ISSN 1061-8503

# ARGIA

The News Journal of the Dragonfly Society of the Americas

Volume 22 21 September 2010 Number 3

Published by the Dragonfly Society of the Americas
http://www.DragonflySocietyAmericas.org/

**Argia** Vol. 22, No. 3, 21 September 2010



**Front cover**: The real *Dythemis multipunctata* discovered by Jerrell Daigle and François Meurgey on St. Vincent. Photo by Pierre Guezennec. See *2010 Collecting Trip to St. Vincent (Lesser Antilles)* story inside.

## In This Issue

I have to start this issue out with a couple of corrections. In the last issue, the two photos of Duncan Cuyler at the Jonesboro, Arkansas meeting (including the cover) were mistakenly attributed to Jerrell Daigle, but were actually taken by Phoebe Harp. Also, an article by Fredy Palacino and Carlos Millán on migratory dragonflies in Colombia was mentioned in the *In This Issue* section, but the actual article was mistakenly left out of that issue. You will find the article in this issue.

Additionally in this issue, Nick Donnelly provides a summary of the fun everyone had at the annual DSA meeting in Orono, Maine. The group produced a very respectable species list including two new species for the state! Details are already in place for next years meeting in Fort Collins (see Boris Kondratieff's announcement), so mark your calendars and make your reservations.

Kathy Biggs reports on the 2010 CalOdes Dragonfly Blitz, where of course, a number of new county records were produced. July was a busy month for dragonflies, because not only were meetings occurring simultaneously on both the east and west coast, but immediately after the Maine meeting, Lisa Keppner and a number of others met in Panama City, Florida for the Southeast regional meeting.

Jerrell Daigle provides another account of the indefatigable Duncan Cuyler, who we recently lost.

François Meurgey and Jerrell Daigle made a recent trip to the island of St. Vincent where among other things, they discovered the true *Dythemis multipunctata* making the species we have all known throughout Central and South America *D. reducta*.

Ryan Rasmussen and Joseph Dixon report on presumed vagrant Golden-winged Skimmers (*Libellula auripennis*) in Iowa. This isn't the most inland record for this species, but certainly represents a significant one.

Nick and Ailsa Donnelly don't let much dust collect under their feet. This time they visited Panama in search of *Thaumatoneura inopinata*, the New World's largest megapodagrionid damselfly.

Bob Marr reports on his findings after surveying the Odonata of the Robert Thorson Brown Nature Sanctuary in the Upper Peninsula of Michigan and Mark O'Brien updates the Michigan list by removing the historical record of *Arigomphus submedianus* (Jade Clubtail).

Ken Tennessen contributes two articles in this issue. The first is on interesting behaviors in Eastern Forktail (*Ischnura verticalis*) and Citrine Forktail (*Ischnura hastata*). The second is a report on a visit he made to a pond/bog area in Wisconsin.

Kathy Biggs reports on the second site found in California for the Striped Saddlebags (*Tramea calverti*) and Brenda Smith-Patten and Michael Patten document a not so familiar Familiar Bluet *(Enallagma civile*).

Finally, Nick Donnelly reviews the long awaited *Damselfly Genera of the New World* by Rosser Garrison, Natalia von Ellenrieder, and Jerry Louton. I know this book will be one of the more used references on our shelves!

## DSA is on Facebook

For those of you who stay connected using the social networking web site Facebook, The Dragonfly Society of the Americas now has a Facebook group page. Information, announcements, and links relating to the Society as well as photos and discussion contributed by group members will be found here. Many photos taken at the 2010 annual meeting in Maine have been contributed.

Just search for "dragonfly society" within Facebook and we'll appear in the results list.

## Calendar of Events

For additional information, see <http://www.odonatacentral.org/index.php/PageAction.get/name/DSAOtherMeetings>.

| Event | Date | Location | Contact |
|---|---|---|---|
| 2011 DSA Annual Meeting | 8–11 July 2011 | Fort Collins, Colorado | http://tinyurl.com/5s7s6t/ |
| 2011 Int. Congress of Odonat. | 19–24 Jul 2011 | Odawara, Japan | <http://www.odonata.jp/wda2011/> |

# 2010 DSA Annual Meeting in Orono, Maine

**Nick Donnelly** (tdonelly@binghamton.edu)

The 2010 DSA annual meeting showed us that our meetings keep getting better and better. Nearly 80 DSA members and family gathered at the Black Bear Inn in Orono, Maine, on the 24th of June for two days of field trips, one day of meetings, and three days of wonderful weather. A social gathering the first evening gave us a chance to pick up our tee shirts (now obligatory for all meetings). Ed Lam produced for us a lovely shirt featuring dorsal views of five Snaketail species, which was exactly what we were looking forward to seeing on the local rivers.

The organizers of the conference (Bryan Pfeiffer, chief organizer, aided by Bronco Quick, Mike Veit, Mike Blust, Ron Butler, Philip DeMaynadier, and the absent Paul Brunelle) had promised us lots and lots of *Somatochlora* (Emeralds) and *Ophiogomphus* (Snaketails)—two favorites among all odonatists. We finally recorded six Snaketail species and ten Emeralds—records for DSA meetings. They further provided a marvelous map showing known localities of the scarcer odes of Maine. We managed finally to find several of these rare and attractive odes, such as *Ophiogomphus howei* (Pygmy Snaketail), *Enallagma minusculum* (Little Bluet), and *Coenagrion interrogatum* (Subarctic Bluet). We struck out, however, on *Leucorrhinia patricia* (Canada Whiteface), *Ophiogomphus colubrinus* (Boreal Snaketail), and *Somatochlora brevicincta* (Quebec Emerald).

For a smaller group, the meeting began with the pre-meeting trip to southern Maine led by Blair Nikula, who unfortunately had to return to Massachusetts and hence missed seeing us at Orono. We missed him at Orono! The group explored Oxford and Cumberland Counties, visiting several small ponds and the Saco River. *Progomphus obscurus* (Common Sanddragon)—here at its northernmost point in North America, was scarce. *Enallagma minusculum* (Little Bluet) was also found.

On the first day of the meeting proper a large group of eager participants drove an hour east to visit the famous Machias River where it crosses highway 9. Ailsa and I arrived long after the first eager participants had arrived, and our first sight was of nearly a dozen eager colleagues wading in the cold, crystal clear river. Nets were swinging everywhere, but few snaketails were caught. Younger members—Steve Col-

lins and Jason Forbes stood out— managed to catch a few of the elusive *Ophiogomphus howei* (Pygmy Snaketail) and *anomalus* (Extra-stiped Snaketail). The other Snaketails were *aspersus* (Brook Snaketail), *carolus* (Riffle Snaketail), *mainensis* (Maine Snaketail) and *rupinsulensis* (Russet-tailed Snaketail)—the last three all uncharacteristically scarce. When was the last time you found six Snaketail species flying in one place? Netted specimens of *howei* and *anomalus* were being photographed endlessly, and after a few hours the exhausted group slowly dispersed, none having previously witnessed such Snaketail activity.

A second group went on Friday to Thousand Acre swamp, north of Orono. I got only scattered anecdotal comments (including moose and bear sightings) and no specifics, from which I gather this group had a fine time.

On Saturday the group gathered in the basement of a local church for the presentations. It was a varied and interesting selection: Ron Butler (odes in fishless ponds); Steve Collins (modeling predicted ranges of riverine odes); Mark Ward (*Williamsonia lintneri* in Maine); Hal White (Mattie Wadsworth, an early Maine odonatist); Ken Tennessen (*Heteropodagrion* in Ecuador, featuring lovely photos and discussion of tropical larvae living in water films on rocks); Erin White and Paul Novak (results of the very successful 5-year Odonata survey in New York). We were especially impressed by a talk and several posters describing a local (Orono) high school larval survey largely aimed at using odonate larvae to sample mercury in local wetlands. It was very encouraging to see numbers of high school students getting their hands wet, as it were, in a good project.

Saturday night featured a cookout at a local private nature preserve, complete with idyllic pond. This was a beautiful location for a social evening, including our group photo. The size of the group made this a difficult setup.

On Sunday we dispersed. Many of us went by various routes on to the post-meeting trip at Jackman, which is close to the Quebec border. Many of the interesting things netted were found during this excursion. Ailsa and I joined a small convoy of New Yorkers. At Katahdin Furnace Stick Lapan found a *Gomphus lividus* (Ashy Clubtail). Old hat to us New Yorkers (except for Stick, who lives in Lake Placid and has never seen this one) *lividus* turned out to be a Maine record! The lake there had abundant *Enallagma minusculum* (Little Bluet), which was at least a new, and relatively boreal, locality for this southerly species.

At Jackman the group visited mainly the famous Twelve Mile Bog, which turned out to be the *Somatochlora* place

of all time. The New Somatochlora Swat Team (including Ken Tennessen, Steve Valley, Jim Johnson, Jerrell Daigle, among others) took seven species of Emeralds in a short time. I could only marvel at the skill and poise of their netting technique.

Mike Blust found one of the meeting's most significant species at the bog, an emerging *Aeshna subarctica* (Subarctic Darner). This species flies extremely late in the Northeast (around Binghamton they are rarely taken before the middle of August and mainly after Labor Day.) Finding one emerging in June raises a question: where do they hang out before making their late-summer appearance?

We all watched wildlife both on the roads and in the swamps. The best sighting Ailsa and I had around Jackman was a view along the road of a truly gigantic black bear. We have now recalibrated our bear image, and every bear we have seen previously has been downgraded to "tiddler". Several of us saw moose along the road; Steve Collins needed good brakes to avoid collecting one!

Bryan Pfeiffer's summary list included 111 species, including the pre- and post-meeting trip. Besides *Gomphus lividus* (Ashy Clubtail), a second new species for the state was *Libellula vibrans* (Great Blue Skimmer). The latter record is an excellent photo taken by Ken Tennessen.

The new state records, and the many additional records of species of concern, are not completely unexpected. We learned long ago that the best way to increase records and find novelties is to invite a large group into your area. There is truly nothing like many new pairs of eyes to find new things. Our heartiest thanks to Bryan and his group for the organization of a sensational meeting.

## Congratulations Dennis Paulson!

Honorary membership was granted to Dr. Dennis Paulson by the DSA executive council in recognition of his contributions to odonatology in general, and to DSA in particular. We thank him and we look forward to Dennis's contributions to come.

## July 2010 Florida Panhandle Field Trip

**Lisa Keppner**, Garrison Road, Panama City, FL 32404 USA <lkeppner@bellsouth.net>

A small group gathered in Panama City, Florida 9–10 July 2010 to visit places north of Panama City and observe a variety of fauna including dragonflies, damselflies, tiger beetles, and robber flies. The weather was hot and humid with abundant sunshine. The attendees included Giff Beaton, Jerrell J. Daigle, Marion Dobbs, George and Phoebe Harp, Steve and Mary Jane Krotzer, Mike Thomas, me, and my husband Ed Keppner. Ed is the main dragon/damselfly enthusiast of the family. This was his second experience with the group and my first. For me, it was a field day, both literally and figuratively!

To kick off the trip, George and Phoebe Harp collected *Celithemis bertha* (Red-veined Pennant) at a karst pond in Bay County before meeting up with Ed and Jerrell. Jerrell's first quest was to find the Spot-tailed Dasher (*Micrathyria aequalis*) that he said he observed at "the *jesseana* site" that the group visited last year. Fortunately for me, when I called to find out where to meet everyone, I knew where he was talking about. Normally I would have asked, "What's that, a skimmer?" But because "*jesseana*", the Purple Skimmer, *Libellula jesseana*, is a dragonfly that is tracked by the Florida Natural Areas Inventory, the organization that maintains a database on all of Florida's listed, rare, poorly known or otherwise imperiled natural resources, I knew this one! In our work as field biologists, Ed and I both are familiar with tracked species occurring in our area and we actually found "the *jesseana* site" in 2004.

The location is a small pond in Bay County on Enfinger Road just south of State Road 20 on property owned by the Northwest Florida Water Management District. Now that the drought has ended, water in the pond was at higher levels making it difficult to access due to the abundance of titi and other shrubs around its margin. *L. jesseana* was present in adjacent ponds, however, and everyone in the group so far (by now, Marion had joined us) had an opportunity to observe, photograph and collect this species as desired. Other species observed at these ponds were *Tramea carolina* (Carolina Saddlebags), *Erythemis simplicicollis* (Eastern Pondhawk), *Enallagma doubledayi* (Atlantic Bluet), *Libellula axilena* (Bar-winged Skimmer), *Libellula auripennis* (Golden-winged Skimmer), *Pachydiplax longipennis* (Blue Dasher), *Anax longipes* (Comet Darner), and *Erythrodiplax minuscula* (Little Blue Dragonlet).

By Friday noon, the entire group was assembled at Hobbs Pasture located south of County Road 388 to find the population of Everglades Sprite (*Nehalennia pallidula*) (see Argia 19[3]: 28). This is where I began to regret my laziness in learning the scientific names. Species names started flying around as erratically and as out of reach for

me as some of those dragonflies! Throw in spiders, robber flies and myriad other taxa and I didn't know what we were talking about at any given instant. I gave up looking for anything specific and just followed the guys around, watched, listened and took the occasional note. *N. pallidula* did not appear as abundant as last year along the east side of the peninsula, but sufficient numbers were present for collection and photography. I believe Steve, Marion and Giff each got the photos they were wanting of this species. Jerrell walked a side road along Deer Point Reservoir and located additional *N. pallidula* sites. Other odonate species observed were *Enallagma pollutum* (Florida Bluet), *Enallagma vesperum* (Vesper Bluet), *Aphylla williamsoni* (Two-striped Forceptail), *Celithemis eponina* (Halloween Pennant), and *Libellula needhami* (Golden-winged Skimmer).

Mike was able to collect several species of robber flies there including *Proctacanthus nigriventris* and *Efferia apicalis*. Then we looked for tiger beetles and whatever else we could find. I was having so much fun being out with a group of fellow naturalists I could barely contain myself at times! When we were leaving Hobbs Pasture, I forgot about the water spigot behind my parked car and backed right into it. Fortunately, I didn't harm the spigot but I crushed my bumper and tail light—the only dent in my car's 15 year history! So, yes, I was way too excited, but the damage didn't dampen my spirits one bit. After all, how many times would I have the opportunity to be in the field with other people who could look at a two inch long insect covered with big black setae and munching down on a grasshopper and hear them say, "Isn't she beautiful?"

A late afternoon trip to Juniper Creek in Calhoun County was taken by the more energetic half of the group to search for something whose name I didn't recognize (in the dark again!). We met up again at 7 PM for Mexican food in Panama City with the Juniper Creek crowd coming straight from the field. Mike spent a long evening cataloging his collections and asked Giff to remind him not to collect so much the next day! [Giff did remind him, but I don't think he curtailed himself much.]

Mike Thomas and Giff Beaton. Photo by L. Keppner.

The following day, Saturday, 10 June, we visited the Carter tract in Washington County accompanied by our friend and Florida Fish and Wildlife Conservation Commission Regional Biologist, John Himes. No one in the party had previously been to this area of swampy lakes and ponds and small creeks. Species observed were common ones: *Argia fumipennis* (Variable Dancer), *Ischnura posita* (Fragile Forktail), *Erythemis simplicicollis* (Eastern Pondhawk), *Libellula auripennis* (Golden-winged Skimmer), *L. axilena* (Bar-winged Skimmer), *Libellula incesta* (Slaty Skimmer), *Anax longipes* (Comet Darner), *Pachydiplax longipennis* (Blue Dasher), and *Tramea carolina* (Carolina Saddlebags). Himes took Giff, Mike and me to an open grassy area on private property in what is locally known as The Deadening, where he had previously seen tiger beetles and robber flies during one of his many herp-collecting sojourns. Highlights here were that Mike and Giff were able to add a new species of robber fly, *Diogmites crudelis*, to their life lists and I got to see the highly secretive mole skink, *Plestiodon* (= *Eumeces*) *egregious similis*, for the first time. The tiger beetles *Cicindela punctulata*, *C. abdominalis*, and an occasional *C. gratiosa* were observed at The Deadening. Back on the road out, Mike and Giff miraculously caught a juvenile black racer and saw for the first time how colorful they can be.

We all met up again at Hammock Lake to look for Belle's Sanddragon (*Progomphus bellei*)—especially females of this species. Males were present, but the females eluded us. The entire group returned to the ponds on Enfinger Road so those who joined us late yesterday could see *Libellula jesseana*. I flushed from hiding one of the three species of big-headed tiger beetles found in Florida, *Tetracha virginica*. This is a nocturnal species so finding it during the day provided Giff with an opportunity to photograph it in situ for the first time. I was thrilled about that! Once all had seen "*jesseana*" and Jerrell was content that he wasn't going to see *Micrathyria*, Ed and I said our good-byes and Giff, Marion, Mike and the Krotzers went back to Juniper Creek for more Yellow-sided Clubtails (*Stylurus potulentus*). Ed and I met Jerrell

for a relatively early dinner that evening and returned home to recoup. Most would be off to the Blackwater River and Crestview in the morning to collect several Townes' Clubtails (*Stylurus townesi*) and I would be at home starting to learn scientific names!

Ed and I thank all who attended and hope they had a successful and productive visit [but not so productive that they won't want to come back and do it again!] Thanks also to John Himes for sharing his herp sites with us and for opening the gate to the ponds south of SR 20.

## Photos Needed

Have any high-quality photos of odonates? We are always looking for great photos to use on the front and back covers of ARGIA. Contact John Abbott at <jcabbott@mail.utexas.edu> if you'd like to make a contribution. Images in TIFF format are best, but JPEGs work too as long as they are high quality and compression artifacts are limited. Resolution needs to be 300 ppi at about the sizes you see printed on this issue (no more than 6.5 inches in width).

## California DSA/CalOdes Dragonfly Blitz 2010

**Kathy Biggs** <bigsnest@sonic.net>

On 25 June, twelve intrepid California dragonfly enthusiasts gathered in Trinity County to have fun while attempting to find species that were "MIA" in under-censused Trinity County. These folks were Kathy and Dave Biggs; Ray Bruun and son Steven; Doug Vaughan and wife Doris Kretschmer; Gary Suttle; Doug Aguillard and son Tim, and Doug's fiancé Pat Sherman; Joanie Ball and friend Tristan Rinehart.

Trinity County is northwest of Redding and only thinly populated. We mostly set up camp along the beautiful Mad River (none of us felt angry at all!), although Gary sought the comforts of a motel room at nearby Ruth Lake. Many of us have made stops together on the way into the area, visiting sites which Kathy and Dave had scouted out late last fall. We weren't disappointed and in fact two county records were recorded en route: California Darner (*Rhionaeschna californica*) and Swift Forktail (*Ischnura erratica*). These are both early season fliers, and indeed, all of California was experiencing an unusually late start for the dragonfly flight season. This worked against finding some species, while it was in the favor of others. The trip had been planned early to especially look for those species, and some that would probably have been on the wing mid-June in other years just weren't out yet this year.

While those of us camping set up our tents, Gary Suttle checked into his room and then had time to stop at the marina at Ruth Lake where he found our third county record: Beaverpond Baskettail (*Epitheca canis*). He was so kind as to rush to the campsite to let the rest of us know: As it turns out this species was amazingly abundant below the dam of Ruth Lake where we found hundreds and hundreds of them on the wing. By the end of the blitz, Gary was unanimously found to be our "Most Valuable Player", having been the first to see all but perhaps one of the new county voucher species.

Another new county species discovered was the Eight-spotted Skimmer (*Libellula forensis*) found at the marsh at the south end of Ruth Reservoir, although we didn't realized this was a new species until *after* the blitz. For the whole main part of the Blitz we had fun in gorgeous territory with gorgeous weather (70–80° F), seeing many beautiful dragonflies: 32 species in all. But it wasn't until we split up and started heading home that any other new species for Trinity County were found! Doug Vaughan and his wife Doris discovered Western Pondhawk (*Erythemis collocata*) at Ewing Reservoir in Hayfork but weren't able to capture even a photo, and then while heading south near Zenia, Gary Suttle also found the species and procured a photo for documentation. Doug and Doris also photographed a male Widow Skimmer (*Libellula luctuosa*) at Ewing Reservoir for our sixth new record.

We hope our next Blitz won't be inadvertently planned for the same weekend as the DSA annual meeting. Many of us look forward to attending the 2011 DSA meeting in Colorado.

List of species in approximate order seen (this list available with locality data and photo links at <http://southwestdragonflies.net/caphotos/2010.html>):

1. Four-spotted Skimmer (*Libellula quadrimaculata*), only a few seen
2. Common Whitetail (*Plathemis lydia*), common
3. Western Forktail (*Ischnura perparva*), common
4. Tule Bluet (*Enallagma carunculatum*), common
5. Black Spreadwing (*Lestes stultus*), common
6. **California Darner (*Rhionaeschna californica*)**, OC #320345
7. **Swift Forktail (*Ischnura erratica*)**, OC #320344
8. Boreal Bluet (*Enallagma boreale*), in hand ID
9. Pacific Forktail (*Ischnura cervula*), common


10. Vivid Dancer (*Argia vivida*), some
11. Bison Snaketail (*Ophiogomphus bison*), many
12. Grappletail (*Octogomphus specularis*), many
13. **Beaverpond Baskettail (*Epitheca canis*)**, OC #320347
14. Common Green Darner (*Anax junius*), many
15. Pacific Clubtail (*Gomphus kurilis*), only 2 found
16. Northern Bluet (*Enallagma annexum*), in hand ID
17. Red-veined Meadowhawk (*Sympetrum madidum*), abundant, mostly tenerals
18. **Eight-spotted Skimmer (*Libellula forensis*)**, OC #320399 photo record
19. Twelve-spotted Skimmer (*Libellula pulchella*), only a few
20. Emerald Spreadwing (*Lestes dryas*), only a few
21. Cardinal Meadowhawk (*Sympetrum illotum*), only a few
22. Pacific Spiketail (*Cordulegaster dorsalis*), 2 seen on Blitz
23. Emma's Dancer (*Argia emma*), 2 seen on Blitz
24. Flame Skimmer (*Libellula saturata*), not many seen on Blitz
25. Striped Meadowhawk (*Sympetrum pallipes*), 3 seen on entire Blitz
26. Black Petaltail (*Tanypteryx hageni*), 4 seen, one male collected for Chris Beatty's DNA study OC # 320348
27. Blue-eyed Darner (*Rhionaeschna multicolor*), a few seen
28. *Walker's Darner (*Aeshna walkeri*), many seen; in hand ID
29. **Western Pondhawk (*Erythemis collocata*)**, OC #320401 photo record
30. Dot-tailed Whiteface (*Leucorrhinia intacta*)
31. **Widow Skimmer (*Libellula luctuosa*)**, OC #320413
32. *Mountain Emerald (*Somatochlora semicircularis*), 1 found

names in bold are new county records; * = first report for California in 2010.

# 2011 Dragonfly Society of the Americas Annual Meeting at Colorado State University, Fort Collins, Colorado

**Dr. Boris C. Kondratieff**, Colorado State University, Department of Bioagricultural Sciences and Pest Management, Fort Collins, Colorado 80523 USA <Boris.Kondratieff@Colostate.edu>, 970-491-7314

The 2011 Dragonfly of the Americas Annual Meeting will be held in Fort Collins, Colorado 8–11 July 2011. We have reserved 25 rooms at two Best Western hotels, one is directly across from the Colorado State University campus, the other two miles from campus, near the Mulberry Street exit off of I-25. Interested individuals need to call either motel and indicate that they will be attending the "Dragonfly Society of Americas Annual Meeting" 8–11 July 2011. I would strongly suggest making the reservations as soon as possible, before March 2011. There are other conferences on campus.

Best Western University Inn
914 South College Avenue
Fort Collins, CO 80524
(Across from Campus)
Breakfast included
970-224-9682
Rate: $80.00/night
15 rooms

Best Western Mulberry
970-484-2444
Rate: $89.00/night
10 rooms

Other motels and hotels, <http://tinyurl.com/38etep>:

Super 8
I-25 Exit 269B at Hwy 14
970-493-7701

Motel 6
I-25 Exit 269B
970-482-6466

Marriott Courtyard
1200 Oakridge Drive
970-282-1700

Hilton Fort Collins
425 West Prospect Road
970-482-2626

Odonata enthusiasts, Inez and Bill Prather and Dave Leatherman will lead field trips. At that time of the year, the suggested field trips will include the Chambers Lake area where *Somatochlora hudsonica* (Hudsonian Emerald), *S. semicircularis* (Mountain Emerald), *Cordulia shurtleffii* (American Emerald), *Leucorrhinia hudsonica* (Hudsonian Whiteface), *L. borealis* (Boreal Whiteface), *Libellula quadrimaculata* (Four-spotted Skimmer), *Aeshna eremita* (Lake Darner), *A. juncea* (Sedge Darner), *Enallagma boreale* (Boreal Bluet), *Coenagrion resolutum* (Taiga Bluet), and *Lestes dryas* (Emerald Spreadwing) can be collected.

Nearby the Redfeather Lakes area is probable for *Leucorrhinia proxima* (Belted Whiteface), *Sympetrum madidum* (Red-veined Meadowhawk), *S. danae* (Black Meadowhawk), and possibly *S. costiferum* (Saffron-winged Meadowhawk), *Somatochlora minor* (Ocellated Emerald), and *Aeshna interrupta* (Variable Darner).

Shorter field trips near Fort Collins usually can yield *Argia emma* (Emma's Dancer), *A. alberta* (Paiute Dancer), *Enallagma anna* (River Bluet), *E. antennatum* (Rainbow Bluet), and *E. praevarum* (Arroyo Bluet), *Sympetrum internum* (Cherry-faced Meadowhawk), *S. obtrusum* (White-faced Meadowhawk), *S. costiferum* (Saffron-winged Meadowhawk), *Lestes disjunctus* (Northern Spreadwing), *L. congener* (Spotted Spreadwing), *L. unguiculatus* (Lyre-tipped Spreadwing), *Gomphus militaris* (Sulphur-tipped Clubtail), and other more common, wide-spread taxa. If interested, longer field trips to eastern Colorado could yield *Gomphus externus* (Plains Clubtail), *Epitheca princeps* (Prince Baskettail), *E. petechialis* (Dot-winged Baskettail), *Orthemis ferruginea* (Roseate Skimmer), and other more typical eastern taxa.

Please submit to me directly, any titles and/or abstracts of papers, presentations including needs for audio/visual equipment. The submission deadline is Monday, 30 June 2011. Also, if anyone has any special needs, please let me know.

## Duncan's Kaleidoscope

**Jerrell J. Daigle** <jdaigle@nettally.com>

It was with great sadness that I learned of Duncan Cuyler's passing. He was truly an unique individual. I had been visiting him over the past couple years at the assisted living home where he had been staying after he injured his right leg. Folks may remember him at the 2007 Southeast regional meeting in Bainbridge, Georgia, hosted by Giff Beaton (Argia 19[3]: 6–7). He showed me some specimens of *Argia fumipennis* (Variable Dancer) and *A. sedula* (Blue-ringed Dancer) he collected at a pond and stream there. These would be the last odonates he would ever collect.

I have many fond memories of Duncan, but one that stands out the most for me is his earlier use of a collecting jar in the field. He was carrying this jar with him the day Sid Dunkle and I went with him to look for *Ophiogomphus incurvatus* (Appalachian Snaketail) at Country Line Creek in North Carolina. He went upstream and I went downstream. After a couple of hours, we met and he showed me his jar. It was full of colorful dragonflies! It looked just like a kaleidoscope! There were the dashing blues of *Basiaeschna janata* (Springtime Darner), bright yellows of *Cordulegaster maculata* (Twinspotted Spiketail), jumbling oranges of *Helocordulia selysii* (Selys Sunddragon), the light greens of *O. incurvatus*, and deeper greens of *Gomphus ventricosus* (Skillet Clubtail)! Back in the meadow, he added the purples of *Libellula incesta* (Slaty Skimmer) and the reds of *Tramea carolina* (Carolina Saddlebags) to complete the assemblage! It was really something to see. Yes, it was a unique method for an unique individual. I shall miss him.

## First Records of Possible Migratory Dragonflies in Colombia

**Fredy Palacino R.** and **Carlos A. Millán**, (FPR) Estudiante de Maestría en Ciencias, Universidad Nacional de Colombia, A.A. 7495, Bogotá-Colombia <fpalacinor@unal.edu.co>; (CAM) Director Ejecutivo FEDEARROZ, Granada-Meta, <granada@fedearroz.com.co>

**Abstract**

This is the first record of possible migratory movements of swarms of the dragonflies *Miathyria marcella* (Hyacinth Glider), *Pantala flavescens* (Wandering Glider), and *Erythrodiplax umbrata* (Band-winged Dragonlet) in Colombia.

**Resumen**

Movimientos de posibles enjambres migratorios de *Miathyria marcella*, *Pantala flavescens* y *Erythrodiplax umbrata* son registrados por primera vez para Colombia.

A mass migration of dragonflies was first reported by Shannon (1916) at the beginning of the twentieth century; he drew maps with flight paths from some North American regions, among them the Atlantic coast, which is considered one of the most used routes of dragonfly migration. Other reports include regions in México, Germany, Holland, Wales, Canada, Japan, China, India, the Himalayan, and Uganda (Corbet, 1984; Silsby, 2001, Matthews, 2006).

Mass movements of dragonflies in the Neotropics are included in some reports from Costa Rica (Paulson, pers. comm.) and Venezuela (De Marmels et al., 2008); there are no publications about this topic from Colombia, but several visual records include the movements of swarms of *Miathyria marcella* (Selys in Sagra, 1857) and *Pantala flavescens* (Fabricius, 1798) in bogs and other habitats along the Atlantic coast (pers. obs.).

We recently observed more than 3 km of the center of Yopal (Casanare) covered by "clouds" of dragonflies traveling in a west–east direction, between 6:30 and 9:00 in the morning. The event occurred on a cloudy day with a temperature of 24°C. Within the swarm, tandem pairs of *Erythrodiplax umbrata* (Linnaeus, 1758) were collected, a species with great dispersion capacity (Craig et al., 2008), but for which migratory behavior has not yet been recorded here. Aggregations of thousands of individuals of *E. umbrata* have been seen traveling in Texas (USA) and Veracruz (Mexico) but its flight path has not been determined (Paulson, pers. comm.).

Migration as it relates to ecological, genetic, and evolutionary aspects affecting the reproductive effectiveness of individuals has barely been studied (May & Matthews, 2008). Migration allows dragonflies to move towards places with more favorable habitats for reproduction and breeding of the larvae, and these movements can be facul-

tative, favored by some environmental factor or forced as an answer to seasonal changes (Corbet, 1999).

Some species migrate after reproduction and others in the teneral state, maturing and copulating while traveling (Paulson, 1999). There are short migrations, but some species, such as *Pantala flavescens*, are known to be able to cross great distances over the Indian Ocean (Anderson, 2009).

Thus developing marking studies that would allow us to clarify some characteristics of the annual cycle of this species, including their migratory condition, would constitute a useful contribution.

**Acknowledgements**

We thank Luis Faver Mosquera for his help in the field. Carlos E. Sarmiento and Natalia von Ellenrieder provided helpful comments on this note.

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## 2010 Collecting Trip to St. Vincent (Lesser Antilles)

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Our on-going studies on the dragonfly fauna of the Lesser Antilles led us this year to the island of St. Vincent, for a two weeks collecting trip. Jerrell J. Daigle and I were joined by Pierre and Claudine Guezennec, photographers from Basse-terre (Guadeloupe). Our major aims of this mission were to verify the presence of an *Argia* sp. previously reported only by photos and in some checklists under the name *Argia concinna* Rambur, and to collect *Orthemis* sp. for major studies by Jerrell. In addition, we wanted to update the St. Vincent species checklist for an upcoming book on the Lesser Antillean odonata. We stayed at the Tranquillity Apartments right on the beautiful beach at Indian Bay, a really nice place run by Lucelle and Hazelann. We saw several species of seabirds here, and even got some *Orthemis* females perching in the weeds next to our rooms!

St. Vincent is a 345 km$^2$ volcanic island, located between St. Lucia and Grenada. It is the largest in the chain called St. Vincent and the Grenadines. The island is dominated by the 4,048-foot high active volcano, called La Soufriere,

Lake in volcanic crater. Photo by P. Guezennec.

which erupted violently in 1812, 1902 and 1979. St. Vincent is entirely mountainous and well-forested. The island is tropical and humid with an average temperature of between 18 and 31° C depending on the altitude. The territory was disputed between France and the United Kingdom in the 18th century, before being ceded to the British in 1783. It gained independence on 27 October 1979. Approximately 120,000 people live on the island. Kingstown (population 19,300) is the chief town. The rest of the population resides in the other five main towns of Layou, Barrouallie, Chateaubelair, Georgetown, and Calliaqua.

We spent the first week prospecting the various habitats of the island in search of suitable habitats such as ponds, lakes and rivers. We were surprised to note that St. Vincent lacks any stagnant water habitats. Like most of the Lesser Antillean islands, St. Vincent is a very young island, but unlike Guadeloupe, Martinique and other islands, lacks stagnant habitats. This could be explained by the fact that St. Vincent never developed any intensive agriculture, such as sugar cane or bananas for exportation and supports very few goats and cattle.

We started collecting on the second week, after obtaining authorization from the Ministry of Agriculture. Then, we went to the previously prospected localities in the five parishes.

First, we visited "the spa" located north of Kingstown, which is a public site and found many *Argias* flying. After a close examination, this species was identified as *Argia telesfordi*. It was described last year from Grenada. St. Vincent constitutes its northernmost distribution since it is replaced in St. Lucia and islands further north by *Argia concinna*.

*Argia telesfordi*. Photo by P. Guezennec.

Jerrell Daigle on top of volcano. Photo by F. Meurgey.

Other species observed were *Ischnura ramburii* (Rambur's Forktail), *Dythemis sterilis*, *Erythrodiplax umbrata* (Band-winged Dragonlet) and *Orthemis sulphurata*.

We caught several red-eyed *Dythemis* all over the island and we were surprised to notice that all specimens had a blue/black vertex and a dark postfrons, instead of the pale vertex and yellow/brown postfrons of *D. sterilis* found elsewhere in the Lesser Antilles. Further studies and some help from Rosser Garrison (thanks, Rosser!) revealed it is really the true *Dythemis multipunctata* Kirby, 1894. The type locality for this never before photographed species is St. Vincent. This means the best name for the blue-eyed/blue-faced *D. multipunctata* found in Central and South America is *D. reducta* DeMarmels, 1989.

One day was spent at a little muddy stream near the east coast in an open meadow where we saw *Anax amazili* (Amazon Darner). This species was seen only in this locality, which is under construction for the new international airport. While collecting, we did see the sets for the *Pirates of the Caribbean* movies. Also, we saw the fantastic St. Vincent Parrot, the native anoles, and the St. Vincent hairstreak butterfly. While waiting for our permits, we

took one day to climb the volcano. A few *Argia telesfordi* were seen near the top after a grueling hike that left Jerrell grabbing his ankles most of the time!

This trip was really interesting, notably because the maximum Odonata diversity on the islands is reached when stagnant water is present. For the majority of islands, stagnant habitats have a manmade origin resulting in the presence of many vagrant and/or opportunistic species. On St. Vincent, the lack of such habitats resulted in species that are mainly restricted to rivers with some species living in slower river mouths (*Orthemis sulphurata*, *Pantala flavescens* [Wandering Glider]) or seepages (*Erythrodiplax fusca* [Red-faced Dragonlet]). Nearby Grenada has many stagnant water habitats like ponds, lakes, marshes, or reservoirs which support many more species. This has interesting implications in biodiversity conservation matters. One can consider that man may have had an impact on the islands' species richness by maintaining artificial habitats for species otherwise absent. These species develop mainly in open areas, often at the expense of cryptic endemic forest species. This means that the disappearance of pristine forests for agriculture and/or urbanization hide a reality. We do not know the makeup of the odonate fauna before the first settlements and the resulting colonizations. This also shows that the vulnerable and/or endemic species are predominantly forest species, and do not benefit from the same consideration in the West Indies.

Thirty-five locations were sampled and only two Zygoptera and six Anisoptera were recorded as follows:

*Argia telesfordi*
*Ischnura ramburii*
*Anax amazili*
*Dythemis multipunctata* Kirby, 1894
*Erythrodiplax fusca*
*Erythrodiplax umbrata*
*Orthemis sulphurata*
*Pantala flavescens*

We would like to thank the Ministry of Agriculture, Forestry and Fisheries and Allan Alexander (Permanent Secretary), Basil Nash, Marcus Richards, Michael Delpeche for providing us with collecting and export permits plus Glenroy Goodluck and Veron Robertson for some field assistance. We also thank warmly Fitzroy Springer for his help during this trip. Fitzroy drove us all over the island in the search of good habitats. Thanks to Pierre and Claudine Guezennec for their help in the field and their precious assistance with their photographs, which will be in the upcoming book on the Lesser Antillean Odonata. This mission was partially granted by the L'Herminier Natural History Society (Natural History Museum of Nantes, France).

## An Unusual Occurrence of Golden-winged Skimmer (*Libellula auripennis* Burmeister, 1839) (Anisoptera: Libellulidae) in Iowa

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In this note we report the collection of two specimens of *Libellula auripennis* Burmeister, 1839 (Golden-winged Skimmer) at a location significantly displaced from its established range. *L. auripennis* is a species of the eastern United States that inhabits ponds, ditches, and slow moving streams (Dunkle, 2000), typically found in coastal states from Massachusetts to Texas (Abbott, 2010).

On 10 July 2010 two male *L. auripennis* were observed near the Horseshoe Bend Division of the Port Louisa National Wildlife Refuge (41.1096° N, 091.0777° W) in Louisa County, Iowa. A voucher specimen was collected. On 18 July 2010, three more males were observed at the same location and a second voucher specimen was obtained. Both voucher specimens are housed in the primary author's personal collection. A thorough review of all published sources that included Iowa Libellulidae (Elrod, 1898; Miller, 1906; Wilson, 1909; Wells, 1917; Wilson, 1921; Hoffman, 1924; Yeager, 1932; Loudon, 1933; Hummel & Haman, 1975; Hummel & Haman, 1977; Cruden & Gode, 1998; Dunkle, 2000; Cruden & Gode, 2000; Needham et al., 2000; Beckemeyer, 2002; Donnelly, 2004b; Abbott, 2010) found no records for this species in the State.

Other inland records for this coastal species include Nebraska, Missouri (Donnelly, 2004b), Ohio (Donnelly, 2004b; Abbott, 2010), and Illinois (Cashatt et al., 2006). These occurrences have typically been regarded as vagrants

or accidentals (Cashatt et al., 2006). Many mobile species with well developed dispersal capabilities are able to utilize temporary habitats outside of their established ranges (Gaston, 1996; Guo et al., 2005) and some of the Libellulidae in particular have been known to disperse beyond their established ranges (Donnelly, 2004a). Therefore, unless additional specimens are collected in the future, we concur with previous authors and consider the presence of *L. auripennis* in Iowa to be a vagrant, but still a noteworthy addition to the documented Odonata fauna of Iowa.

**Acknowledgements**

We would like to thank Steve Hummel for his assistance in verifying the identity of the voucher specimens.

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## Panama a Few Decades Later—And the Biggest, Baddest Waterfall Dweller of Them All!

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In early June Ailsa and I went back to Panama. Forty years ago we spent a fortnight with Gene Morton (Smithsonian ornithologist), in what was then the Canal Zone (now Zona de Canal). We were anxious to see if the country we had so thoroughly enjoyed was still as much fun. It was early in the rainy season, which is usually a good time to see odonates, but we were left wondering if we had not come a bit too early. We traveled with John Hepner again, and on this trip our companions included also Ed Fuller, a beetle person, and Ichiro Nakamura, a skipper specialist. Our previous Panamanian trip featured a lovely rain forest experience with fabulous birds, wondrous mammals, trees and flowers, and, of course, odonates galore. Seven new *Palaemnema*, four new *Heteragrion*, and several other new

odonates were almost too much to digest. How could a district, open to naturalists for sixty years and heavily (we thought) explored, still have so many new species? And what did the remainder of this country have to offer?

Our return visit was not to the Zone (or Zona) but further west, into a part of the Republic which was new for us. First we visited Cocle Province, and its tourist destination El Valle, a famous bird-watching district. Heavy rain limited our dragonflying, but our limited haul included a few interesting species. *Epigomphus quadricies* was found sitting on a leaf along the road—these tropical gomphids seek out small streams in wooded forest. One of our companions, Ed Fuller, caught an undescribed *Palaemnema* in a malaise trap. (*Palaemnema* is a cryptic tropical forest damselfly. They commonly perch inside bushes near forest streams and became one of my specialities when I found their hiding places and was very successful catching them with my fingers.) This was the only *Palaemnema* encountered in the entire two weeks! On our previous visit, in August, *Palaemnema* had been virtually everywhere we looked. It seems that, early in the rainy season, the local *Palaemnema* (there should be several species at any one locality) have emerged but are still dispersed in the forest. Apparently the dispersed young adults come back to the water after an undetermined time—much as do many North American dragonflies. Where they might be found during the post-emergence time remains a mystery.

The other interesting species found here was *Philogenia zeteki*. There was only a male and a female of this largish forest damselfly found in deep forest, not very far from water and potential breeding sites. *Argia* were conspicuous, as usual. The most common species were *extranea* and *oculata*. *Argia cupraurea* were scarce and beautiful, with its bronzy thorax shining in the sun. *Argia translata* were scarce and resembled the small form found along the Pacific coast of Costa Rica.

Birds and mammals were great fun at this place. Along the "Sendero", a path laid out for nature-loving locals and hotel guests, we found great birds, including numerous audio displays by the Golden-collared Manakin, a very pretty but shy forest bird which makes an unbirdlike sound similar to the snapping of a wet towel. The overall favorite was a sloth found by Ailsa, who was sitting by the path waiting for birds to appear. She noticed that a tree across the creek looked suspiciously shaggy. She summonded me by radio, and we puzzled for several minutes what it was she was looking at. It was a mama sloth asleep on a branch holding a nursing baby sloth. The baby was looking at us, and we finally made out its eyes peeking out beneath the fore leg of mama. One thing that you will never hear when watching sloths: "Watch out, it's going to charge!" They did not move a centimeter in an hour.

We moved on to the Santa Fe, in Veraguas Province, and halfway to Costa Rica. It was still raining, but the mornings were clear and sunny. Santa Fe is the gateway to the proclaimed but still not developed Santa Fe National Park. We spent our week here examining the insects of a "suburb" called Alto de la Piedra just outside of the park area. It turned out to be slow work (we could collect until the early afternoon only, and then the rains came and forced us to shelter. The birds were wonderful here: At almost any moment a Swallow-tailed Kite would be circling nearby (probably on the hunt for dragonflies also!).

Within walking distance there were lots of odes to occupy our time. *Argia* were most apparent; there were nine species here. Right off the bat, Ailsa found a large, boldly marked species similar to *terira*, which is a common montane Costa Rican species. But it is not *terira* and remains unnamed. She also found a beautiful red-eye which is quite different that *cupaurea*, the most widespread Panamanian red-eye. It resembles *dives* somewhat, and also *cuprea*, but is neither of these. Perhaps it really is one of these, and one of the red-eye species is remarkably variable. We have so much to learn!

*Epigomphus subquadricies* was very common at this place. One partially wooded hill crest seemed to have an especially large population, and I christened it "Cerro Epigomphus". It was great fun to see the males patrolling in tiny, vegetated streams where they would occasionally seize passing females and fly with them several yards away for mating. The females returned to these tiny streams to oviposit down in the vegetation where they were quite hidden. We found a great many males and females far from water, perching in bushes along forest paths.

I found a high waterfall in the forest with only a trickle falling over the lip. This is the perfect place to find all sorts of cryptic tropical damselflies and I waited some time to see what would appear. Finally success! A very shy polythorid damselfly appeared, but immediately scampered when I made my first tentative advance. It must be something rare! After a considerable interval it reappeared, and finally, heart pounding, I managed to net it. Success! But it proved to be only *Miocora peraltica*, which I remembered as common in the Zone, and not the least bit shy. Why was this one so elusive? I found three more, and all behaved more elusively than I remember them in the Zone.

The main objective for the trip was *Thaumatoneura inopinata*, the New World's largest megapodagrionid, which has been found only in Costa Rica and Panama, and one of the famous waterfall dwellers, as described by Calvert

a century ago. My first visit to a forested waterfall (with much water flowing over the lip) produced no sightings, but I was pleased to find a female in the nearby forest. My companions Ed and Ichiro each found one while they were looking for butterflies and beetles in the forest, several hundreds of meters from water. On my second visit to the waterfall, I finally found a male. It looked solid black (The wing tips were clear, but I couldn't see this in the gloom.), and was hanging on a bare root about half a meter from the falling water near the lip of the fall. It was also beneath an overhanging ledge next to the fall, and there was no way it could have been caught, nor even inspected at close hand. I had to be satisfied with a binocular view, but on a very gloomy day, and in the shade to boot, any black insect is well hidden, even if very large. What I took away from this experience is that waterfalls are often a poor place to find this legendary waterfall dweller. Three of the four specimens were found a long way from water. This gigantic damselfly, with its large wing spots, is pretty spectacular flying in the forest.

The "helicopter" damselflies *Megaloprepus caerulatus* and *Mecistogaster modesta* were seen many times. Both species were inspecting the bushes along the trail, evidently looking for spiders, their favorite food. As many times as I have found seen these, my heart still pounds when I come across one of them foraging along forest margins. Evidently my fellow butterfly and beetle collecting chums liked them too. They brought me one or two specimens everyday.

Our last ode before leaving was a truly odd experience. While waiting to load our vehicle, a small, dark dragonfly flew into the open, large ground-floor room of our small hotel. It was evidently attracted to angular slabs of rock which had been used as a floor covering. The rock was a weathered, slippery serpentine, and the dragonfly apparently took the floor for water. It started ovipositing, flying rapidly from rock to rock and leaving a few eggs on each. I caught it and still don't know what species of *Macrothemis* it is. There is always something new in the tropics! We are already planning our next trip.



## The Odd Couple and a Surprise

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When David and Shelley Hamel invited me to visit their pond/bog habitat in Marquette County, Wisconsin, visions of shining *Somatochlora* and hawking *Aeshna* immediately entered my imagination. It was early July. In their e-mail, they said the place was "humming with stuff," a temptation too great to resist. With all the heavy rain this summer and my busy schedule, I finally got free on the morning of 14 July, a beautiful sunny day.

We decided to survey the pond first, and pushed off in the canoe; Shelley maneuvered around the elongate, mucky-bottomed water body while I started inspecting the odes. We soon recorded a number of expected dragonflies, a couple of *Anax junius* (Common Green Darner), numbers of *Leucorrhinia intacta* (Dot-tailed Whiteface) and *Libellula pulchella* (Twelve-spotted Skimmer), one *L. luctuosa* (Widow Skimmer) and a few males of *Plathemis lydia* (Common Whiteface) and *Tramea lacerata* (Black Saddlebags). There were several damselflies as well, including fair numbers of *Lestes eurinus* (Amber-winged Spreadwing), *Enallagma ebrium* (Marsh Bluet) and *Nehalennia irene* (Sedge Sprite). However, with little exciting to keep us at the pond, we decided to visit the adjacent bog.

Just as we turned to head back to the dock, we saw a tandem pair of dragonflies over the water that appeared a bit odd. The male was very dark, but the female appeared pale, sort of orange-yellow. Through binoculars we could see that a *Leucorrhinia intacta* male had a female of *Celithemis elisa* (Calico Pennant) in tandem. They appeared to be having just a bit of trouble flying smoothly, but every few seconds they would drop down to the water and the female *C. elisa* would tap the surface with the tip of her abdomen (presumably releasing eggs). This was repeated about four or five times, when suddenly the pair flew in a herky-jerky path to a nearby lily pad and perched flat down on its surface, typical of *L. intacta* behavior. They

weren't settled long before the female vigorously beat her wings and they lifted into the air, but shortly thereafter they got divorced. As we lost sight of the female, I finally blurted out "That was wrong!"

I suspect that with *L. intacta* males present in numbers and females scarce at the water, that male of *L. intacta* simply couldn't resist taking a female of any species into tandem. We did not see this odd pair until they were over the water with the female *C. elisa* attempting to lay eggs, but it seems doubtful that they copulated before we saw them. We didn't see any males of *C. elisa* at the pond, and I suspect the female was laying eggs alone when she was taken into tandem by the *L. intacta* male. Over the water, the female *C. elisa* was able to direct their flight pattern for the most part and dive downward toward the water in the usual mode of tandem oviposition for *C. elisa*. This must have seemed foreign to the male *L. intacta*, as males of this species do not hold ovipositing females in tandem; rather they fly nearby and "hover-guard" females with which they have mated.

With thoughts of that odd couple still in mind, we stepped into the bog. Here was a healthy carpet of *Sphagnum*, with an array of plants: pitcher plants, sundews, bog bean, bog rosemary, bog birch and tamarack, to mention a few, were plentiful. Although I was on a mission to inventory the odes, there was scarce open water in the bog and little winged activity. With only a few young, orange-brown *Sympetrum obtrusum* (White-faced Meadowhawk) in sight, I wandered toward the edge where the bog stretches out to the pond. Here I found a few *Enallagma aspersum* (Azure Bluet), *E. hageni* (Hagen's Bluet), *I. verticalis* (Eastern Forktail) and a single *Leucorrhinia frigida* (Frosted Whiteface).

We weren't seeing much else at the bog. Shelley mentioned that the long, ditch-like edge along the woods had water in it this year so we went over to check it out. This elongate area stretches for about 100 m and this year aquatic plants re-established, including soft-stem bulrush, woolgrass, pondweed, wire-leaved sedge, spike rush and three-way sedge. Before long we saw four species of *Lestes*, including *disjunctus* (Northern Spreadwing), *dryas* (Emerald Spreadwing), *forcipatus* (Sweetflag Spreadwing) and *unguiculatus* (Lyre-tipped Spreadwing). Then Shelley asked "What is this little guy?" I finally saw the small yellow damselfly she was pointing to, and with raised voice exclaimed "It's a male Citrine Forktail." Then because Shelley is trying to learn the scientific names, I added "in Latin it's *Ischnura hastata*!" Over the next few minutes we saw a number of teneral individuals fly up out of the *Eleocharis* beds. This was a good find as there are very few records of this species in Wisconsin (3 county records) and no breeding site has ever been found in the state.

Although this area had some water in it last year, Shelley's recollection was that it was dry for several years prior, as she saw cracked mud. Beaver and muskrat abandoned the area a couple years ago, and dry-soil plants and grasses took over even the lowest parts of the area. With near-normal rainfall amounts last year, and heavy rains in June and July of this year, the aquatic plants have sprung back. So, has *I. hastata* always been here, somehow surviving the prolonged drought? As eggs?!? Or, when the rains returned and filled the depressions, did gravid females recently arrive from parts unknown and lay eggs? There is much yet to be learned about the biology of this unusual little damselfly in Wisconsin. And what other species are yet to be discovered at the Hamel's property? Maybe we'll find some *Somatochlora* and *Aeshna*, additional incentives to return to this site.

## *Arigomphus submedianus* (Odonata: Gomphidae) to be Removed from the Michigan List of Odonata

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Tracking down and substantiating old records from the literature is a desirable goal for any modern catalog of species distribution. Removing an error that gets repeated so often that it no longer gets questioned is made more difficult by the pervasiveness of the information. As you can see in Figure 1, the single Michigan record for *Arigomphus submedianus* (Jade Clubtail) is the farthest east of any record shown on the OdonataCentral Map, <http://www.odonatacentral.org>. It was based solely on Hagen's 1885 paper on nymphal forms of Odonata. That record (under "*Gomphus pallidus*") is from a nymph in alcohol supposedly collected in Detroit, Michigan, 6 June 1879, by H.G. Hubbard. Hagen states that the various nymphal specimens he listed represent "four different moults."

Given the status of knowledge of Gomphid nymphs at the time, and subsequent work on the group, I would say that common sense dictates that the Hagen "record" which has

been propagated throughout the literature (and in the Byers [1927] and Kormondy [1958] Michigan lists), and has been a questionable record by the Michigan Odonata Survey (1997), be stricken from the Michigan list. With all the collecting that has taken place over the last 100 years, and not a single *Arigomphus submedianus* caught in Michigan, it's plain to me that the record is an error. To believe that a casual collector caught this in the Detroit area, far from any typical habitat and based on a larval specimen when the taxonomy of the larvae was imprecise at best, flies in the face of scientific scrutiny. Hagen may have been the father of North American Odonatology, but like any scientist, he was not perfect. It's time to be rid of this mistake that keeps getting propagated in the literature.

*Arigomphus submedianus* is no longer on the approved list of Michigan Odonata. It is not even on the "historical record" list for the state.

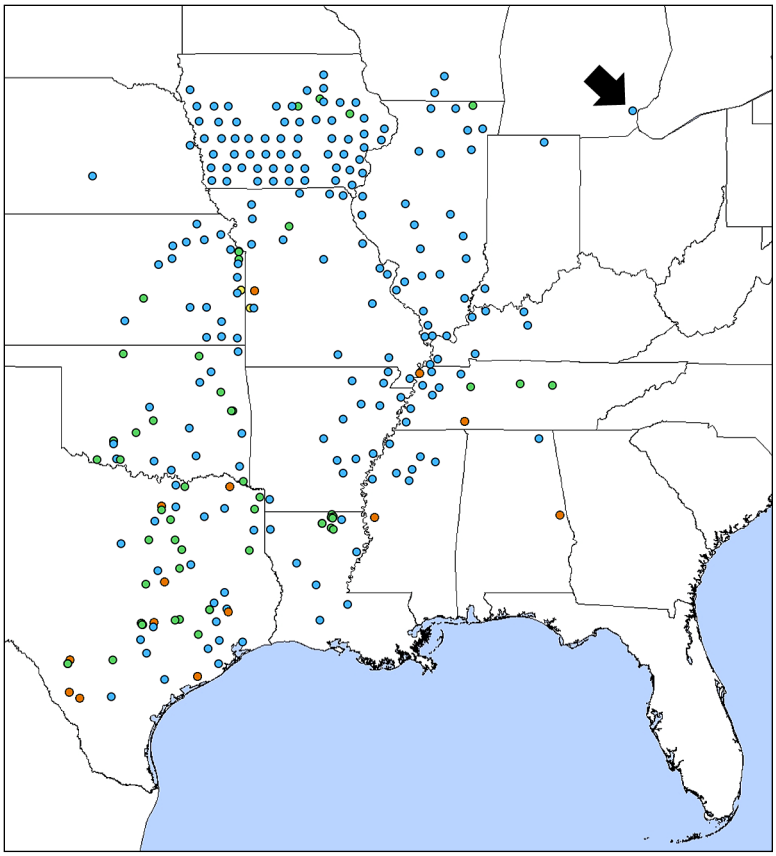

Figure 1. Distribution of *Arigomphus submedianus*. Michigan record indicated by arrow. Map taken from <http://www.odonatacentral.org>.

**Acknowledgments**

I thank Julie Craves, of the Univ. of Michigan Dearborn for bringing this non sequitur to my attention, and OdonataCentral at the Univ. of Texas, Austin, <http://www.odonatacentral.org>, for use of the range map.

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## Brief Notes on *Ischnura* Behavior

**Ken Tennessen** <ktennessen@centurytel.net>

*Ischnura verticalis* (Eastern Forktail). Females of some species of *Ischnura* mate only once in their lifetime, and they probably mate that one time early in their adult existence. Ola Fincke (1987) reported monogamy to be the norm in *Ischnura verticalis* (Say), the Eastern Forktail. She found that young females (mostly orange) and mature females (mostly grayish-blue) reject approaching males, whereas females that have aged and darkened somewhat but have not yet turned blue were often receptive, once, to mating attempts by males. Furthermore, females that copulated for more than 20 minutes could not be induced to mate again, apparently receiving enough sperm to serve their needs for the rest of their lives (i.e., to fertilize all eggs they may develop). This knowledge helps explain much of the behavior of the two sexes of this species compared to most other coenagrionids, such as males being nonaggressive towards other males and females ovipositing alone and not being "bothered" much by intruding males.

Figure 1. Left, hovering male *Ischnura verticalis* approaching female; right, refusal behavior by female *I. verticalis*.

Figure 2. Female of *Ischnura hastata* ovipositing in fallen stem of a small rush.

The signals that unreceptive females of *I. verticalis* show males are quite striking. Grieve (1937) was the first to observe females flexing their abdomen ventrally and fanning their wings at approaching males, but he misinterpreted this posturing as an attempt by females to attract males and assumed it was courtship behavior. Bick (1966) correctly interpreted this behavior as a signal to a male that the female was unreceptive to mating. I have seen this behavior numerous times. The following photos (Fig. 1) I took in central Wisconsin show a male hovering near a female and the female wing-whirring and bending the apical half of her abdomen downward to refuse his approach. Males usually leave such females after a few seconds.

This scenario (not the posture) is reminding of the age-old rejection at a high school dance, so it's hard for us fellows not to feel sorry for these "ambitious" males.

*Ischnura hastata* (Citrine Forktail). This species might also be monogamous, although literature on the natural history of this species is sparse. A population in the Azores is actually parthenogenetic (Lorenzo-Carballo & Cordero-Rivera, 2009); it is the only odonate known to be able to produce viable eggs without sperm, and all resulting offspring are female. However, all known mainland North American populations consist of both males and females. Very little is known about mating and oviposition in this species. Recently, I found several populations in Wisconsin (Marquette, Shawano and Waushara counties) and so far have observed oviposition only once, at a ditch-like wetland in Marquette County. A female perched on the surface of the stem of a small rush that had fallen into the water and repeatedly poked her ovipositor into that stem and a nearby stem (Fig. 2). I was able to get two photographs before a male *I. verticalis* pounced on her, at which she flew into nearby vegetation.

Further patient observation of this species will likely be rewarded with much-needed knowledge of its reproductive behavior.

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## Free Online Guide to Chicago Area Damselflies

Visit <http://fm2.fieldmuseum.org/plantguides/damselflies/> for a free PDF, *Damselflies of Chicagoland*, authored by Marla Garrison and published by The Field Museum, Chicago. This guide covers 38 species of damselflies known to occur in the Chicago area and an additional nine which are potential. Each species is beautifully illustrated with multiple photographs, and their field marks are thoroughly discussed.

## Odonata of the Robert Thorson Brown Nature Sanctuary

**Bob Marr** <rmarr@mtu.edu>

The Robert Thorson Brown Nature Sanctuary is a 19-acre parcel in Houghton County, Michigan, about 5 miles west of Painesdale in Michigan's Upper Peninsula that is owned and maintained by the Michigan Nature Association. It is a northern fen that consists of a circular, bog-like open water area surrounded by a mat of *Sphagnum* moss, and herbaceous and shrub vegetation. The surrounding woodland is a black spruce, tamarack, and cedar-dominated swamp. It was formerly known as Perrault Bog or Perrault Fen.

During the 2009 field season, and continuing into 2010, I have made over a dozen collecting trips to the Sanctuary, netting 18 different species of adult odonates, four of which are new county records. All are supported by voucher specimens deposited in the University of Michigan Museum of Zoology (UMMZ) as part of the Michigan Odonata Survey. In addition, I spotted an *Anax junius* (Common Green Darner), which I was unable to capture.

Robert Thorson Brown Sanctuary Species List:

*Lestes congener* (Spotted Spreadwing)
*Lestes disjunctus* (Northern Spreadwing)
*Lestes eurinus* (Amber-winged Spreadwing) *
*Coenagrion interrogatum* (Subarctic Bluet) *
*Enallagma boreale* (Boreal Bluet)
*Ischnura verticalis* (Eastern Forktail)
*Nehalennia gracilis* (Sphagnum Sprite) *
*Nehalennia irene* (Sedge Sprite)
*Aeshna canadensis* (Canada Darner)
*Aeshna tuberculifera* (Black-tipped Darner)
*Cordulia shurtleffii* (American Emerald)
*Celithemis elisa* (Calico Pennant) *
*Ladona julia* (Chalk-fronted Corporal)
*Leucorrhinia glacialis* (Crimson-ringed Whiteface)
*Leucorrhinia hudsonica* (Hudsonian Whiteface)
*Leucorrhinia proxima* (Red-waisted whiteface)
*Sympetrum obtrusum* (White-faced Meadowhawk)
*Sympetrum vicinum* (Autumn Meadowhawk)

* new Houghton County record

I would like to thank the Michigan Nature Association for granting me access and permitting the collection of voucher specimens. I would also like to thank Mark O'Brien of UMMZ for verification of specimens.

## Second Striped Saddlebags (*Tramea calverti*) Site Found in California!

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The re-watering of the Owens River in the Owens Valley east of the Sierra Nevada in California has refilled some lakes and marshes that have appeared on maps as dry lakes for decades.

In August of this year, Ron and Barbara Oriti decided to search for dragonflies in such an area, just east of the Black Rock Fish Hatchery between Lake Tinemaha and Independence. The last time that they had been in this area, years ago, it was completely dry, but they'd been told that there was water there now.

On 22 August, while Ron focused his camera lens on perched dragonflies, Barbara was using binoculars to see what species were flying in the area at Upper Twin Lake. There were many Black Saddlebags (*Tramea lacerata*) and Red Saddlebags (*T. onusta*) on the wing. A single individual saddlebags flew past Barbara, and she wondered what it was immediately, for it was different. She thought "Red Saddlebags" yet she knew that wasn't quite right, and as he was flying away, she never got a good look. A few minutes later, she reached a large "pond"—it's not really a pond, but just a smaller area of the lake that is enclosed by cattails, with emergent vegetation. She stopped to scan the area with her binoculars. Shortly, a tandem pair of large dragonflies flew past. She again thought "Red Saddlebags" but the markings on the wings were wrong, and the colors seemed slightly different. Also, it looked like there were stripes, or at least some kind of markings on the side of the thorax. They were flying low and fairly fast, mostly two to four feet above the water, and occasionally hovering briefly, or dipping down closer to the water. She began wondering if these could possibly be Striped Saddlebags, yet she knew that the species was only known within California from way down in the southeastern corner of the state (Imperial County wetlands). Unfortunately, it wasn't possible to get photos, and she knew these were badly needed.

Then on 1 September, she and Ron returned to the area and she again saw a single one of these interesting appear-

ing Saddlebags, this time at Lower Twin Lake, but again flying away. But she did get a good look at it in binoculars, so she knew it was another possible Striped Saddlebags. Shortly after that she found one sitting high in a tree, on the topmost branch. Now she could see that the "saddlebags" mark was very narrow, and just along the basal area of the hindwing. She had Ron take a look, and he confirmed what she saw. He was able to take a number of photos, and though they are shots taken at a distance, they were good enough to make a positive identification.

Later they went to the upper lake in this area, and Barbara again saw another possible Striped Saddlebags, flying high. So, she has seen five, and possibly more, of these Striped Saddlebags. She thinks it is most significant that they were not just individuals that either flew in or were blown in by winds, and notes that there even was a tandem pair! You can see Ron's Inyo County record photographs of this species on OdonataCentral: they are recorded as OC #322774.

The coordinates for the Upper and Lower Twin Lakes are 36.8804° N, 118.1672° W . We believe these to be the most northern record for the species in the western USA

A species list seen by Ron and Barbara at these newly watered sites include:

Western Pondhawk (*Erythemis collocata*)—many dozens, some ovipositing
Eight-spotted Skimmer (*Libellula longipennis*)—half a dozen
Bleached Skimmer (*Libellula composita*)—dozen or so, ovipositing
Blue Dasher (*Pachydiplax longipennis*)—many dozens, some ovipositing
Spot-winged Glider (*Pantala hymenaea*)—dozen or so
Wandering Glider (*Pantala flavescens*)—dozen or so
Variegated Meadowhawks (*Sympetrum corruptum*)—2 or 3 dozen
Band-winged Meadowhawk (*Sympetrum semicinctum*)—2 or 3 dozen
Striped Saddlebags (*Tramea calverti*)—one individual, one tandem pair ovipositing
Black Saddlebags (*Tramea lacerata*)—many dozens, some ovipositing
Red Saddlebags (*Tramea onusta*)—3 or 4 seen
Paddle-tailed Darner (*Aeshna palmata*)—some (hard to ID in flight, IDed from photos)
Blue-eyed Darner (*Rhionaeschna multicolor*)—many dozens, mostly this species
Common Green Darner (*Anax junius*)—2 or 3 dozen, some ovipositing
Damselflies (Zygoptera)—dozens of Bluets (*Enallagma*), Dancers (*Argia*), and Forktails (*Ischnura*), but they weren't paying much attention to the damsels.

## Drink Beer?

If you're an odonatist who drinks beer, you'll be interested in this link: <http://www.odonatabeer.com/>.

# Broken Antehumeral Stripes in a Male *Enallagma civile* (Familiar Bluet)

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In terms of field or in-hand identification, the Familiar Bluet, *Enallagma civile* (Hagen, 1861), is the standard to which other North American species of *Enallagma* damselflies are compared. Variation in this species therefore may present a challenge to identification. Major continental and regional references (Garrison, 1984; Abbott, 2005; Westfall & May, 2006; Paulson, 2009) either do not mention geographic variation or discuss variation in the postocular spots of the male, variation described by Johnson (1964) and telegraphically summarized by Paulson (2009: 81) as "very small or even absent in North; form narrow dumbbell in Southwest." No mention is made of variation, geographic or otherwise, in the width or continuity of the antehumeral stripe.

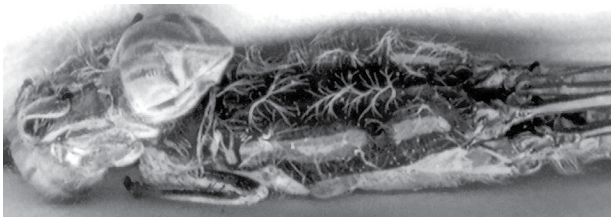

Figure 1. Broken antehumeral stripes on a male *Enallagma civile* collected near Fonda, Dewey County, Oklahoma, 23 May 2010. These stripes were symmetric in life, but postmortem dessication of the specimen has distorted this symmetry.

On 23 May 2010 we discovered an unusual male *Enallagma* in a roadside ditch a short distance east of Fonda, Dewey County, Oklahoma. Our eyes were drawn to this indi-

vidual because of its distinctly broken blue antehumeral stripe, a feature we associated, among the *Enallagma* species in the United States, only with *E. geminatum* Kellicott, 1895 (Skimming Bluet). Despite the broken antehumeral stripe, the damselfly's overall size and the distribution of blue on its abdomen suggested *E. civile*. We netted the individual and examined its caudal appendages, which were typical of *E. civile*; we double-checked the appendages of the specimen (OMNH) with a dissecting scope and again found them to be entirely typical of *E. civile*. Even in hand the distinct breaks in both antehumeral stripes were apparent (Fig. 1). The stripes were symmetric in shape and position of the break, and they otherwise appeared to be of average width and color saturation for a typical male *E. civile*.

We are unaware of broken antehumeral stripes being reported in *E. civile*, likely the most widespread and numerous *Enallagma* species in North America. Beyond presenting a challenge to identification of individual damselflies, variation in color and pattern may affect mate choice (Bick & Bick, 1965), even through learning (Finke et al., 2007). Blue coloration in odonates is structural and is produced by nanostructures in living epidermal cells underlying the cuticle (Charles & Robinson, 1981; Prum et al., 2004). It is plausible, then, that a development mutation or error could have produced epidermal cells that lacked the spherical structures necessary to reflect blue in just a portion of the antehumeral region, although without an analysis of the nanostructure of this individual we cannot know the mechanism. Likewise, we cannot know if mate attraction may have been affected adversely for this male, although it seems likely.

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## Book Review: Damselfly Genera of the New World: An Illustrated and Annotated Key to the Zygoptera

Rosser W. Garrison, Natalia von Ellenrieder, and Jerry A. Louton. 2010, The Johns Hopkins University Press, Baltimore. ISBN 978-8018-9670-5. 490 pp, 2586 figs., 24 color pls., $125.00. (Incl. additions and corrections for previous book, The Dragonfly Genera (Odonata: Anisoptera) of the New World, 2006, by the same authors)


Reviewed by **T. Donnelly** (tdonelly@binghamton.edu)


Great news! Rosser Garrison, Natalia von Ellenrieder and Jerry Louton have completed their two-book work on New World Odonata with the recent publication of the damselfly volume. For the first time there exists a complete guide to the genera of New World Odonata.

This book, and its 2006 dragonfly predecessor (by the authors, and published by the same press), cover the entire New World. Up front it should be stated that their utility for the North American fauna is far less than for the tropics and subtropics, because North America is extensively covered by existing literature. For tropical America there exist almost no summary papers and only a very few field guides, and thus these two new books fill an immense void. Students of Mexican (to a lesser extent Central American) odonates have the century-old but still useful Neuroptera volume of the Biologia Centrali Americana (Philip P. Calvert, 1892–1908). In covering the New World tropics,

the new Zygoptera book, and its Anisoptera predecessor, address the single most troublesome lacunae in the entire Odonata literature.

I have taken trips to southern India, and to New Guinea, and I have also taken trips to Venezuela and Guatemala. I found identifying my Indian specimens a breeze, and the New Guinea material almost as easy. Yet my first trip to Guatemala presented me with many problems, and it took a long time to identify my Venezuelan material. What was the difference? In the two Old World cases, I was able to profit from the long history of exploration of former colonies by northern Europeans, who applied northern European approaches with northern European enthusiasm and thoroughness to the novel odonate faunas they encountered. The results of their researches were elaborately and extensively published. In the New World cases most areas were far more poorly covered (1800-era European entomologists reached them only in small numbers), and published far less. The inevitable consequence is that Neotropical summary papers—which must follow abundant primary literature, have still not been produced in useful quantity.

Today the tropical New World stands out as that portion of the entire world with, by far, the most poorly known odonate faunas, and with, correspondingly, the greatest potential for discovery of new odonate species. But exciting potential for new species means maximum pain in taking those first steps: placing the material in the correct genus. The audience for these two books is not simply the beginning students of the Odonata; it is equally the veteran students already familiar with New World faunas. The subject is so complex that people of every level of expertise will need these books.

Prior to the appearance of these two new books the only way to function with New World tropical material was to amass all the literature one could—mainly reprints of a few pages describing new species, and longer papers available from book sellers. There were a few summary works (e.g,. Ris' 1909–1916 "Libellulinen"; Belle's papers on Gomphidae) which helped for single families, and a few generic revisions (e.g., Borror's 1942 "Revision of *Erythrodiplax*"; Calvert's 1956 "Subgenus *Aeschna*"), but mainly we simply muddled through. St. Quentin's 1960 "Zur Kenntnis der Agrioninae Südamerikas" was consulted far more than it deserved. Finding which genus our specimens belonged to was both tedious and difficult.

Not infrequently I receive enquiries asking which field guides are available for such-and-such country. Which indeed! I have to explain that there are neither guides nor technical summaries for almost all the tropical New World. In the absence of such publications, less experienced enthusiasts have turned to the Web. They see no way to function except to post photos (many are exquisite) and hope someone can tell them what the species is. This works some times, but in several cases I have had to respond that the gorgeous photo may belong to such-and-such a genus but is almost certainly undescribed!

Now Garrison et al.'s new books will richly fill their need, to a point: the books are designed to take the reader to genus only. There is a beginning key to families (more necessary than is immediately apparent), and, for each family, a further key to genera. In the damselfly book there are 24 color plates, each with two to four pictures, showing excellent views of most of the genera. An introductory section outlines odonate morphology, ensuring that the authors and users of the book will be on the same page, as it were. A nice touch is a brief biographical section, outlining the careers of most of the prominent earlier workers in New World odonatology.

The keys are abundantly illustrated; each couplet is accompanied by relevant figures, much like Borror's 1945 ground-breaking "Key to the New World Genera of Libellulidae" (which almost certainly inspired the format for these books). For each genus there are illustrations of taxonomic details of various species, representing a huge effort (mainly by Garrison himself) to illustrate morphological details. Happily the authors decided to include far more illustrations than would have been necessary merely to identify the genus. A huge and useful collection of detailed drawings is presented, and these are a major treasure in themselves. Descriptions of each genus are thorough, but the reader will have, in most cases, to consult the referenced papers to establish correct species. The habitat for each genus is described as thoroughly as possible.

I found few aspects of the book to object to. The keys to genus for each family seem extremely well thought out, but are difficult. Perhaps the use of different fonts, type faces, etc. would have made the keys easier to use. Perhaps it would have been better to put the illustrations and text on separate pages, as Borror did for his key the genera of the Libellulidae. At any rate, the keys are somewhat challenging to use.

The maps use the same cylindrical projection as was used in the Dragonfly book. High-latitude Canada is distorted and unattractive, but probably no Canadian will need this book for the odonate fauna of that country. The maps themselves are not always accurate (*Archilestes* certainly extends further south; *Protoneura* is not shown for Puerto Rico and several islands of the Lesser Antilles; *Palaemnema* misses territory where the genus occurs).

For several genera huge patches cover the fact that there are only a very few, widely separated occurrences. In some cases, even though a strong case can be made that there is a continuous range, only spots are shown (e.g, *Thaumatoneura*), while for others a continuous thin, curved line implies an oddly long and narrow distribution whose continuity might not exist in reality (e.g., *Oreiallagma*).

North American workers will gain much new information, even though the book is not really aimed at them. An example of new information for the North American fauna is the peculiar basal hook of the male cercus in *Chromagrion*. Perhaps the excellent illustration will pique someone to find out what is used for. Remarkably it has not been illustrated previously, and we are grateful to the authors for this new information.

Odonata students in the New World tropics and subtropics will not be able to function without both this book and its dragonfly predecessor. They are attractive, jammed with important information, and thoroughly illustrated. The authors all have extensive tropical experience and are recognized as among the most productive odonatists in the world. A likely additional result of the publication of these books will be that other entomologists may add the Odonata to their studies.

## Request for Annual DSA Meeting Proposals

I am looking for proposals to host the 2013 DSA annual meeting in the Northwest region. If you would like to host the annual meeting somewhere in the Northwest states, please let me and Steve Valley, the regional coordinator know of your proposal. Likewise, if you would like to host the 2014 DSA annual meeting somewhere in the Central region, please let me and Tim Cashatt, the Central region coordinator know of your proposal. If you would like to host the annual meeting in 2015 in the Northeast, please let me and Bryan Pfieffer, the regional coordinator know of your proposal. If you have any questions at all, please do not hesitate to drop me an e-mail or letter. Thank you very much! Jerrell J. Daigle <jdaigle@nettally.com>

## A Call for Papers for BAO

The Bulletin of American Odonatology is in need of manuscript submissions. It has been more than a year since the last issue of BAO appeared (vol. 11, no. 1), in case you haven't kept track. That issue contained six relatively short contributions. I now have two short manuscripts in the queue and two other possible manuscripts not yet submitted, but that is not enough to put out an issue. If you have a manuscript in preparation, please contact John Abbott (Editor in Chief) or myself and let us know your timetable.

If BAO is to continue to be a vehicle for timely reporting of research results on the Odonata of the New World, you are the ones who can make it happen. We can't publish manuscripts we don't receive.

Ken Tennessen <ktennessen@centurytel.net>, Editor, BAO

# ARGIA and BAO Submission Guidelines

Digital submissions of all materials (via e-mail or CD) are vastly preferred to hardcopy. If digital submissions are not possible, contact the Editor before sending anything. Material for ARGIA must be sent directly to John C. Abbott, Section of Integrative Biology, C0930, University of Texas, Austin TX, USA 78712, <jcabbott@mail.utexas.edu>; material for BAO must be sent to Ken Tennessen, P.O. Box 585, Wautoma, WI, USA 54982, <ktennessen@centurytel.net>.

**Articles**

All articles and notes are preferably submitted in Word or Rich Text Format, without any figures or tables, or their captions, embedded. Only minimal formatting to facilitate review is needed—single column with paragraph returns and bold/italic type where necessary. Include captions for all figures and tables in a separate document.

Begin the article with title, author name(s), and contact information (especially e-mail) with a line between each. The article or note should follow this information. Paragraphs should be separated by a line and the first line should not be indented. Where possible always refer to the scientific name of a species followed by its official common name in parentheses.

**Figures**

Submit figures individually as separate files, named so that each can be easily identified and matched with its caption. Requirements vary depending on the type of graphic.

Photographs and other complex (continuous tone) raster graphics should be submitted as TIFF (preferred) or JPEG files with a minimum of 300 ppi at the intended print size. If unsure about the final print size, keep in mind that over-sized graphics can be scaled down without loss of quality, but they cannot be scaled up without loss of quality. The printable area of a page of ARGIA or BAO is 6.5 × 9.0 inches, so no graphics will exceed these dimensions. Do not add any graphic features such as text, arrows, circles, etc. to photographs. If these are necessary, include a note to the Editor with the figure's caption, describing what is needed. The editorial staff will crop, scale, sample, and enhance photographs as deemed necessary and will add graphics requested by the author.

Charts, graphs, diagrams, and other vector graphics (e.g. computer-drawn maps) are best submitted in Illustrator format or EPS. If this is not possible, then submit as raster graphics (PNG or TIFF) with a minimum of 600 ppi at the intended print size. You may be asked to provide the raw data for charts and graphs if submitted graphics are deemed to be unsatisfactory. When charts and graphs are generated in Excel, please submit the Excel document with each chart or graph on a separate sheet and each sheet named appropriately (e.g. "Fig. 1", "Fig. 2", etc.)

**Tables**

Tables may be submitted as Word documents or Excel spreadsheets. If Excel is used, place each table on a separate sheet and name each sheet appropriately (e.g. "Table 1", "Table 2", etc.)

## The Dragonfly Society Of The Americas

Business address: c/o John Abbott, Section of Integrative Biology, C0930, University of Texas, Austin TX, USA 78712



## 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. Membership in DSA includes a subscription to 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.

## Membership in the Dragonfly Society of the Americas

Membership in the DSA is open to any person in any country and includes a subscription to Argia. Dues for individuals in the US, Canada, or Latin America are $20 US for regular membership and $25 US for institutions or contributing membership, payable annually on or before 1 March of membership year. Dues for members in the Old World are $30 US. Dues for all who choose to receive Argia in PDF form are $15. The Bulletin Of American Odonatology is available by a separate subscription at $20 US for North Americans and $25 US for non-North Americans and institutions. Membership dues and BAO subscription fees should be mailed to Jerrell Daigle, 2067 Little River Lane, Tallahassee, FL, USA 32311. More information on joining DSA and subscribing to BAO may be found at <www.dragonflysocietyamericas.org/join>.

## Argia and BAO Submission Guidelines

Digital submissions of all materials (via e-mail or CD) are much preferred to hardcopy. All articles and notes should be submitted in Word or Rich Text Format, without any figures or tables embedded. Only minimal formatting to facilitate review is needed. Photographs should be submitted as TIFF (preferred) or JPEG files with a minimum of 300 ppi at the intended print size. Charts, graphs, diagrams, and other vector graphics are best submitted in Illustrator format or EPS. If this is not possible, submit as PNG or TIFF at a minimum of 600 ppi at the intended print size. Charts and graphs may also be submitted in Excel documents. Tables may be submitted as Word or Excel documents. For more information see the entire guidelines at the end of this issue or visit <http://www.odonatacentral.org/index.php/PageAction.get/name/DSASubmissionGuidelines>. Argia submissions should be sent to John Abbott, Section of Integrative Biology, C0930, University of Texas, Austin TX, USA 78712, <jcabbott@mail.utexas.edu>; BAO submissions should be sent to Ken Tennessen, P.O. Box 585, Wautoma, WI, USA 54982, <ktennessen@centurytel.net>.

**Back cover**: **(upper)** Wheel pair of *Aeshna constricta* (Lance-tipped Darner) photographed at Mukwa Wildlife Area, Waupaca County, Wisconsin, 7 Aug. 2010. Photo by Ken Tennessen. **(lower)** Ebony Jewelwing (*Calopteryx maculata*) male. Photographed on unnamed creek near Powderly, Texas on 28 May 2009. Photo by John C. Abbott.