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THE DRAGONFLY SOCIETY OF THE AMERICAS

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JOURNALS PUBLISHED BY THE SOCIETY

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

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

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

MEMBERSHIP IN THE DRAGONFLY SOCIETY OF THE AMERICAS

Membership in the **DSA** is open to any person in any country. Dues for individuals in the US, Canada, or Latin America are $15 for regular membership and $20 for institutions or contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are $20.

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

Cover: ***Dythemis maya***, a new addition to the Arizona fauna. This example taken in the Big Bend region, Texas, by John Abbott

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

IN THIS ISSUE

Winter is coming with a vengeance this year. In spite of the late reports of various dragonflies (Dave Czapalak reported by e-mail ***Hetaerina americana*** still flying on 13 Nov on the Potomac!), for most of us the memories of live odonates are fading fast in the teeth of winter squalls.

The Texas annual meeting next year promises to be hot, hot, hot. Right now this sounds pretty good to me. So mark your calendar for 12 July 2001 in Junction, in the Texas Hill Country. And leave your snuggies at home.

Colin Jones is planning a field meeting for the Great Lakes enthusiasts next year in Sudbury, Ontario. With strong and well-organized groups in Ontario, Ohio, and Michigan, it is high time for these groups to get together. Those of you who have followed the activities of the Ontario group through their recent publications can't help but be impressed with that province. Keep your eyes peeled for the date.

Dick Baumann takes some time out from his busy stonefly work to send us some new records for Nevada. Dennis Paulson adds some records established by photography, but two of these species may not be as easy to identify as the article suggests. In establishing records, photography remains a weaker way than taking voucher specimens. An excellent photo, however, by Douglas Danforth of ***Dythemis maya*** does seem to establish that species in Arizona, a new state record. This is not the excellent cover photo, which was of a Texas specimen taken by John Abbott.

Ollie Flint found a very interesting state record merely by looking over some really old unidentified material in the National Museum. Imagine his surprise when some Texas material nearly a century old turned out to include ***Nehalennia pallidula***. We have to wonder – did the famous Galveston hurricane nine years earlier transport damselflies to start a viable colony in coastal Texas?

The desert Southwest remains the hot spot of North American Odonata. Three authors tell us why the poorly known and recently described ***Sympetrum signiferum***, has remained so poorly known for so long. It flies very late in the season, when most Odonatists have returned to whatever they do for a living in the fall. Maybe we should consider a late fall DSA trip to southern Arizona.

A record that was less surprising is ***Archilestes grandis*** from Westchester County, New York, found by Dave Moscowitz. This southern species made it to Washington in 1949, Philadelphia in 1950, but took 42 more years to reach Long Island. I suppose it is nice to know that something thrives in polluted water.

It is hybrid time again. E-mails two days apart alerted me to the separate finds in Iowa and Ontario of ***Enallagma anna*** X ***civile***. And a second hybrid ***Ophiogomphus carolus*** X ***rupinsulensis*** was taken by Jeremiah Trimble in Maine. We should make up for lost time here in North America – the Japanese have been finding hybrids there for years.

I am always amazed when parallel news items come in. Rand Duhé describes an ant lion seizing an ***Erythemis simplicicollis***, and Bill Smith recalls an experience several years ago when a tiger beetle larva took a ***Gomphus***.

Jerrell Daigle, who apparently now speaks Polish, is enjoying the delights of Sarasota, Florida, and invites all of us down there to share the fun. I have to admit it sounds pretty good right about now.

Ginger Carpenter started an e-mail to me with, "Sorry it has taken me so long and that I don't have more exciting news. . .", and then noted at the end that she is now to be known as Ginger Brown. I think this is pretty exciting news. Our best wishes to Ginger and Charlie.

Mark O'Brien tells us that Dolly Gloyd's Odonata library has now come home to Ann Arbor, courtesy of Dolly's son Roger, who lives in Texas. This is a great kindness on Roger's part. Odonata books are very scarce and it is always nice to see a fine library remain in the Odonata world.

The Executive Committee is actively planning to incorporate the Society, so that we might be able to obtain not-for-profit status. As the brief article says, Bill Mauffray will be leading this effort, now

that he is done counting the ballots in Alachua County. . .

Ellis Laudermilk informs us that Carl Cook has been awarded a prestigious "Naturalist of the Year" award from Kentucky. Knowing Carl as we do, we are not surprised by this honor.

A major event for me – and for most of you – was the arrival of a 4 ½ pound baby. I refer to the new Needham, Westfall, and May manual, which already seems to be dubbed Needham 2000 in the e-mail world. Boy, is this going to make things easier for all of us.

And we finish, as always, with Bill Mauffray telling us how we can get a copy of this and other recent books from sunny Florida. Packed in some of those ballots, one imagines.

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PROPOSED GREAT LAKE MEETING

e-mail from **Colin Jones**
<colin.jones@mnr.gov.on.ca>

Dear fellow Great Lakes ode enthusiasts:

Following a suggestion from Nick Donnelly, I have decided to feel the grounds for interest in a regional meeting/field trip.

Such a meeting would be an opportunity for ode enthusiasts from the Great Lakes states and provinces to get together to meet each other, network with each other on our various Odonata surveys and atlas projects, compare notes on identification tips and habitat types, etc.

I would like to propose such a get-together (informal) sometime in 2001 (preferably early July) here in Ontario. I was thinking that a meeting in Sudbury District, Ontario (north of Lake Huron and east of Lake Superior) might be a good choice.

Sudbury District has a lot to offer. It is one of Ontario's most undersurveyed Counties/Districts and needs attention. It is a beautiful area of Northern Ontario and is full of lots of excellent aquatic habitats (rivers, lakes, beaver ponds, bogs, etc.). It will have many northern species present (this will be of particular interest to neighbours further to the south). It is also easily accessible from Michigan, Wisconsin and Ohio via Sault Ste. Marie (although it is a bit of a distance from Ohio). Those coming from southern Ontario and New York can also easily reach the area.

With respect to accommodation, there is a possibility that we may be able to utilize a Ministry of Natural Resources (MNR) field camp - this, however, is merely a possibility at this stage but considering that myself and a few other ode enthusiasts from Ontario work for or with the MNR, we have the necessary connections. Failing this, there is certainly plenty of hotel/motel/cottage/resort type accommodation in the area.

I would like to suggest a 3-4 day get-together that would largely consist of field trips. Depending on interest, we could also have some evening slide presentations.

What is the general level of interest for such a get-together?

Is a 3-4 day period spanning a weekend best, or is a trip during the week O.K.?

If you could pass this message around to other potentially interested people in your state and then get back to me with your thoughts I would greatly appreciate hearing from you. I will forward this message to other folks here in Ontario.

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ODONATA OF MOAPA WARM SPRINGS, CLARK COUNTY, NEVADA

Richard W. Baumann and **Adam L. Huillet**
Brigham Young University, Provo, Utah 84602

Adult odonates were collected as part of a survey of the aquatic insects of the Muddy River drainage from September 1996 to August 1997. Specimens were collected at least monthly from six stations extending from Warm Springs Valley to the town of Moapa. Twenty-five species were recorded from five families.

AESCHNIDAE: ***Aeschna multicolor, Anax junius***
GOMPHIDAE: ***Erpetogomphus compositus, Stylurus plagiatus***
LIBELLULIDAE: ***Brechmorhoga mendax, Erythemis collocata, Libellula comanche, L. saturata, L. subornata, Orthemis ferruginea, Pachydiplax longipennis, Pantala hymenaea, Sympetrum corruptum***
CALOPTERYGIDAE: ***Hetaerina americana***

COENAGRIONIDAE: ***Argia immunda, A. moesta, A. nahuana, A. sedula, Enallagma civile, E. praevarum, Ischnura barberi, I. Cervula, I. denticollis, I. hastata, Telebasis salva***

Most species were relatively common but a large population of ***Argia immunda*** was somewhat surprising. Four species represent new state records for Nevada even though they have been found in nearby states: ***Ischnura barberi, I. hastata, Brechmorhoga mendax***, and ***Stylurus plagiatus.***

Determinations were made by Sidney W. Dunkle and voucher species are deposited in his collection in Plano, Texas and the Brigham Young University Collection, Provo, Utah.

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THREE DRAGONFLIES NEW TO NEVADA

Dennis Paulson and **Steven Potter**

SP has been photographing Odonata in southern Nevada for several years now and sending the photos to DP for confirmation. Among them are three species new to the state. DP has retained the photos in a photo archive created to accommodate records of species that are readily identifiable but not documented by specimens.

Argia sedula - Ash Meadows, Nye County, spring 1998.
Perithemis intensa - Bowman Reservoir, Logandale, Clark County, 28 August 2000.
Libellula luctuosa - Bowman Reservoir, Logandale, Clark County, 28 August 2000.

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FIRST RECORD OF *DYTHEMIS MAYA* FOR ARIZONA

Douglas Danforth, P.O. Box 232, Bisbee, Az., 85603 (Dougofbis@yahoo.com)

On September 30, 2000, while photographing dragonflies in the Old Schoolhouse area of Lower Parker Canyon, Santa Cruz County, Arizona, I saw a small, bright red dragonfly that I did not recognize. I took several photos and later, with the help of Sidney Dunkle's Dragonflies Through Binoculars, identified it as a male ***Dythemis maya***. Since it would be a species new to Arizona, I showed a slide of it to Sandy Upson who concurred with the identification and sent the slide on to Dennis Paulson and Rosser Garrison. They both agreed that it was ***D. maya***. Despite some reservations, Sidney Dunkle agreed, as well, replying the abdomen seems to be shorter and thicker than I would expect. However, it could not be anything else that I know of. (The slide in question can be viewed courtesy of Dennis Paulson at www.ups.edu/biology/museum/ODphotos.html, then www.ups.edu/biology/museum/DytmayM.jpg.)

At that location, Parker Canyon is a clear, gravely stream flowing through grassland and oak savanna and is bordered by willow, cottonwood, sycamore and seep willow (*Bacharis salicifolia*). From a perch three to eight feet above the bank, the dragonfly was occupying and feeding within a twenty to thirty foot stretch of the stream, and when it strayed out of that area it was vigorously chased by a male ***Libellula saturata***.

At one point, I saw it rise abruptly to about a foot above a dead seep willow and capture, then eat a small green leafhopper.

A search of the area with Upson one week later failed to turn up this species. Other dragonflies encountered included: ***Coryphaeschna luteipennis, Erpetogomphus lampropeltis, Orthemis ferruginea, Perithemis intensa, Pseudoleon superbus, Sympetrum corruptum*** and ***S. signiferum***.

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NEHALLENIA PALLIDULA IN TEXAS!

Oliver Flint, National Museum of Natural History, Smithsonian Institution, Washington, DC 20560

I was recently curating a part of our North American dragonfly collection before putting them away into the collection. Near the end of the project I was working on a series of ***Ischnura*** (***Anomalagrion***) ***hastata*** from Texas. I soon recognized that the series was mixed; two were females of ***I. hastata***, another two were females of ***I. ramburii***, and two more were females of a species I didn't immediately recognize. As soon as I looked at the thoracic structures I realized how distinctive they were. My first thought was another species of ***Ischnura***; a quick look through the genus in Westfall & May, "Damselflies of North America" disabused me of that idea. I then recalled that some of the ***Nehalennia*** species had some unusual pronota. Indeed the specimens matched

the figures of *N. **pallidula*** perfectly. The specimens were then compared with determined Floridian examples of the species and were found to be identical. The species is reported to be "The only damselfly endemic to Florida,"; my examples are labelled "Galveston, Texas, 13 Oct. 1918, H.S. Barber". Herbert Spencer Barber worked for the U.S. Department of Agriculture and the National Museum for over 50 years, became an expert on beetles and made several trips to the western US, often with E.A. Schwarz.

Because he was an employee in the Museum, I checked the holdings in the Smithsonian Archives and found that they had his field notebooks, including one for 1918 in Texas. Thanks to Mr. Wiliam E. Cox of the Archives, these notebooks were quickly retrieved. On Sunday, October 13, 1918, H.S. Barber was in Galveston, Texas. He tells of walking SW on a seawall to its end and then along the beach. He mentions several beetles he encountered, and "a fine, pale-bodied *Myrmelon*" (*M. texanus* which we have and with the above data). He then went back among some bushes and mentions "about a slough were some *Cicindella*..." He never mentions damselflies, but since he was a coleopterist and, except for the ant-lion, never lists any other type of insect, this is not out of character.

It seems to me that these specimens were most probably taken in a slough behind the beach, somewhere SW of town. In all likelihood this area is now completely developed, but it might be worthwhile for some Texan odonatologist to investigate this type of habitat along this section of the coast. Apparently the species did, and perhaps still does, have populations along the Gulf Coast well west of Florida, perhaps even into adjacent Mexico.

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NEW RECORDS OF *SYMPETRUM SIGNIFERUM* FROM ARIZONA

Fred C. Sibley

In the late summer of 1968 R.F. Sternitzky collected butterflies for the Yale Peabody Museum in SE Arizona and incidentally collected a number of dragonflies and damselflies. In the process of curating this and other stored collections I found a ***Sympetrum*** that didn't match anything in the 1955 Needham and Westfall manual on dragonflies. A little more research proved it to be ***S. signiferum*** (Cannings & Garrison 1991. Ann. Ent. Soc. Am. 84:474- 479).

The species was not described until 1991, although Dennis Paulson had collected the first specimen in Durango, Mexico in 1965. Cannings and Garrison listed only one specimen from the US (an adult male from Leslie Canyon, Cochise Co., Arizona) and had only 22 specimens total. All were late season and all but the Arizona specimen were juvenile, prompting the describers to propose a flight season of mid-August to late November.

There are 13 Yale specimens from Sunnyside, Cochise Co., AZ [Yale Ent. 152844-857; 10 females and 3 males, Sept. 20, 1968 - all juvenile] and one female from Parker Canyon, Huachuca Mountains, Cochise Co., AZ [Yale Ent. Collection #152868; July 25, 1968 and also juvenile].

These specimens indicate a resident population in Arizona although Cannings and Garrison suggested the Arizona specimen might represent a vagrant. The specimens reinforce the conclusion of a late flight season although the Parker Canyon specimen represents and early record.

There seemed to be no published information since the original description so I contacted Nick Donnelly. He confirmed the identification and suggested contacting Rosser Garrison and Dennis Paulson for more information. Both were very helpful. Rosser mentioned several more records in Arizona since 1991. Dennis thought no more had been reported from Mexico. Both referred me to Sandy Upson [see following article] who turned out to be the expert on this species. He had collected adults and seen innumerable individuals at several localities in SE Arizona, particularly in Leslie Canyon the site of the first Arizona specimen mentioned in the original description. Prior to 1998 there were only 18 specimen records from Arizona. In 1998 another 21 were collected at 3 localities. These are listed below and numbered by date of collection.

Acknowledgements - Thanks to the collectors and to Carl Cook, Rosser Garrison and Sandy Upson for providing information on specimens.

COCHISE COUNTY

Specimen 1. Female - Parker Canyon, Huachuca Mountains, 25 July 1968, R.F. Sternitzky [Yale Peabody Museum specimen Ent. 152868]

Specimens 2-14. 10 females and 3 males - 20 Sept. 1968 - Sunnyside, R.F. Sternitzky [Yale Peabody Museum specimens Ent. 152844-857]

Specimen 18. Male - 10 Oct. 1987 - Leslie Canyon, 17 miles N of Douglas, L. Shaw [Garrison collection] - specimens reported in Cannings and Garrison (1991) as only Arizona specimen.

Specimens 20-30. 7 males, 4 females - Oct. 4, 1998 - Bear Creek, 5 miles w of Montezuma Pass, 5500 feet, Jack. L. Harry [Carl Cook collection]

SANTA CRUZ COUNTY
Specimen 15. Male - 18 Oct. 1968 - Sylvania Spring, Parker Canyon, SW 51, Huachuca Mtns., M.L. Moller. [Univ. of Arizona Collection]

Specimen 16. Male - 7 Oct. 1983 - Babocomari Research Ranch, 6 miles SE Elgin, Richard A. Bailowitz. [University of Arizona collection]

Specimen 17. Male - 19 Oct. 1983 - Babocomari Research Ranch, 6 miles se of Elgin, Richard A. Bailowitz. [University of Arizona collection]

Specimen 19. Male - 29 Aug. 1998 - Upper Garden Canyon, Ft. Huachuca Military Reservation 31 28.610N 110 21.077W, Russer Garrison. [Garrison collection]

Specimens 31-39. 6 males, 3 females - 4 Oct. 1998 - Santa Cruz River, 2.4 miles NE of Lochiel, 4600 ft., Jack L. Harry. [Garrison collection & Cook Collection]

There are numerous specimens and sightings from 1999 and 2000 reported in Sandy Upson's article that follows this note.

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LIFE HISTORY OBSERVATIONS ON *SYMPETRUM SIGNIFERUM* IN ARIZONA

Sandy Upson, PO Box 1453 Bisbee, AZ. 85603

For the last 2 ½ years, research biologist Richard Bailowitz and I have worked with the butterflies and, more recently, the Odonates of Leslie Canyon National Wildlife Refuge (This small Cochise County refuge, 16 mi. north of Douglas, Arizona has restricted entry - a special use permit is required.) In early September, 1999, I noticed individuals of the genus ***Sympetrum*** which I was unable to identify to species. By late September, they were clearly the most common dragonfly species at Leslie Canyon. This they remained, with up to 100 individuals visible, until the onset of cool weather in mid-November. In December, my growing suspicion that the dragonfly in question was ***S. signiferum*** was confirmed through Dennis Paulson's kindness in showing me his paratype specimens from Mexico and by Robert A. Cannings' and Rosser W. Garrison's 1991 original description.

On August 25, 2000, these dragonflies abruptly reappeared at Leslie Canyon. Some 25 were present, whereas a week before there had been none. Although only golden-brown females and similarly colored immature males were initially in evidence, mature males appeared three weeks later on September 15. Despite unusually early freezes, this species remained present in significant numbers through October 25 of this year. And small numbers of worn individuals could still be seen as late as November 13. The late-August through mid-November flight period almost exactly matches that predicted by Cannings and Garrison (1991).

Maturation among males starts with a darkening of the dorsal surface of the thorax and abdomen from golden brown to red. Ultimately, the entire thorax darkens to a matte or "bricky" red and the predominant color of the abdomen darkens to a lustrous cherry red interrupted by prominent lateral black spotting on segments 5-8. The upper half of each eye also changes from a light brown to a cherry red, while the lower half brightens from a grayish brown to a grayish white. Females are reproductively mature in their golden-brown coloration. However, by mid-October, some females show a considerable reddening of the thorax and abdomen though not so completely as the males. The specimens from Durango and Nayarit (Cannings and Garrison, 1991) range in size between 32.6 and 41.6 mm. The one Arizona specimen (October 10, 1987; also from Leslie Canyon) available to them was the second smallest in their series, although its total length was not given. All 20 specimens I have measured range between 32 and 37 mm. in total length with the smaller end of the range predominating slightly among specimens taken later in the flight period.

As surprising as the existence of a thriving population of ***S. signiferum*** in Leslie Canyon may be, given the scarcity of pre-1999 records (see previous paper), the bigger news is that in proper habitat (more on this below), the whole area from the west side of the Huachuca Mountains just above 6000 feet down to the headwaters of the Santa Cruz River at roughly 4700 feet (extreme western Cochise County through eastern Santa Cruz

County) is host to a veritable "thundering herd" of this species. In October, my photographer and naturalist friend, Doug Danforth, and I found significant colonies at several localities: eg. October 7, 2000, at the Parker Canyon Schoolhouse (20+ individuals), Santa Cruz River crossing on Rd. # 813 (50+), October 14, 2000, at the Upper Parker Canyon crossing on Rd. # 83 (12), Upper Scotia Canyon at the Bear Creek crossing on Rd. # 61 (200+). The Schoolhouse location is a mere three miles from the Mexican border, and, since the habitat continues south, it likely occurs in Sonora as well. Although ***S. signiferum*** remained largely unknown until 1999, it is not because it is rare, but rather local in occurrence and because its flight period peaks in early October, a month after the monsoons have usually stopped and odonatists have gone home and denned up for the winter.

Habitat preferences in Arizona seem to contrast with those ("grassy pond in a pasture..., muddy river, choked with water plants...") cited by Cannings and Garrison (1991) for Mexico. For breeding, it favors the occasional sluggish pools of several feet in depth interrupting clear-water streams of slow to moderate flow. These pools present shallow margins with abundant, soft-tissue, emergent vegetation. ***S. signiferum*** is apparently indifferent to the presence or absence of a closed canopy. At Leslie Canyon, a lushly riparian, closed-canopy type habitat dominated by Arizona ash and willows, it oviposits in water perhaps two inches deep while sheltered among immature *Bidens* plants growing from 0 to 6 inches above the surface of the water. Many of the larvae later attach themselves to these same small plants as they prepare for emergence as adults. In one small (2 ft. x 6 ft.) patch of *Bidens* where I witnessed the simultaneous emergence of two teneral individuals there were some 40+ exuviae also in evidence. A few (6-8) exuviae were also found as much as five feet from the water's edge on the tips of small bunch grasses.

The Huachuca Mountains' western drainages, such as Scotia and Sunnyside Canyons, present a pine-oak, and oak-juniper woodlands, and offer a slightly more open canopy also to the liking of ***signiferum***. (They share this breeding habitat with ***Aeshna persephone***.) In contrast, the upper Santa Cruz River is a totally open, decidedly more arid, scrub and grassland habitat. One constant among these otherwise diverse habitats is the presence of vegetation-bordered pools, and mating behavior (pairs in tandem) was observed in each.

Ovipositing is carried out in tandem, with the male providing the up and down "sewing machine" flight as the female, at times submerged to perhaps half her body length, is dangled in and out of the very shallow water amidst the vegetation at the pool's edge. In one instance witnessed, the female suddenly disengaged herself from the male and disappeared. The male, oblivious to her absence, continued his up and down motion for another ninety seconds or so until he abruptly noticed that he had been abandoned. At this point he went into a widening zigzag-pattern flight and promptly disappeared as well.

At any given time most of the population seems to prefer the open areas immediately adjacent to the breeding habitat. Even at mid-day they often remain stationary for extended periods up to six feet above the ground on various prominent perches such as sacaton grass. In such areas, they are quite non-territorial, willingly allowing many others to perch in close proximity, sometimes in fact sharing a perch with another individual only inches away. In an area of 300 sq. ft., there might be 30-40 individuals, all seemingly indifferent to the presence of the others.

Hopefully, through further field work in the coming season, these observations will gain precision, amplification and, perhaps, even correction.

Reference: Cannings, R. A. & R. W. Garrison, 1991. ***Sympetrum signiferum*** , a New Species of Dragonfly (Odonata: Liblulidae) from Western Mexico and Arizona. Annals of the Entomological Society of America 84: 474-479.

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SYMPETRUM SIGNIFERUM AT LESLIE CANYON, ARIZONA

Oliver Flint, National Museum of Natural History, Washington, DC,20560

In early October of 2000 I received 4 adult and 2 nymphal dragonflies from Mr. William R. Radke, Refuge Manager of the Leslie Canyon National Wildlife Refuge (part of the San Bernardino National Wildlife Refuge Compex). He believed them to be ***Sympetrum signiferum*** Cannings & Garrison, a fact which I quickly confirmed. After confirming this record and talking with Mr. Radke, I was sent a few more, both male and female specimens; all are now in the National Collection.

On Sept. 27, Mr. Radke wrote "The first were collected on Aug.30, 2000, but as of today's date [27 Sept.] they are still present in large numbers. Several exuviae have been collected from along Leslie Creek which belong to this species. In addition, several larvae have been collected, and emerging adults have been documented." On Nov.13 he wrote "***S. signiferum*** was active, however, until at least November 02, 2000, and were dipping and laying eggs in Leslie Creek on October 30, 2000 when I visited the area." When I talked to him later, around Nov 20, he noted that in recent days the weather had warmed and had seen a few, old, tattered specimens. Most of the examples have the notation "resting on Sacaton grass 30 feet from the creek, in open area." Sacaton grass is a species of *Sporobolus*, which has a fruiting stem up to 2-3 feet in height (Paul Peterson, pers. comm.)

I have been in contact several times now with Mr. Radke, and we have agreed upon my doing an aquatic insect survey along Leslie Creek in the coming year.

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A NEW COUNTY RECORD FOR *ARCHILESTES GRANDIS* IN NEW YORK WITH NOTES ON HABITAT AND WATER QUALITY

David Moskowitz c/o EcolSciences, Inc. 75 Fleetwood Drive, Suite 250 Rockaway, New Jersey 07866 dmoskowi@ecolsciences.com

On 3 October 2000 a male ***Archilestes grandis*** was collected on Mine Brook in Mt. Pleasant, Westchester County, New York. This appears to be the first record for Westchester County and only the second confirmed record for the state. The first confirmed record for the state is from Suffolk County, Long Island on 20 August 1992 (Blanchard 1992). An unconfirmed record (3 September 1996) from Staten Island, Richmond County has also been reported (p.comm. Walter 2000). The new Westchester County record also appears to be a new late date for ***A. grandis*** in New York and in New Jersey (May and Carle 1997). It is not surprising that ***A. grandis*** was found in Westchester County as it has been reported from Bergen County, New Jersey, just across the Hudson River (May and Carle 1997). It seems likely that with searching, ***A. grandis*** will also be found in Rockland County, New York, which is located between Bergen County, New Jersey and Westchester County, New York.

In the northeast, ***A. grandis*** is a late season damselfly (p.comm. Donnelly 2000). May and Carle (1997, p. 5) suggest it may be the latest damselfly to emerge, on average, of any species in New Jersey. ***A. grandis*** has undergone remarkable range expansion during the past century apparently expanding from the southwestern United States, Central America and northern South America early in the century (Gloyd 1980, Needham and Heywod 1929), to as far north and east as Vermont, by 1996 (p. comm. Donnelly 1996). It has been suggested that ***A. grandis*** may be tolerant of water conditions generally considered "poor" by conventional water quality indices, and this may explain its recent range expansion (Moskowitz and Bell 1998).

Mine Brook is a small intermittent stream that flows through a 160-acre undeveloped parcel. The parcel is completely surrounded by development. The brook originates at three large pipes that receive extensive stormwater runoff from a large upslope commercial facility. The stream hydrology is largely governed by these stormwater inputs. Base flows are apparently a combination of stormwater runoff and groundwater, and storm flows are largely from uncontrolled stormwater runoff discharged from the pipes. The stream hydrology is best characterized as "flashy", with heavy flows that are maintained for only short periods after storm events. After exiting the pipes, the stream flows through a mostly wooded corridor before being culverted beneath a road, and then flowing through another mostly wooded corridor, before it is again piped, this time under a parking lot.

The stream segment where ***A. grandis*** was found has a broad channel (15-30 feet wide), with eroding banks and a cobbly-bouldery substratum alternating with depositional areas of silt and sand. Aquatic macrophytes are generally lacking in the stream channel. A brownish film of diatoms was evident over the silty sediments and mosses (*Fontinalis*) and filamentous green algae was evident on the rocks. Aquatic invertebrates in this stream segment included caddisflies (Psycomiidae; Hydropsychidae), pulmonate snails (*Physa*) and their egg masses, water striders (Gerridae), chironomid larvae (Diptera; Chironmidae), black fly larvae (Diptera; Simulidae) (p. comm. Bell 2000) and ***Aeshna umbrosa*** larvae. These taxa are generally characterized as tolerant or moderately intolerant of poor water quality (Hart and Fuller 1974, USEPA 1989).

Water quality data from a sample taken on 3 October 2000 near the location where the ***A. grandis*** was collected, revealed elevated fecal coliform and total dissolved solids, and moderately elevated phosphorus. When combined with other measured parameters and field data including dissolved oxygen and temperature, Mine Brook is best characterized as moderately impaired. This is consistent with other reports of ***A. grandis*** habitats (Moskowitz and Bell 1998). Table 1. presents the results of water quality analyses for Mine Brook near the location where ***A. grandis*** was found.

Table 1. Water quality data for Mine Brook near the location where ***A. grandis*** was collected.

Parameter	Result
BOD	3 mg/L
Fecal coliform	6800 cfu/100ml
Nitrate as N	1.60 mg/L
pH	7.4 pH units
TDS	615.0 mg/L Total
Phosphorus as P	0.16 mg/L
TSS	<3.0 mg/L
Turbidity (Nephelometric)	2.8 NTU
DO	7.8 mg/L (84% saturation)
Temp.	18.8°C

Acknowledgement: I would like to thank Ms. Laura Newgard, my friend and colleague, for collecting the water samples and for providing me with the opportunity to search for odonates on Mine Brook

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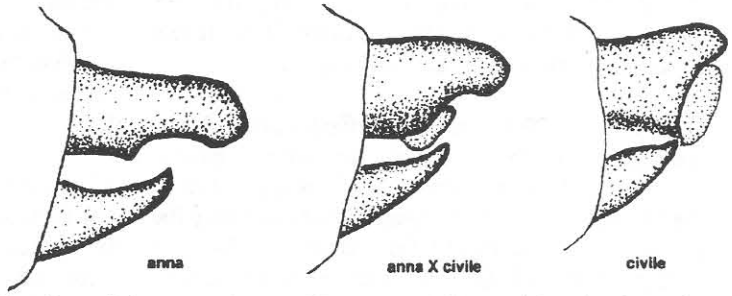
HYBRID *ENALLAGMA ANNA* AND *CIVILE* – FROM ONTARIO AND IOWA!

Nick Donnelly

On the 5th of September I received an e-mail from Colin Jones in which he stated that he had apparently taken a hybrid between ***Enallagma anna*** and ***civile***. Two days later I received an e-mail from Bob Cruden with the same information – this one from Iowa. Is this a coincidence or what?



Sketches of the appendages of E. anna, civile, and hybrid, from Ontario

I have examined the specimens (actually two males from Ontario and three males from Iowa), and I agree with Cruden and Jones that they are hybrids, and between ***anna*** and ***civile***. In the case of one Ontario hybrid male, it was found in tandem with a female ***Enallagma antennatum***. I wonder what the progeny of this mating might have looked like?

In a sense this finding is not entirely novel. The species ***E. optimolocus*** that was described recently by Kelly Miller and Mike Ivie (Miller, K. B. and

Ivie, M.A., 1996, ***Enallagma optimolocus***, a new species of damselfly from Montana (Odonata: Coenagrionidae). Proc. Ent. Soc. Wash., 98: 833-838) seems to many of us to be a hybrid between ***E. anna*** and ***carunculatum***, which is a close relative of ***civile***. ***E. optimolocus*** was named from a series of males in northwest Montana, and an additional male was taken in western Oregon.

In both of these cases, there were multiple specimens of the hybrid present, which is parallel to other cases of hybridism, in which the produce of a batch of hybrid eggs produces a hybrid cluster. In southern New Jersey Bob Barber a few years ago found multiple specimens with the area of a few miles of apparent hybrids between ***Sympetrum internum*** and ***obtrusum***. The type series of ***Macromia wabashensis*** (an apparent hybrid between ***M. taeniolata and pacifica***) consisted of several specimens all taken flying together.

We still have not established many occurrences of hybrids in North American Odonata. In Japan, hybrid ***Sympetrum*** are reported fairly often, as well as hybrid ***Anax***. I report a second example of a hybrid ***Ophiogomphus*** in the next article. Keep looking – hybridization may be more frequent than we think.

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A HYBRID *OPHIOGOMPHUS* FEMALE – AGAIN

Nick Donnelly

A few years ago I reported on a strange ***Ophiogomphus*** female collected by the late Richard Forster. It was found on the Squannacook River at West Groton, Middlesex Co., Massachusetts, on 10 Aug. 1996. Its characters were almost precisely halfway ***between O. rupinsulensis*** and ***carolus***, and I determined it to be a hybrid between those two species. This summer Jeremiah Trimble found a second example, on the Machias River, Washington Co., Maine, on 26 June 2000. It is also a female and is essentially identical to the Forster specimen. The morphological character that is most significant in both examples is the post-occipital horn, which is similar to that of ***rupinsulensis***, but very thin. (***O. carolus*** lacks a horn here). It is curious that these two specimens are females; generally males show their hybrid origins much more clearly.

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ANT LION EATS *ERYTHEMIS*

e-mail from **Rand Duhé** (duhe@infohwy.com)

I have seen only a few references to predators of dragonflies other than winged creatures (like snakes, etc.). My son Elliot, 14, and I witnessed an instance of predation that was wholly unexpected, if not puzzling at first, during the end of this last dragonfly season in a suburb north of Houston, TX.

Near a man-made drainage canal near our home, we were chasing down an elusive ***Orthemis ferruginea*** (the pink form of the Roseate Skimmer) when my son yelled out "something's got it!". I immediately ran over to where he was standing and there was a female ***Erythemis simplicicollis*** (Eastern Pondhawk) apparently "stuck" to the ground and flapping its wings wildly. Closer observation showed the dragon had, most unfortunately, chosen a bare spot on the bank only a few square inches in area that happened to be the site of an antlion's den! An ill-fated rescue attempt (mostly to discover the predator's true identity) only yielded the dragonfly minus its abdomen. The mostly clay with sand bank was too difficult to dig fast enough to yield the culprit. (I only point this out since a post some time ago recalled that you don't always find crayfish in a crayfish den!)

Has anyone else encountered similar observations, that is, of the odonatological version of the movie "Tremors"?

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CICINDELA LARVA EATS *GOMPHUS*

e-mail from **Bill Smith**

My very first publication was in the Journal *Cicindela* in which I described finding an adult clubtail (probably ***Gomphus spicatus***) "stuck" to a sand trail. It was vibrating its wings but couldn't move. I grabbed it thinking this is an easy one and in the process pulled a last instar larva of *Cicindela scutellaris* out of its burrow. The larva had the dragonfly by the anterior portion of the abdomen and didn't let go till it was too late.

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SARASOTA SURPRISES!

Jerrell J. Daigle

Last summer, I collected several exotic species in Sarasota, Florida while visiting my exuberant

catch such species such as the blue-faced green ***Coryphaeschna adnexa***, brilliant red ***Crocothemis servilia***, black ***Erythemis plebeja*** plus native species such as ***Brachymesia gravida*** and ***Macrodiplax balteata***. At the condominium fountain pond where she lives, we even got ***Aphylla williamsoni*** but we missed some strange red ***Trameas***. A couple blocks away, several gas station and shopping mall retention ponds had all of these species in good numbers, especially the Asiatic ***Crocothemis servilia*** which seems to be everywhere in South Florida these days.

In late October, we went to Copeland and Everglades City in the Florida Everglades. The mosquitoes were bothersome but we saw lots of **Crocothemis servilia**, **Erythemis plebeja**, **Erythrodiplax umbrata**, plus the purple and yellow **Miathyria marcella** along the Highway 29 canal. The mosquitoes kept us from wading the swamp and looking for rare damselflies.

We had a great time catching dragonflies or "wazka" in sunny Sarasota! Zofia has a guest room with a bathroom styled with dragonfly towels, bathrugs, and dragonfly decorations! She is renting out the inexpensive room to members of the Dragonfly Society of the Americas (DSA) who would like to visit and collect dragonflies in Sarasota. She is a wonderful cook and very experienced with Polish cuisine! Her breakfasts are awesome! If you would like to learn more, please E-mail Zofia at gosiano1@aol.com or call her at 941-360-9081.

Any day now, I expect someone to find new exotic species from Africa or Australia here in Sarasota. Could that person be you! Come on down and find out!

Do widzenia!

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NEW ADDITIONS TO THE UNIVERSITY OF MICHIGAN MUSEUM OF ZOOLOGY ODONATA LIBRARY

Mark O'Brien

We recently recieved a shipment of books belonging to the estate of Leonora (Dolly) K. Gloyd from her son, Roger Gloyd, of Plano, TX. Mrs. Gloyd had been an adjunct curator of Odonata at the UMMZ for nearly 50 years, and although we had her reprints and specimens here at the UMMZ, her personal library had been sent to her son when she left the museum to live in Texas. Dolly had acquired many books on Odonata, some of which are quite rare. All of the Odonata-related books will be housed in the Williamson-Kennedy-Gloyd Odonata Library. Several of the volumes are on Siberian Odonata, including a nice work by Popova (1953) on "Dragonfly Nymphs in the USSR Fauna." The three Walker volumes and some other works on North American Odonata will be used by the Michigan Odonata Survey. The non-Odonatological works will probably be sold if already represented in our library. The sales will go towards the support of the Michigan Odonata Survey. Check our web site for more information about book sales in January 2001.

Here is a partial list of the titles that we received:

Asahina, S. 1954. A Morphological Study of a Relict Dragonfly, ***Epiophlebia superestes***. 153 pp. + 70 plates.

Belyshev, B.F. 1973. The Dragonflies of Siberia. Vol. 1, Part 1; Vol. 1, Part 2; Volume 2, Part 3.

Belyshev, B.F. 1977. Determiner of Dragonflies (genera of boreal faunistic kingdom and some contiguous territories, species of the USSR fauna). 398 pp.

Calvert, A.S. and P.P. 1917. A Year of Costa Rican Natural History. 577 pp.

Calvert, P.P. 1909. Contributions to a Knowledge of the Odonata of the Neotropical Region, Exclusive of Mexico and Central America.

Cannings, R.A. & K.M. Stuart. 1977. The Dragonflies of British Columbia. 254 pp.

Corbet, P.S. 1962. A Biology of Dragonflies. 247 pp.

Fraser, F.C. 1933. Fauna of British India, Odonata - Vol. 1.

Popova, A.N. 1953. Dragonfly Nymphs in the USSR Fauna. 234 pp. (in Russian).

Schiemenz, H. 1953. Die Libellen Unserer Heimat. 154 pp.

Selys-Longchamps. 1854 -1878. Synopsis des Gomphines (all bound together).

Selys-Longchamps. 1860-1886. Synopsis des Agrionines (bound). [2 copies, so we will sell one]

I am pleased that Roger Gloyd considered the UMMZ for the final destination of Dolly's books. When one considers her long association with the Museum of Zoology and the connected web of Gloyd, Williamson and Kennedy, having these collections together merely reinforces our strong Odonatological heritage.

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PLANNED INCORPORATION OF THE DRAGONFLY SOCIETY OF THE AMERICAS

The Executive Committee of the Dragonfly Society of the Americas has recently considered the incorporation of the Society followed immediately by a federal application for not-for-profit status. Such status would, for example, free us from paying taxes on our printing costs, which currently amount to several hundred dollars per year. There are no postage benefits from incorporation, and our publications already have ISSN numbers, so these issues are not affected.

Incorporation would require us to have a place of business, and to maintain corporate books. We have taken no action yet, but the Committee is actively exploring the possibility of incorporating in Florida. Bill Mauffray has volunteered to shepherd the process and maintain the books. The input of the membership is welcomed.

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CARL COOK RECEIVES AWARD

e-mail from **Ellis Laudermilk**

Just a note to let everyone know that one of our distinguished colleagues, Mr. Carl Cook of Center, Kentucky, received the Kentucky Society of Natural History's "Naturalist of the Year" award on Saturday, October 7, 2000. Carl gave an excellent presentation entitled an "Introduction to Dragonflies and Damselflies" to members of the group, and was subsequently surprised to learn that he was the honoree. A photo of Carl receiving his beautiful award can be seen at the KSNH homepage. Congratulations Carl!

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Review; DRAGONFLIES OF NORTH AMERICA, revised edition, by **Needham, J.G., Westfall, M.J., Jr.,** and **May, M.L.** Gainesville: Scientific Publishers, 938 pp. + 14 pl.

Reviewed by **Nick Donnelly**

It seems like yesterday (It was 1955, actually) when the old Needham and Westfall manual came out. We had all been waiting a long time for its appearance and even the price (I paid $8) didn't scare anybody away. The manual changed our life. For this first time we had, under one cover, a comprehensive treatment of all the North American Anisoptera. Previous to that all we had was the Needham and Heywood 1929 manual, which had been declared second rate long before its successor appeared.

The best things about that 1955 manual, from my view, were the magnificent photographs by Minter Westfall – of appendages, larvae, wings, etc. An entire generation of Odonatists – graying now – grew up with that manual and learned to identify dragonflies from it. The explosion of interest in dragonflies (stemming in part from that manual) also inevitably began its obsolescence. Younger workers found new species and even more new records for the area of the Manual (wisely planned to include the Greater Antilles and Mexican bordering states). Thus, by the 80's, the beloved Needham and Westfall was failing us more and more often. I can't remember when I heard that a revision of the manual was being contemplated, but I remember my delight with this news. I have not been disappointed.

The new manual has the same format and same goals as the old manual. In addition to the Anisoptera (dragonflies in the strict sense) of the United States and Canada, species of the Greater Antilles (several of which do not occur on the mainland) and northern states of Mexico have been included. The inclusion of species from these bordering areas was one of the really useful aspects of the old manual; new records for the United States were much easier to establish with this information. Larvae are discussed extensively, and most genera include keys to adult males, adult females, and larvae.

The introduction is an extended account of adult and larval morphology, on life history and habits, and on techniques for collecting and study. It is little changed from the 1955 version, even listing cyanide (use with caution!) as a killing agent. (Advice on the use of acetone has been added.) The morphological section is quite useful and valuable, and many people will consult it even when they are not seeking an identification.

The new manual in the beginning springs a surprise – a section of color plates of most Anisoptera (except for the most speciose subfamily, the Libellulinae). Larry Zettler prepared these plates in the 1980's in contemplation of another publication. When those plans were not realized, the plates more or less disappeared for several years. Happily, they have surfaced again. I confess to having been much more impressed with the

Tennessee State University than I am with their necessarily reduced publication size. A comparison of some of my slides with these drawings confirmed that many species are shown too blue or too gray. But even at their small size they are lovely and useful. In the following section there are color photos of most genera of North American Anisoptera. These are also lovely and helpful, though not up to Sid Dunkle's high standard.

The bulk of the section is a systematic arrangement of families, genera, and species of dragonflies. The initial key to families is well illustrated, including several characters that are not often illustrated in keys (the kinked outline of the rear of the eyes of cordulines, for example).

A book of this sort depends heavily – even overwhelmingly – on its illustrations. As I mentioned above, the beautiful photographs made with such care by Minter Westfall for the 1955 edition all appear here. They have a lesser visual impact than in the earlier edition because of the selection of paper, which is too matte to bring out the rich luster of these photos. To supplement the photos, line drawings are used. Most of these are by Elyse O'Grady, a talented illustrator and former graduate student of Mike May at Rutgers. O'Grady has produced a great many lovely drawings. Most drawings are superior and serve as important adjuncts to the text. In some cases, the drawings are coarse or overly dark. Some drawings of appendages are obscured by an investment of fine setae. These setae have confounded Odonata illustrators for more than a century. Most artists have chosen to omit them, except for a few (such as Lieftinck) who were able to include these fine setae without obscuring the morphology. In some cases (the ***Aeshna*** hamules, for example) the drawings are too reduced, and the necessary details are very difficult to see. With these exceptions, these new illustrations are perhaps the most significant addition to this new edition.

Less successful are the many drawings from a variety of other sources. These range from poor to good. The problem is that they range. A beginner seeking to identify a species will find different drawing styles unattractive and even an impediment to the separation of closely related species. In the section on ***Somatochlora***, for example, there are drawings of cerci from three different sources in addition to photos. (The poorest drawing in the book may well be one of mine. Drawn originally for private correspondence, I was surprised to see it later in ARGIA, shocked when it appeared later in the BAO, and saddened to find it now in this book! It has truly become my albatross . . .)

The most difficult part of Odonata study is the identification of larvae. Those of us who have sampled larvae extensively have generally resorted to rearing for identification. I have gone over some of the keys for larval identification and found many new characters but also several problems, mainly resulting from variation within species. While the key characters may hold for some, or even most, specimens of a species, some of the differences are so small as to make the keying of these larva very uncertain. For example, I have always great problems with distinguishing reared specimens of ***Lanthus*** species, and of ***Gomphus lividus*** and ***descriptus,*** which still confound me after fifty years. The treatment in this manual is probably as good as I have seen, and I have found some novel and potentially highly useful characters. I would warn beginners, however, that larval identification is a highly uncertain exercise, and that they should heed the advice in the book about rearing (page 39).

Variable species are treated generally thoroughly, with variants, including subspecies, described or figured. I feel this is important, because there are many unanswered taxonomic questions that tomorrow's workers (perhaps stimulated by this book!) will seek to answer. But the treatment is not uniformly good. In ***Aeshna interrupta***, for example, only the cercus of one subspecies (***interna***) is figured, and the distinctively different cerci of two others are not. If ***nevadensis*** is not recognized (Walker (1958) omitted it from his Canada opus largely because it does not occur in Canada), then the range of ***lineata*** should have included California.

One genus that was not treated well in the old manual was ***Gomphaeschna***, and problems with the two species frequently come to my attention. The males are easily separable with abundant characters in both the male terminalia and male secondary genitalia. But these are not figured and are described only in terms of the separation of the cerci, which is only one of their differences. It also would have helped immensely to show figures of the wings, or portions thereof, of the two female species.

Ophiogomphus mainensis fastigiatus is neither described nor figured, even though it is morphologically distinct from ***m. mainensis***. But the two subspecies of ***O. incurvatus*** are illustrated.

The authors use the older generic designations ***Epicordulia*** and ***Tetragoneuria***, rather than ***Epitheca***. They are entitled to do this, because under the Code, these names are available. But not using ***Epitheca*** because ". . .no formal treatment using modern methods of analysis is available. . ." seems to miss the point somewhat.

The treatment of several species of ***Tetragoneuria*** seems inadequate. ***T. petechialis*** is described in the key as having wing spots, even though the text states that some do not. In fact, a great many in the eastern part of its range lack all wing spots. The distinctively thick abdominal base is also useful, and poses a problem for those who would synonymize it with ***costalis***, which has a very wasp-waisted abdomen. The species ***cynosura*** is more difficult to distinguish from ***costalis*** than the key and text implies, especially in the western part of its range, where ***costalis*** may intergrade with ***petechialis***. The photograph of ***cynosura*** cerci selected for this text is somewhat non-typical, in that most specimens I have seen have slightly flared and deflected cerci tips. I predict that in the next decade there will be more confusion in this genus than in any other North American Anisopteran.

The treatment of ***Gomphus*** and its three somewhat unsatisfactory subgenera is good. The authors here take a conservative approach where it is really needed. We are a long way from a good understanding of the relationships within this generic complex. I agree with Carle that the ***Hylogomphus*** group is closer to the type species ***vulgatissimus*** than any other New World group, but I dispute the notion that ***graslinellus*** and ***quadricolor*** are also close, particularly because their larval characters seem so different. Walker's neglected work on affinities within this genus suggests that what we call "***Gomphus***" s.str. may comprise two groups. This is a good problem for the future, and I am glad the authors did not plunge in at this time.

Another knotty problem which bothers many is the treatment of ***Cordulegaster diastatops*** and ***bilineata***. The new manual separates them in the key solely on the basis of color and the width of the thoracic stripes. A major difference in the epiproct size is noted in the text. As the problem now uneasily rests, the most northwestern specimens of this species seem to belong to the "southern" ***bilineata***.

The libellulines (as they are called here) have a host of problems, mainly involving variations within species or presence of possible color morphs. I note that the authors helpfully point out several continuing problems: the status of ***Erythemis simplicicollis*** and ***collocata***, ***Sympetrum occidentale*** and ***semicinctum***, and ***S. janeae*** and ***internum***. The status of ***Tramea binotata*** and ***insularis*** has always seemed to me to be especially puzzling. In the Antilles they co-occur but could they be color morphs of the same species? They report ***Macrothemis leucozona*** as a species distinct from ***imitans*** on the basis of a suggestion that I made based on a comparison of the typical ***imitans*** with ***leucozona***. I later rescinded this suggestion, stating that the specimen of ***leucozona*** used in the comparison appeared to be atypical for the subspecies, and that the two subspecies seemed to be morphologically identical, but this revised opinion was misplaced. A future problem will be the status of ***Perithemis mooma*** and ***tenera***. The two species are very close, and may be northern and southern forms of the same species, or something more interesting. I hope users of the new manual will keep their eyes out for this problem when next they visit south Texas. We all still have a lot to learn.

The authors have done only one thing that I really wish they had not done. The Borror subspecies ***Erythrodiplax connata connata*** and ***connata fusca*** have been here renamed ***fusca*** (a species) and ***basifusca*** (also a species). These are two separate issues but they are united in that this nomenclature has not any sort of treatment in the literature. Borror must have agonized on his treatment of these forms, and I think that the issues should have been aired in the literature prior to a newly proposed nomenclature.

This is a superb manual and the two surviving authors have much to be proud of. My copy has already found a place on the desk where I can get at it quickly. But at 4 ½ pounds, it will have to stay home when I go out into the field. It will be the standard reference for decades, even in this rapidly growing and changing world. Its ultimate (predictably high) success will be the interest that it generates and the number of new people that enter the field because a good manual is available.

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BOOK UPDATES

Bill Mauffray, International Odonata Research Institute, Gainesville FL.

This year two long awaited publications finally "emerged" in full splendor. Sid Dunkles' **DRAGONFLIES THROUGH BINOCULARS** made its appearance first in late August. The IORI sold about 250 copies mostly as advanced orders. My second shipment of 250 copies arrived on Dec 11. The going rate is $33 for U.S shipments and $37.00 for foreign shipments. $3.00 discount off each copy if you by 2 or more copies for purchases made before March 30, 2001.

The Revised manual of the **DRAGONFLIES OF NORTH AMERICA** made its appearance just before thanksgiving and most of you should have received your copy(s) by now. IORI sold close to 400 copies as of December 11 and sales are still brisk with the pending price increase that will go in effect Jan 1, 2001. The price till then is $82.50 for U.S. shipments and $85.00 for elsewhere in the world. After the 1st of the year the price will be $110 for US shipments, $120 for Canadian shipments and $115 elsewhere. The published price is $125 and that does not include shipping and handling as ours does. The reason for the higher Canadian price is that postal rates to Canada are twice what they are for the rest of the world. There may be specials in the future, but you will never see the price less then $100.00 again.

[SPECIAL FOR DSA MEMBERS, I will extend the discount deadline date by 15 days from the postmark date on your ARGIA envelope. You must tear off the stamp with the postmark and send it in with your order to qualify; your postmark must be within 15 days of that postmark.]

I am experimenting with a payment over the Internet program call "PayPal." This program will allow you to order directly from the IORI web site. Please check the site for details; however, it may be in January before I get this working.

The Steffen Forster 2nd edition of the **DRAGONFLIES OF CENTRAL AMERICA** is expected sometimes in the spring of 2001. It will be a limited edition as the first with probably less than 250 copies being printed. the Advanced price for it is $50 in the US. $52 elsewhere.

Happy holidays to everyone and thanks again for helping the IORI by purchasing your books and supplies though us. And especially thanks to all that have sent those very complimentary e-mails for my handling the sales of these publications.

For ordering instructions on publications and supplies go to the web site at <www.afn.org/iori/>

BULLETIN OF AMERICAN ODONATOLOGY

The latest **BAO** is volume 6, no. 2, entitled **THE ODONATA OF IOWA**, BY **Robert W. Cruden** and **O.J. Gode, Jr**., 36 pp including dot maps. For information contact T. Donnelly <tdonnel@binghamton.edu>

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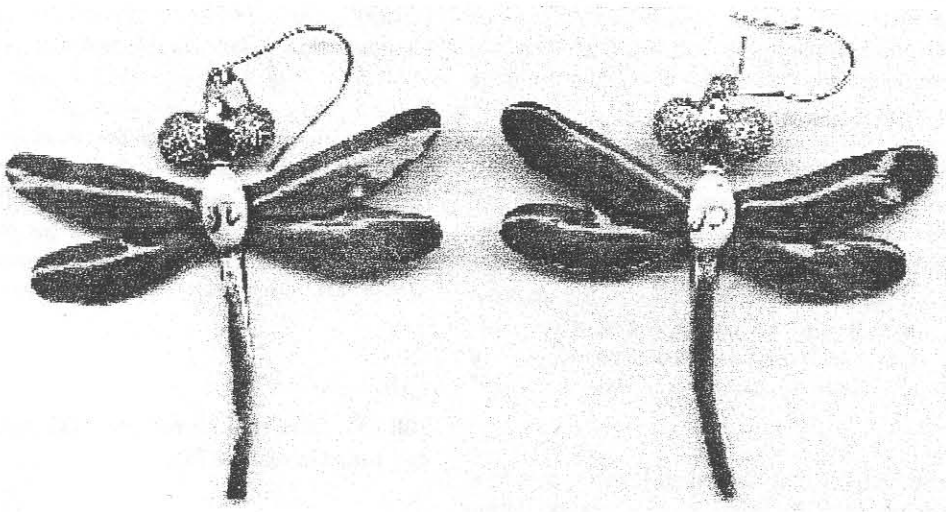

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