

ISSN 1061-8503

ARGIA

THE NEWS JOURNAL OF THE DRAGONFLY SOCIETY OF AMERICA

VOLUME 5

15 March 1994

NUMBER 4



PUBLISHED BY THE DRAGONFLY SOCIETY OF AMERICA

an affiliate of the

SOCIETAS INTERNATIONALIS ODONATOLOGICA

ARGIA

Binghamton, New York

Vol. 5, No. 4, 15 March 1994

IN THIS ISSUE

LEONORA K. GLOYD - A REMINISCENCE	Rosser W. Garrison	1 2
TONY WATSON - A BRIEF APPRECIATION	Nick Donnelly	3
BACK TO FIJI	Nick Donnelly	4
A NOVEL TECHNIQUE FOR COLLECTING AQUATIC INVERTEBRATES (WITH PARTICULAR APPLICATION TO ODONATA NYMPHS)	Carl Cook	6
OVER THE TRAILS SEARCHING FOR GOMPHIDS- PART I. RENEWING HALF-CENTURY OLD MEMORIES	Carl Cook	8
THE INTERNATIONAL SCIENTIFIC COLLECTORS ASSOCIATION	Carl Cook	9
<i>THOLYMIS CITRINA</i> ; A RECENT RECORD FROM FLORIDA AND AN HISTORICAL RECORD FROM TEXAS	Bob Barber and Vince Elia	10
FINAL PLANS FOR DSA SOUTHEASTERN REGIONAL MEETING: 15-18 April 1994		11
ANNUAL DSA MEETING IN NORTH CAROLINA: 4-5 June 1994		11
DELAWARE RIVER NORTHEASTERN MEETING: 11-12 June 1994		11
PROPOSAL FOR PRE- AND/OR POST- MEETING TRIPS; 1994	Allen E. Barlow	12
NORTHEASTERN FIELD MEETING, 11-12 JUNE 1994		
PAPER ON THE ODONATA OF ARIZONA	Rosser W. Garrison	13
LITERATURE REVIEWS	Carl Cook	13

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

IN THIS ISSUE

This issue notes the passing of two internationally known odonatists, Dolly Gloyd and Tony Watson. Dolly, as Rosser Garrison writes in his appreciative note, was a widely respected odonatist who always had the time to help out a beginner. I began a correspondence with Dolly in the summer of 1952 and continued it until shortly before her stroke. Rosser notes her distinguished accomplishments in his reminiscence. Many of us will also treasure a warm memory of her colorful and forceful criticism of the use of common names for dragonflies, delivered with considerable panache at the 1962 Purdue symposium.

Sadly, notice of her death was not brought to our attention at the time. We were only able to confirm it several months later through her son Roger, who lives in Plano Texas, and who was unaware of her numerous entomological colleagues. (Thanks to Sid Dunkle for being the intermediary.)

Tony Watson is probably best remembered to our group by his receipt at the 1989 Johnson City (TN) meeting of SIO of a "Membership of Honour" in SIO. We grieve for him all the more because of his relative youth.

During the winter our activities normally slow considerably as we stare out the window at the snow and fantasize gomphids on the snow-covered front lawn. I include therefore a short account of a winter get-away to Fiji. No gomphids, but much sun, warmth, and oodles of dragonflies!

Carl Cook brings several matters to our attention this month. The first is an account of an organization devoted to helping odonatists (and other naturalists) through the complexities of the myriad new regulations on collecting in foreign countries. This is a relatively new problem with which we are just starting to cope. Going beyond conservation, some countries are taking the further view that even the study of their fauna must be limited to citizens of the country. It would seem that we are heading in the direction of national taxonomies - that is, species defined for individual

countries only! One hopes that, somehow, good sense will creep in.

Perhaps Carl's ISCA would do well to take a close look at some of the complexities in collecting right here in the U.S. of A. With the emergence of numerous authorities, each jealous of its own prerogatives, it is often very difficult to find out just who you have to ask for permission of to collect. And to ask someone for permission to collect when none is required seems to bring an almost automatic refusal. Ah, the glories of bureaucracy!

In a more positive note, Carl presents us with a new technique for collection larvae. I can't wait to try out my pump (I'll have to wait - there is more than a foot of ice on ponds and even the Susquehanna River is thoroughly iced over at the moment.) I think Carl has invented the wheel!

Bob Barber has made a nice record (*Tholymis citrina*) for the US, using a camera yet! There was a previous unpublished record for the US border in Texas, but Bob's record is very important and also establishes the camera as an authoritative field tool.

As spring approaches, so do our annual gatherings. We have three this year, starting with the late April meeting in Alabama. The first weekend in June will see us in the North Carolina - Virginia area, and on the following weekend we will be on the Delaware River. The main aim of all these gatherings is gomphids. If you have not made your plans, now is the time to do so.

Speaking of gomphids, I was recently asked how many undescribed odonates there are in the U.S. I said six, but conversations later that day on the telephone suggest there may be more. I now count one *Cordulegaster*, three *Argia*, a *Gomphus*, and at least two *Ophiogomphus*. This last genus is turning out to be a real sleeper, and it looks as though we are on the way towards placing it among the most speciose in the U.S.

Will Stolzenburg called the other day to report that the article in *Nature Conservancy* magazine in

magnificent book, *The Australian Dragonflies* (1991), which he co-authored with Hilda Abbey and Gunther Theischinger. As centered as he was on his native continent, Tony nevertheless was keenly interested in the world fauna and wrote several seminal papers which dealt with dominantly non-Australian subjects. However, it is his extensive and superbly crafted taxonomic, behavioral, and distributional studies of Australian odonates for which he will be best remembered. His monographic studies of the Australian gomphids, and of the protoneurids, stand as models of careful and painstaking taxonomy.

Tony was born in 1935 and graduated (with first class honors in Zoology) from the University of Western Australia in 1957. This was also the year of his first publication - on the discovery of a new *Petalura* in western Australia. He named his first new species - *Petalura hesperia* - the following year, starting his career with a bang! He described or co-described more than 50 new species of odonates from Australia (several with Theischinger and other co-workers), a number second only to that of Tillyard. Not all of his taxonomic works concerned Australia; I have found, for example, his review of the *Tramea eurybia* group very helpful for my studies in the southwest Pacific.

His interests included also several non-taxonomic papers. One of the best known of these is his careful study of the gill tufts in larval amphipterygids (*Jour. Morphology*, 120 (1) 9-22, 1966), which was the result of a post-doctoral study at Case Western Reserve University in Cleveland. Tony showed that these were respiratory and further explored the function of the remarkable caudal appendages of these insects.

Another valuable contribution was his study of the corresponding male (hamule) and female (vulvar lamina) structures of several species of *Tramea* (*Proc. Roy. Ent. Soc. London (A)*, 41 (10-12) 171-174, 1966), in which he showed that for the five species studied the dimensions of these structures served as a species-isolating mechanism.

I first met Tony at Montgomery's famous Purdue symposium in early 1962. Tony impressed the meeting participants with his broad knowledge and exuberant enthusiasm. I next met him when I spent a six-month sabbatical leave in Canberra in 1972. During this period I spent nearly every Friday in his office, where he gave me a free run of the Odonata collection. This included the Tillyard types of Fijian *Nesobasis*, which I was studying, and this access was extremely useful to me. My final meeting with him was at the Johnson City meeting of SIO in 1989, where he renewed with his characteristic enthusiasm many of the discussions which we had enjoyed nearly two decades previously.

My final contact with Tony was indirect but further illuminates his character. I was preparing a paper on the genera of isostictids and asked him about the characters of some of the rare Australian genera. His response was a small parcel in the mail containing specimens of each of these, which I wouldn't have dreamed of asking him to loan me. Tony was as generous with his time and specimens as he was careful and thorough with his work. His loss leaves a vast void in Australian entomology and a keen sense in the rest of the world that one of the great odonatists has passed on. I stand with many others in having many delightful memories of this thoroughly delightful Aussie.

=====

BACK TO FIJI

Nick Donnelly

Getting out of Binghamton during the height of winter has always been a good idea. This year it was almost obligatory, and we (me, Ailsa, and our son Malcolm) found ourselves once again missing the New Year celebration by being on a plane crossing the International Date Line before the promised moment. While the rest of you were welcoming in the New Year in whatever fashion

you are accustomed to, we were collecting Fijian endemic damselflies - the genus *Nesobasis* - in mountain streams in deep (and rainy) forest.

Our first day's trek into the mountains - well into New Year's Day by local time - took us along familiar muddy roads in the Nausori Highlands in western Viti Levu (The "Big Island" of the Fijian

group). We took no new species that day (nor later in our trip) but an undescribed *Hemicordulia* first found in our original visit was there.

While you were watching the Orange Bowl game (By the way, who won?), we were well into our second day - this time at a waterfall that we have visited on each of our five previous trips to Fiji. This waterfall should have held no surprises because of all the previous collecting, but - surprise - we took the first *Hypothemis* ever from the Big Island. Ris thought so much of this little libelluline that he put it in his genus #1, his most primitive. It probably isn't especially primitive, but derived from some Papuan ancestor, in parallel with the very similar *Tapeinothemis* of the Solomon Islands. Both these genera (and several other tetrathemines) fly rather spookily around seeps on forested hillsides. There turned out to be a good population at this place. I am reluctant to believe we missed it previously; it must have introduced itself in the last few years.

Although we spent most of our visit on Viti Levu, we fitted in a trip to Taveuni for a few days. The objective there was a tiny mountain lake where a local entomologist had once taken *Xanthagrion erythroneurum*, a beautiful Australian damselfly in a definitely disjunct location. We missed both the damselfly and the lake itself (our guide missed the lake in a tiring climb down the mountain through thick rain forest) - one of the few unrealized goals of the trip. We did confirm that this island has a population of *Tramea eurybia*, a Papuan species that probably lives in that small lake, rather than the species *transmarina* which is found on the other islands, and which ranges broadly in the south Pacific.

I continue to pursue several goals in Fiji. One is the study of a rapidly speciating group of damselflies in an island setting, where the two main islands have completely different species. This is the first trip during which I found no new species, but I still don't understand the niches these numerous species occupy, or why there are so many.

The second goal is trying to understand how these damselflies maintain themselves in the face of very frequent devastating "cyclones". A year ago Viti Levu was hit by Cyclone Kina, one of the most generally destructive storms of recent years. The immense rains from these storms filled the tiny

creeks with mud and debris and may utterly destroy them as suitable habitats for these damselflies. One of our favorite stream systems was nearly depopulated by this storm. There must exist suitably mobile populations of each species so that replacements can introduce themselves and maintain the total population. Indeed, of all the Viti Levu species, most have a wide range on the island and only one (the gigantic highland species *Nesobasis ingens*) seems to occur at only one locality. But, several species seem morphologically adjusted to a particular elevation or have color patterns reflecting the amount of rainfall in their particular part of the island. This would some stability and suggest that populations are not highly mobile. At the moment I have no suggestion for this paradox.

A third goal, which I am happy to leave to others more patient than myself, is to understand the evident "role reversal" of these damselflies. Many of these species are the "phalaropes" of the odonate world, with the males and females seemingly reversing their traditional and nearly inflexible roles. One of the most conspicuous of these is the very widespread *Nesobasis rufostigma*. Females are seen almost constantly, but males are rarely taken. On this trip I took only one - correction, my companion that day took one. Most of the captures have been by non-specialists, who look for damselflies in places away from the stream where they have not been taught are poor places to find damselflies. But this only underlines the problem - why do the females seem to hang out by the stream seemingly guarding territory and generally acting like males, while the males hang out in the bushes some distance from the stream? Several Fijian species do this. In fact, the males of two species have never been found!

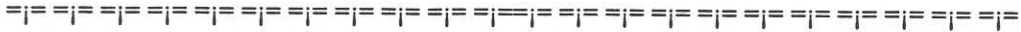
Oceanic islands have limited faunas, which is both their disadvantage and their charm. If odonates are not speciose, perhaps the predators of odonates are not well developed either. Perhaps this is why the species of *Nesobasis* are fairly large damselflies. Or maybe there is another reason.

Other than these damselflies, there is a limited odonate fauna. There are three cordulids, an endemic *Procordulia*, which is widespread, an endemic and undescribed *Hemicordulia*, and *H. hilaris*, which was first taken in 1980 but which seems fairly common now. Perhaps it has moved

into the modified habitats which are increasingly conspicuous.

This last visit produced enough surprises to convince us that we are a long way from

understanding the odonates of these delightful islands. If you are on your way to Australia or New Zealand, I heartily recommend a stopover.



A NOVEL TECHNIQUE FOR COLLECTING AQUATIC INVERTEBRATES (WITH PARTICULAR APPLICATION TO ODONATA NYMPHS)

Carl Cook
469 Crailhope Road
Center, Kentucky 42214

INTRODUCTION

Many diverse life forms utilize aquatic environments entirely as their habitat, others only during the early stages of their life cycles. Those species which are free swimming may be rather easily collected for study purposes by the use of soft mesh dip nets or seines, which causes very little or no disturbance of the substrate, and without causing injury to the organisms themselves. Any unwanted examples may easily be released uninjured back into their natural habitat.

Other forms, and this includes most species of odonate nymphs (the larval stage of dragonflies), may bore into the substrate, live among submerged plants, roots, logs or large boulders where a mesh seine is completely ineffectual. A number of pieces of specialized equipment have been designed and utilized over the years for collecting such difficult to secure forms. These include sturdy wire mesh dip nets and bottom-sampling dredges, with these devices the collector may sweep down aquatic plants or scoop up sections of bottom sediments in order to get at the desired odonate specimens. Another traditional collecting method has been for two persons downstream to hold a mesh seine to catch the washed down specimens, while one or more persons upstream agitate the substrate by kicking up the sand and gravel with feet, or even use garden rakes for agitation.

These traditional methods are quite effective, but they may inadvertently damage the habitat. Aquatic plants can be broken or uprooted from vigorous sweeping and even some animals may be injured from the rough agitation. I have often noticed mollusks and bivalves which have been

crushed, and sometimes even the Odonata nymphs may not survive for rearing because of injuries received during the "kick agitating method".

In September and October, 1993, I experimented with a novel method of collecting Odonata nymphs which has proved less injurious to both living organisms and their habitat, as well as providing more accurate estimates of population statistics. The method continues to employ a soft mesh seine handled by two assistants, or held by poles, to catch the dislodged specimens as they wash downstream. A small portable power driven water pump provides a low-pressure water jet used to agitate the substrate and dislodge specimens, it is also very effective for dislodging specimens from aquatic vegetation and around large boulders or logs where conventional seining is ineffectual.

EQUIPMENT - PUMPS

A powered centrifugal water pump, properly equipped with specialized accessories, is the central piece of equipment.

My initial efforts to test the method were conducted with a rented pump, a Gorman-Rupp model, with 1 1/2" hose output, and powered by 3 HP gasoline engine. This unit proved very efficient in providing a water jet adjustable both for output pressure and volume, also these early tests proved the feasibility of the new collecting method. The one problem encountered with this particular pump model was its heavy weight, about 90 lbs., thus requiring a boat to move it about on the river. I contacted several equipment suppliers to see if lighter weight units might be available.

From specifications furnished on several makes and models by suppliers, two were chosen for testing: (1) The Central Machinery Pump, an exceptionally light unit weighing only 12 lbs., powered by a two-stroke gasoline engine, 1" hose inlet/outlet, 30 gallons per minute output. This unit may be carried on a back-board, or floated on a small auto tire inner tube and towed along in shallow water by a lanyard. The outlet is fitted with a short piece of rubber hose to the end of which is attached a 48" length of 1" aluminum pipe, this is probed under water along the stream bottom, around logs and boulders, where the water jet dislodges the specimens and they are allowed to drift with the river current into the catch net. (2) The other pump tested was the Barnes 2MSP, this is a larger capacity unit for use where more vigorous agitating action is required, the inlet/outlet size is 1-1/2", powered by a 3 HP Briggs & Stratton gasoline engine, the maximum water output is 100 gallons per minute. This has similar capacity to the Gorman-Rupp pump tested earlier, but it is constructed of a molded polyester material and weighs much less. Even so, for a piece of equipment of this capacity a boat is still necessary for transport, however, the much lighter weight of the Barnes unit is greatly advantageous in handling.

Suppliers of these pumps are: for the Central Machinery model- Pumps & Power Company, P.O. Box 1717, El Dorado, AR 71730; the Barnes model- Fischer Pump & Valve Company, 3600 Chamberlain Lane, Louisville, KY 40241.

EQUIPMENT - NETS

The catch net is a very important item of equipment for this method of collecting and the proper construction of the nets, and their handling and setting during the collecting process may greatly affect success of the operation. A fairly satisfactory net is a "minnow seine" obtainable at any sporting goods store, but these are usually made of lighter grade material (called "Regent Netting" in the trade) they are not so durable, but they are economical and readily available nearly everywhere. I prefer nets made from a 3/16" mesh nylon material called "Delta Mesh", this is a very strong material that will stand hard usage and may be stored wet without danger of rotting (1/8" or 1/4" size mesh is also available) Ready-made nets of this material may be obtained from: Nylon Net Company, P.O. Box 592, Memphis, TN

38101. These nets are well-made, top quality in every respect, four feet deep, with top and bottom 450 lb. test nylon ropes, with bottom lead sinks and top floats attached. They will make nets in any length, however, I find the 10, 12 or 15 feet sizes most useful for this purpose, with 20 feet being about the maximum length two assistants can handle.

EFFECTIVENESS

Having been involved with two U.S. Fish and Wildlife Service sponsored species evaluation projects in 1993 (for *Macromia* in Ohio and *Ophiogomphus* in North Carolina) I became aware of the need for a more efficient larval collecting technique to overcome some of the difficult collecting conditions encountered during these surveys. Some of the most promising streams in Ohio were virtually unworkable for nymphs with traditional dip net methods because of logs and brush in the stream bed. While in many of the western North Carolina streams we surveyed the abundance of fist sized cobbles presented great difficulties for "kick agitating" the substrate, the most conventional method of larval collecting under such circumstances. These conditions sometimes slowed our progress to the point where three persons could effectively work only 250 feet of stream bed in a half-day. With the water jet technique, I am absolutely confident the Ohio streams could have been worked more effectively, and production on the North Carolina streams could have increased a minimum of three-fold.

TECHNIQUE

Ideally, this collecting method is best performed by a three person crew, one to operate the pump jet, and two to carry and position the catch net. However, the entire operation may be carried out by one person. For this purpose the catch net should be placed at the downstream end of the desired collecting area, each end and the center of the net should be secured to a holding pole (I make tripods from 1/2" electrical conduit for this purpose), and the poles (tripods) are secured upstream with guy lines. Beginning at the upstream end, thoroughly agitate the substrate of the entire collecting area with the water jet and gently wash the specimens toward and into the catch net. Then dismantle the net from poles, and dump contents into the sorting receptacle, a white enamel pan partly filled with water, or a wet white cloth is

revealed an abundance of *rupinsulensis* larvae, and I set up my equipment to collect along a stretch of ripple, which soon yielded sufficient specimens for my purpose. All seemed attributable to *rupinsulensis* with one exception, a green and straw bicolored specimen, which I immediately remembered looked exactly similar to *aspersus* nymphs we had collected earlier in North Carolina.

The more information we assimilate about ophiogomphids only seems to raise more questions than answers about their habits and distribution.

Isolated incidents of collecting single specimens at the same locations, but years apart, have been documented by others. Larvae are frequently found at locations where the adults are difficult to discover, as in instances in Alabama and for another species here in Kentucky. In this particular instance, it is good to report that *aspersus* is still resident in Kentucky, however, it remains puzzling how any species could have kept its presence in complete secrecy for a half century at locations where odonates have been collected as extensively as they have been in Kentucky during that period.



THE INTERNATIONAL SCIENTIFIC COLLECTORS ASSOCIATION

Carl Cook
469 Craillhope Road
Center, Kentucky 42214, USA

It seems to be increasingly fashionable to minimize the contributions to the natural sciences made by the so called "amateur" or "avocational" worker. It seems nearly forgotten that virtually all of the great pioneer natural scientists - Audubon, Fabricius, Linnaeus, Rambur, Selys - were all amateurs.

Today most taxonomic and life history studies are being conducted by amateur scientists on their own time, and at their own expense. Most hold academic degrees in their field of interest, and many are the most knowledgeable experts on their particular group of study. It is quite ironic that governments use the enormous pool of data assembled by these same workers to help determine the status of possible at-risk fauna and flora, but at the same time they continue to proliferate regulations that make acquiring such data more difficult.

In July 1993, a new organization to be known as the **International Scientific Collectors Association (ISCA)** was formed in Louisville, Kentucky. It is a membership-governed and supported organization with objectives of addressing all matters of concern to the international community of persons engaged in the pursuit of scientific knowledge derived from collecting data or systematic specimen material in all disciplines of the natural sciences. It will be a primary goal of ISCA to bring better recognition

of the important contributions made to science over the years by the traditional avocational collector, and to preserve the traditions and dignity of avocational collecting for scientific purposes as a worthy and honorable pursuit.

The Executive Council of ISCA:

Council Chairman	Rosser W. Garrison	Azusa, CA
Vice Chairman	J. Benjamin Ziegler	Summit, NJ
Councilman	Ulf Etschberger	Marktleuthern, GERMANY
Councilman	Jack L. Harry	Salt Lake City UT
Councilman	William Mauffray	Gainesville, FL
Councilman	Todd L. Stout	Bountiful, UT
Executive Director	Carl Cook	Center, KY

Publications and Meetings

On matters of immediate importance and urgency direct mail memos will be forwarded to the membership. The establishment of our own journal is planned as soon as possible. **Seminars** will be held annually beginning in 1994; preferably they can be held as a specialized working group in connection with meetings of other organizations similarly oriented toward ISCA's objectives.

Why should you be a member of ISCA?

Are you aware it is a violation of federal regulations to pick up a migratory bird's molted

feather from US public land? To pick up certain seashells from a public beaches in some countries? To collect insects in Mexico, or to import natural history specimens from there, without first purchasing a permit that costs \$700.00? Do you know it is a violation of Costa Rican law for anyone except their own citizens to publish scientific papers about their country's fauna & flora? Did you know you cannot legally remove a dead insect from your auto's grill and add it to your collection in Germany? As incredulous as it may seem, regulations such as these are being enforced and people are receiving heavy fines and being sent to jail for violations! ISCA is initiating efforts for reform of these and similar regulations. We hope to continue to act as a watch-dog for the introduction of all such frivolous regulations and other legislation counterproductive to scientific research.

Services that ISCA offers its members include: (1)- Continuously updated information on the rapidly and complexly expanding restrictions applied to collecting by many countries, and information about permit requirements. As the bureaucratic process encroaches more and more into the scientific research field, it becomes evermore difficult to keep ahead of the "paper chase". ISCA memos are your single best source of information to keep abreast of current regulations; (2)- Notification of impending legislative actions which may impact on collecting, or the use of natural history specimens for scientific purposes; (3)- Group representation by

ISCA at the legislative level, on the viewpoint of our membership regarding new actions and reform proposals affecting our fields of interest; (4)- An information sheet providing free listing for wants and exchanges of material for scientific purposes from both individuals and institutions; (5)- Personalized guidance on making donations of scientific material to institutions, procedures for applying for IRS tax credits for donating scientific material, and rosters of institutions interested in receiving donated natural history collections.

Cooperative efforts

ISCA will seek to cooperatively address issues of common concern with all other like-minded associations. In particular we look forward to working toward common goals with the two already existing organizations devoted to representing the interests of scientific collecting: The Association of Systematics Collections and the Entomology Collections Network.

Information

For further information about ISCA please contact the Executive Director, Carl Cook, at (502) 565-3795 or:

**THE INTERNATIONAL SCIENTIFIC
COLLECTORS ASSOCIATION**
469 Crailhope Road
Center, Kentucky 42214, USA

=====

THOLYMIS CITRINA; A RECENT RECORD FROM FLORIDA AND AN HISTORICAL RECORD FROM TEXAS

Bob Barber and Vince Elia

On the morning of 18 April 1992, while observing and photographing butterflies, we observed a dragonfly that we could not identify. It did not resemble any species illustrated in Dunkle (1989, Dragonflies of the Florida Peninsula, Bermuda and the Bahamas), or other species familiar to us. We did not have a net so it was photographed by Elia. It was not until the fall of 1993, when I obtained a copy of Needham and Westfall (1955, A Manual of the Dragonflies of North America [Anisoptera]), that an earnest search for the identity of our enigmatic odonate began.

The color photograph shows small but prominent amber patches in the hind wing just below the nodus, tawny stigmas, and brown venation. The venation clearly shows an open ended anal loop with veins A1 and A2 ending at the hind margin of the wing. These points are distinctive for *Tholymis citrina*. The dull brown coloration of the thorax and abdomen, and the shape of the abdominal appendages fit the description and illustration of a female.

This observation was in the Stock Island Botanical Garden, located on Stock Island, Monroe County,

Potential participants are advised that they should get their names in as soon as possible. I will have to furnish the National Park Service (which supervises the Delaware Recreational and Scenic River) with their names in order to secure permits allowing them to collect along the river. Notify T. Donnelly (home phone 607 722 4939) if you plan to attend.

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

PROPOSAL FOR PRE- AND/OR POST-MEETING TRIPS; 1994 NORTHEASTERN FIELD MEETING, 11-12 JUNE 1994

Allen E. Barlow
10 Belle Court
Budd Lake, New Jersey 07828

Now that the full fury of winter has driven me indoors, I find my thoughts wandering to the warmth of next spring. I would like to invite any of you thinking of attending the Northeast Gathering in June to join me for some pre- or post-meeting collecting at some of north New Jersey's more interesting localities. I have been studying the dragonfly fauna of north New Jersey since 1982 and can offer those interested several lovely localities for our potential forays.

Due south of our meeting area in Sussex County is Stokes State Forest, a pristine example of the deep forests characteristic of the New Jersey Highlands. The area is dotted with many beaver ponds where we can see species like *Gomphus borealis* and *Epitheca canis*. The central aquatic feature of the park is The Big Flat Brook (or, as John Michalski and I call it, The Big Slippery Brook). This medium sized active brook bullies its way through stony bands amongst lovely stands of hemlock and small gorges, causing quite a loud noise when running at its highest. Other stretches of the brook run smooth and quiet over a coarse sandy bottom. This stream has a fine assemblage of Odonata including *Calopteryx amata*, *C. aequabilis*, *Cordulegaster maculata*, *Gomphus rogersi*, *Ophiogomphus mainensis*, *Lanthus vernalis*, *Stylogomphus alibistylus* and *Helocordulia uhleri*. Later in the season, the brook is patrolled by *Boyeria grafiana* and *B. vinosa*, two of the most inquisitive and frustrating species I am acquainted with. All in all, the interesting fauna combined with the peaceful scenery make this area a must see.

About an hour and a half south of Stokes on the Morris and Warren County borders runs the much larger Musconetcong River, the principal drainage of Lake Hopatcong, New Jersey's largest and a major part of the Delaware drainage. Since I moved nearby only recently I have had limited time to fully survey this large meandering river (from July forward). In spite of this I can report having collected the following species here: *Calopteryx maculata*, *Hetaerina americana* (separate June and August emergence), *Argia apicalis*, *fumipennis violacea*, *moesta*, and *translata*, *Gomphus abbreviatus*, *G. lividus*, *Dromogomphus spinosus*, *Ophiogomphus aspersus*, *O. mainensis*, *O. rupinsulensis*, *Lanthus vernalis*, *Stylogomphus alibistylus*, *Stylurus plagiatus*, *S. spiniceps*, *Boyeria vinosa*, *Macromia illinoensis* and *Neurocordulia yamaskanensis*. This is a river of varying moods depending on the time of day you visit. From about 8.30 to 10.30 the *Ophiogomphus* are found perched on rocks and twigs. As the day heats up though they disappear and are only seen as shadowy glimpses coming down from the trees to feed quickly. Even the *Macromia* seem to take a "breather" from about 11:30 until 2:00 or so. My experience with the *Stylurus* has been both frustrating and confusing. After the discovery of exuviae several attempts were made to net a strange gomphid that few erratically and low over the ripples in the stream. Compounding this was the individual's apparent preference for the shadiest and most cramped areas overhung by trees and other obstructions. I had originally suspected that by staying in darkly shaded spots, the *Stylurus* were evading some of the day's heat. This theory does not however explain identical behavior seen on relatively cool days. This is one of the most interesting rivers I have seen in New Jersey in terms of richness of both flora and insect fauna. I suspect that more secrets will be gleaned as the entire course of this river is investigated down to the Delaware. Bring your squirt rifle Ken, you'll need it!!!

About forty minutes east of this interesting area will bring you to the Lake Denmark complex of habitats in Morris County. This area, situated in the midst of the Picatinny Arsenal, never ceases to amaze me for its faunal richness. A note of caution should be given about staying on paths in the woods. John Michalski and I were on a woodland path between two localities when I spied what looked like a great part of the shoreline. We

strayed off the path with visions of *Aeshna* in our heads, when my foot came down on a metallic object buried in the leaves. With our curiosity piqued I pulled out a red sign with the prominent legend "DANGER - Ammunition Dump Area". We will never know what inhabits that shoreline but then we still have our feet intact to walk to other new places! The lesson, stay on the paths. Both lentic and lotic habitats abound here with the following as some of the more interesting representatives: *Cordulegaster diastatops*, *C. maculata*, *C. obliqua*, *Arigomphus furcifer*, *Gomphus rogersi*, *Aeshna mutata*, *Nasiaeschna pentacantha*, *Cordulia shurtleffi*, *Dorocordulia lepida*, *D. libera*, *Somatochlora williamsoni*, *Leucorrhinia frigida*, and *Celithemis fasciata*. John Michalski has collected one each of *Gomphus spicatus* and *Anax longipes* here as well. The late summer assemblage is equally interesting with *Aeshna canadensis*, *A. clepsydra*, *A. tubiculifera* and *A. umbrosa* being the most conspicuous.

Finally, should anyone be interested in a longer trip, I would be very happy to guide those interested to the Ramapo Mountains in northern Bergen County (near New York City) and show you the beautiful Bear Swamp Brook and Lake as well as some of the many interesting seepage habitats that dot the region, and about which I have probably bored this readership already. Should any of you be interested, please contact me at the above address and we can refine the details from there. We have room in our home for overnight guests as well as a large back yard ideal for suburban camping if this is your preference.

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

PAPER ON THE ODONATA OF ARIZONA

Rosser W. Garrison
1030 Fondale Street
Azusa, CA 91702-0821

I am preparing an annotated list of the Odonata of Arizona, a state exceedingly rich in Odonata; but one which has received little attention. I have assayed the collections of Odonata at the University of Arizona and Arizona State University, and I am requesting records of unusual captures from this state. I would like to have a manuscript ready in mid-1994 for BAO. Can any of you help me here?

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

LITERATURE REVIEWS

Carl Cook, 469 Crailhope Road, Center, KY 42214, USA

PETALURA, a new journal devoted to systematic and phylogenetic research on fossil and extant Odonata has appeared with the first issue dated September 1993. This is an annual journal edited by Gunter Bechly, and published by the Specialist Group for Systematic and Phylogenetic Odonatology, a specialized working group of the Societas Internationalis Odonatologica. The ISSN Number is 0944-0453. Subscriptions for the journal (\$10.00) and information concerning membership in the SGSP (free) may be obtained from the editor and organizer of the group, **Gunter Bechly**, Breslaur Str. 30, D-71034 Boblingen, GERMANY.

PETALURA is a nicely produced soft cover periodical with similar format to SIO's **OPUSCULA ZOOLOGICA FLUMINENSIA** series. It is planned to be published annually by the SGSP Group, and will contain original research reports, reviews, announcements, short communications and articles on all aspects of phylogenetic and systematic odonatology, on and above the family level. Papers in English are preferred, but other major European congress languages will be accepted. Manuscripts must be submitted camera-ready or on computer diskettes. Papers proposing new taxonomic names can not be considered for publication in **PETALURA**.

The contents of this issue are:

"The skeleton-muscle organization of the head fixation system in odonates and its evolutionary implications: A comparative study", by Stanislaw Gorb, of the Schmalhausen Institute of Zoology, Kiev, Ukraine.

"A brief report of an ongoing cladistic study on the phylogenetic relationships of fossil and extant odonate family group taxa", by Gunter Bechly, University of Tubingen, Tubingen, Germany.

Short report from the International Symposium of Odonatology in Osaka, Japan, 1-11 August 1993, by Heinrich Lohmann, Rheinfelden, Germany.

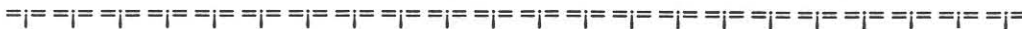
REVIEWS: (Bridges, C.A., 1993: *Catalogue of the family-group, genus-group and species-group names of the Odonata of the world*, second edition). Carpenter, F., 1992: *Treatise on Invertebrate Paleontology. Part R*. Nel, A., Martinez-Delclos, X., Paicheler, J.-C. & Henrotay, M., 1993: *Les "Anisozygoptera" fossiles - Phylogenie et classification (Odonata)*.

NEW BOOKS: An announcement of the proposed *Westpalaeartic Odonata and their Larval Skins*,

by R. Seidenbusch, Sulzbach-Rosenberg, Germany.

ANNOUNCEMENTS: Invitation to the first "Mini-Symposium of the German SGSP members in Tübingen, Germany, 5 March 1994.

MEMBERSHIP DIRECTORY 1993: A listing of names, addresses, tel. & fax. numbers, affiliations and odonatological interests of current members of the SGSP.



Here is a quiz: (1) What family is this dragonfly in? (2) What is the genus and species? If you have answered (1) correctly, then you are ready for question (3): Who is the person?

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 2 all	\$4.20*
Volume 3_1	\$3.00*
Volume 3_2	\$3.40*
Volume 3_3	\$2.80
Volume 3_4	\$3.20
Volume 4_1	\$2.10*
Volume 4_2	\$1.80
Volume 4_3	\$2.20
Volume 4_4	\$1.70*
Volume 5_1	\$2.30
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 <i>LADONA</i> , Michael L. May	\$1.75
COMPORTAMIENTO REPRODUCTIVO Y POLICROMATISMO EN <i>ISCHNURA DENTICOLLIS</i> Burmeister, Alejandro Córdoba Aguilar	
1(4) ODONATA DE LA SIERRA DE HUAUCHINANGO, PUEBLA, MEXICO, José A. Gómez Anaya and Rodolfo Novelo Gutiérrez	\$1.25
A CHECKLIST OF THE ODONATA OF THE DOMINICAN REPUBLIC BY PROVINCE, Jerrell James Daigle	

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

THE DRAGONFLY SOCIETY OF AMERICA

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. Glotzhofer	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 AMERICA

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: *Erythrodiplax berenice* (Drury) drawn by Jean Held, New York City