying a stream from the road, just about to dismiss the place as devoid of odonates. But one small boy grabbed my elbow and said, "Mata, Mata! Kala!" He was saying he saw an odonate with *Kala*, that is, color. This was *Neurobasis*, the genus of large lovely Calopterygids found across Asia and Indonesia, something I had not yet seen in the first three weeks of my trip. Every day the boys found something interesting, so in general I accepted their company without reservation -- though it would have been impossible to refuse in any case, as most small children and older people do not speak Pisin -- only their local, tribal language.

The boys, of course, were free all day to troop around with me, and there is nothing a foreigner can do to appear less interesting than whatever else the local kids might have on their plate for the day. Of course, you *do* tire of the never-ending scrutiny -- every bite of your sandwich excites comments -- "hey, he's eating that sandwich!" But they were in fact good natured, and it probably would have shocked them if I lost my patience or told them to get lost. Luckily, the chief pastime in PNG villages is ordering somebody younger than yourself around, and there was nothing a kid loved more than telling some other littler kid to buzz off, so when I got fed up I could just sidle up to some bigger kid and say (in Pisin of course), "can you tell these kids to get lost?", and he would spring into action. If I got tired with the 15-year-olds I could always locate an 18-year-old to perform the same service. But in any case I did not do this often.

The little boys in PNG are a joyous lot, and nothing whatsoever is expected of them. They are free to romp and play and order each other around all day long, and it is only when they reach the age of 16 or 17 that they begin to settle down to the man's job of chewing betel nut and sitting in the shade.

The women have to do most of the daily work of gardening, cleaning, and tending kids and pigs. But frankly, they get to sit in the shade a lot as well. It's a comparatively easy life, and people, for the most part, get to start and stop working as the feeling moves them.

By the way, a little useful Pisin I developed myself, for the collector who plans to visit PNG.

Dragonflies are, in PNG as in so many places, known as "helicopters". The Pisin word becomes *Elikopta*. Their word for both "wood" and "forest" is *diwai*. The road is *rot*, pronounced "rote". So I was able to convey the notion of a "common" species as *Elikopta bilong rot* and described the forest-dwelling species as *Elikopta bilong diwai*. To elaborate, I could speak of *Elikopta bilong liklik wara*, that is, dragonflies that belong to little water. To explain that small forest streams have more interesting species than do large rivers, one might say *Liklik wara em i moa gut long Bikpela wara, liklik wara em i gat planti gutpela elikopta tru*. That is, "little water is more good than big water, it has got plenty of good helicopters true." A new species? You might say *Dispela, em i elikopta husat no man save* (pronounced "savvy"). In other words, "this fellow, he is a helicopter that no man knows yet". If you're shown a species that is common, or that you have had your fill of, try *Mi save dispela* or *Mi pullup (full up) long dispela, tenkyu tru* (thank you very much). Though if they've gone through all the trouble to catch the thing I usually put it in the bag anyway; I think it would be shocking to just toss the specimen into the air after they'd managed to catch it with their fingers!

The word for "insect", by the way, is *binatang*. And once they've actually *seen* the sort of thing you're after -- for example, they knew what a helicopter was but would invariably lead me to the nearest sunny pond where there were lots of *Orthetrum villosovittatum* and *O. sabina*, which though nice were common and widespread. So, on finding the right little stream, and catching the first hairlike, shade-loving Zygopteran -- once they'd seen *that* between my fingertips, then the kids would scramble in all directions, joyous in the knowledge that they knew *precisely* where to find what I was after. And they usually did.

It took me a few days to figure it out, but among these mobs of boys, somebody (without a word from anyone) would always hang back to make sure I was all right. Kids and adults alike were always watchful that I didn't slip and hurt myself, or would want to help me carry my things, or would linger to point out the easiest way up. Nobody laughed if you slipped or missed your footing. Their expression of sympathy is *sori*, which really came off as an informal "you all right?" In my case, *sori* more or less meant "I see you nearly cracked your head on that rock there".

In any case it was an endearing gesture on their part.

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

TIMETRAVELER DRAGONFLY

Bruce A. Noll

Connections of summers
come forth from mud
on cellophane whippers.

Carried in flight
mysteries Mesozoic
flash in the light --

secrets fluorescent
hovering in air --
a time capsule sent

retying me to swamps
long forgotten
and soft warm milieu

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

ELECTRIFIED CORDULEGASTERS!

For those of you with \$55.95 to burn, the Nature Company (800-227-1114) sells a pair of *Cordulegaster* models whose "realistic dragonfly" wings flutter when sunlight hits a solar cell. You even get to paint the dragonflies whatever vivid colors you want. [Item 623801, ages 11 and up.] And you thought they moved their wings with muscles!

=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|=|

JERRELL VISITS SWAMP - - FINDS BUGS

Jerrell Daigle

Over the Labor Day weekend, I decided to visit my folks in Deland, then drive down to the Everglades and look for the rare, endemic *Nehalennia pallidula* Calvert (Everglades Sprite). I went to the only known collecting spot where Sid Dunkle and Ken Tennessen found a few, despite extensive searching by others in the last 15 years in the Everglades. This roadside ditch location is 3.9 miles south of Thompson Park on Hwy. 997 in Dade County west of the Miami International

Airport. Hot and sweaty, I spent all day wading thru the sunny sawgrass glades but flushed only four emerging females among some *Eleocharis cellulosa* or spikerush growing out of an old, airboat trail.

I thought to myself, "Well, at least they are here but there has to be a better spot!" The next day, further up the road, I stopped at a ditch full of *Eleocharis* about 2.0 miles south of Thompson Park. I parked my van in the shade of some imported Australian Pines near a trail marked with a yellow gate. I didn't take three steps when I saw some tiny things flitting around on the ground in the cool shade of the trees. BINGO! With one swing of the net, I got two beautiful mature males and one mature female all in perfect condition!

Over the next two days, I took a good series of this enigmatic endemic along the trail but always in the deep shade. They perched on grasses, fallen pine needles, and purple ground bromeliads in the shade. They avoided any direct sunlit areas where *Ischnura hastata*, *Celithemis eponina*, and *Libellula needhami* were perching. Also, *Aphylla williamsoni*, *Arigomphus pallidus* and *Coryphaeschna ingens* were flying over the ditch. Later, I found a few *N. pallidula* at other shady roadside spots up and down Hwy. 997.

I am optimistic that they can be found throughout the sawgrass/spikerush areas of the Everglades and presently, they shouldn't be considered for endangered species status. However, I would like to know if they occur in the Everglades National Park where they will be protected from habitat loss from housing developments. If enough people express interest in an Everglades collecting trip, we could hold a future Southeastern Regional DSA meeting in Homestead or Florida City. Let me know what you all think about this. Also, someone needs to collect the unknown larva which should be very common in the *Eleocharis* ditch and formally describe it.

In another bit of news, on the way back, I saw but missed some *Erythemis plebeja* and *Coryphaeschna adnexa* in a canal just south of Vero Beach, Indian River County. Next year, I won't miss!! Aloha!

CHANGES OF ADDRESS:

Ms. Tineke **Boomsma**
Belize Tropical Forest Studies
P.O. Box 208
BELMOPAN BELIZE

Peter **Burke** and Dawn **Brenner**
Box 1092
Lakefield ONTARIO K0L 2H0
CANADA

James **Laukaitis**
71 Charter Circle, Apt. 2H
OSSINING NY 10562-6055

Paul S. **Miliotis**
P.O. Box 817
MASON TX 76856

Bruce **Noll**
R.R. 1, Box 175A
VOLIN SD 57072

Mark A. **Pippenger, M.D.**
1 Mountain Trace Road
Sylva NC 28779

Paul **Renard**
800 Oak Savanna Lane
CAMBRIDGE MN 55008

Mark **Scoville**
6015 Stanley Run Place
HUGHESVILLE MD 20637-2836

NEW MEMBERS:

Michael **Conner**
Public Works Department
23 Russell Blvd.
DAVIS CA 95616

Sam **Droege**
420 Dodon Road
DAVIDSONVILLE MD 21035

O. J. **Gode, Jr.**
918 Estron Street
IOWA CITY IA 52246

Judith **Harding**
321 Broxton Road

BALTIMORE MD 21212

Sandra E. **Hazel**
12836 Flack Street
WHEATON MD 20906

Alvaro **Jaramillo**
Dept. of Biological Sciences
Simon Fraser University
BURNABY BC V5A 1S6 CANADA

Russell A. **Johnson**
4611 Kirchoff Rd. #8
ROLLING MEADOWS IL 60008

Thomas M. **Lisi**
10008 Crestwood Road
KENSINGTON MD 20895

Professor Angelo **Machado**
Dept. de Zoologia - Caixa Postal: 486
Inst. de Ciencias Biologicas, Univ. Fed. de Minas
Gerais
CPO.: 31270-901, Belo Horizonte - Minas Gerais
BRASIL

Kathleen A. **McNeil**
7830 Ashton Street
ALEXANDRIA VA 22309

Mr. Kelly B. **Miller**
6060 Browning Lane
BOZEMAN MT 59715

William A. **Morton, Jr.**
8415 1/2 Fontana Street
DOWNEY CA 90241

Mrs. Pat **Neighbors**
R.R. 1, Box 121
FLAT ROCK IL 62427

Noble S. **Proctor**
43 Church Street
BRANFORD CT 06405

C. Gable **Ray**
P.O. Box 2277
RESTON VA 22090

Dusan **Rysula**
50-21 39th Place, Apt. 4-B
SUNNYSIDE NY 11104

BACK ISSUES OF ARGIA AND THE BAO

The editor is able to provide back issues of **ARGIA**. Several of the issues will be xeroxed, as original copies of many issues have been exhausted. Please contact T. Donnelly, 2091 Partridge Lane, Binghamton NY 13903. Each of the previous volumes of **ARGIA** has at least one issue that requires duplication. Because of high mailing and duplicating costs, the back issues cannot be sent at the old price. The present price schedule takes into account the different costs of duplication of each number of **ARGIA**. In the event that an issue becomes exhausted, then xerox copies will be sent. **Prices do not include postage; see below.**

Volume 1 all	\$1.80*	Volume 4_1	\$2.10*
Volume 2 all	\$4.20*	Volume 4_2	\$1.80
Volume 3_1	\$3.00*	Volume 4_3	\$2.20
Volume 3_2	\$3.40*	Volume 4_4	\$1.70*
Volume 3_3	\$2.80	Volume 5_1	\$2.30
Volume 3_4	\$3.20	Volume 5_2	\$2.60

* xerox copies only available

Back Issues of the **BULLETIN OF AMERICA ODONATOLOGY** can be furnished at the prices given below. **Prices do not include postage; see below.**

- 1(1) THE ODONATA OF NEW YORK, Thomas W. Donnelly \$3.00
 1(2) DISTRIBUTION OF DRAGONFLIES AND DAMSELFLIES IN FLORIDA, Sidney W. Dunkle \$2.50
 1(3) MORPHOLOGICAL AND ECOLOGICAL DIFFERENCES AMONG SPECIES OF *LADONA*, Michael L. May \$1.75
 COMPORTAMIENTO REPRODUCTIVO Y POLICROMATISMO EN *ISCHNURA DENTICOLLIS*
 Burmeister, Alejandro Córdoba Aguilar
 1(4) ODONATA DE LA SIERRA DE HUAUCHINANGO, PUEBLA, MEXICO, José A. Gómez Anaya and Rodolfo \$1.25
 Novelo Gutiérrez
 A CHECKLIST OF THE ODONATA OF THE DOMINICAN REPUBLIC BY PROVINCE, Jerrell James Daigle
 2(1) LA NAYADE DE *ARCHILESTES LATIALATUS* DONNELLY, 1981 sub*
 (ZYGOPTERA: LESTIDAE) [The naiad of *Archilestes latialatus* Donnelly, 1981], R. Novelo-Gutiérrez
 DESCRIPCIÓN E HISTORIA NATURAL DE LAS LARVAS DE ODONATOS DE COSTA RICA.
 III. *GYNACANTHA TIBIATA* (KARSCH 1891) (ANISOPTERA, AESHNIDAE) [Description and Natural
 History of of the Odonata Larvae of Costa Rica. III: *Gynacantha tibiata* (Karsch 1891)(Anisoptera: Aeshnidae)],
 Alonso Ramírez
 2(2) DESCRIPTION OF THE NYMPH OF *EPITHECA (TETRAGONEURIA) SPINOSA* (HAGEN) sub*
 (ODONATA:CORDULIIDAE), K. J. Tennessen
 THE LARVA AND ADULT MALE OF *SOMATOCHLORA GEORGIANA* WALKER (ODONATA:
 CORDULIIDAE), Jerrell J. Daigle
 2(3) *MACROMIA ILLINOIENSIS* AND *GEORGINA*: A STUDY OF THEIR VARIATION AND APPARENT sub*
 SUBSPECIFIC RELATIONSHIP (Odonata: Corduliidae), T.W. Donnelly, K.J. Tennessen

* subscription

Mailing and Handling Costs:

	SURFACE		AIR MAIL	
	1st number	each additional	1st number	each additional
United States	\$1.25	\$1.00	---	---
Canada, Mexico	\$1.25	\$1.00	\$1.50	\$1.25
Western Hemisphere	\$1.50	\$1.25	\$2.00	\$1.50
Europe, Asia, etc	\$1.50	\$1.25	\$3.00	\$2.50

ARGIA

Binghamton, New York

Vol. 6, No. 3, 15 October 1994

IN THIS ISSUE	1
PANTALA TEE SHIRT - A FIRST FOR LARVAE?	1
PANTALA FLAVESCENS BREEDING IN QUEBEC	2
HELOCORDULIA SPECIES CONTINUE TO PRESENT IDENTIFICATION PROBLEMS	2
CANADIAN ODONATA COLLECTIONS AVAILABLE	2
DRAGONFLIES AND THE NEW YORK CITY PARKS DEPARTMENT	2
WILLIAMSONIA SAFE IN NEW HAMPSHIRE	2
ALASKA TO HAVE A STATE DRAGONFLY - <i>LIBELLULA QUADRIMACULATA</i>	3
CAPE COD NEWSLETTER	3
<i>AESHNA MULTICOLOR</i> FROM CAPE COD	3
BEATTY COLLECTION OF ODONATA AT PENN STATE NOW AVAILABLE FOR STUDY	3
OLD RECORD OF <i>TRAMEA CALVERTI</i> FROM MARYLAND	4
<i>ERYTHRODIPLAX MINUSCULA</i> FROM PENNSYLVANIA	4
OREGON <i>AESHNA</i> LARVA THREATENED BY THE BAIT INDUSTRY?	4
PUBLICATION ON WASHINGTON D.C. ODONATES	4
<i>NANNOTHEMIS BELLA</i> IN VIRGINIA	4
FUTURE DSA FIELD GATHERINGS	4
VISITING MICHIGAN TO LOOK AT THE WILLIAMSON COLLECTION	5
DNA STUDIES NOW IN PROGRESS	5
GRANT TO STUDY <i>CORDULEGASTER SAYI</i>	6
13TH S.I.O. SYMPOSIUM IN GERMANY	6
PROPOSED DSA COLLECTING POLICY (GUIDELINES)	6
THE US DOT-MAP PROJECT	6
NORTH CAROLINA 1994 ANNUAL MEETING	8
A COLLECTING TIP FOR GOMPHIDS	10
BONANZA!	12
2ND SOUTHEASTERN MEETING IN GEORGIA IN APRIL 1995	12
A TRIP TO THE TEXAS HILL COUNTRY, AND A NEW U.S. RECORD	13
FORCED EJECTION OF FECAL PELLETS BY NYMPHS OF <i>ERYTHEMIS SIMPLICICOLLIS</i>	13
MADAGASCAR TRIP	15
NEW BOOK ON SWISS ODONATA	15
MY TRIP	16
TIMETRAVELER DRAGONFLY (Poem)	16
ELECTRIFIED CORDULEGASTERS!	20
JERRELL VISITS SWAMP - - FINDS BUGS	20
CHANGES OF ADDRESS	20
NEW MEMBERS	21
NEWS FROM THE BULLETIN OF AMERICAN ODONATOLOGY	21
	22