

ARGIA

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Front cover: Variegated Meadowhawk (*Sympetrum corruptum*) being eaten by a Praying Mantis (*Stagmomantis* sp.), taken on 2 November 2012 at Bitter Lake NWR, Chaves Co., New Mexico. Photo by Bill Flynt, II.

Second Notice 2013 DSA Annual Meeting

David Halstead <halstead@siast.sk.ca>

The 2013 DSA Annual meeting will be held 12–14 July in Prince Albert, Saskatchewan. Registration and meeting details are available at <www.sspb.ca> or you can access the website through a link on OdonataCentral. Your host for the event will be David Halstead <halstead@siast.sk.ca> and the Prince Albert organizing committee.

The business meeting will be held 13 July at the Saskatchewan Institute of Applied Science and Technology (SIASST) Woodland Campus. Please register early on the DSA Annual Meeting website if you're planning on giving a presentation. The meeting room is fully outfitted with a computer, large screen projector, and audio system. The only caution I would offer is to have your presentation backed up on more than one version of PowerPoint to ensure version compatibility. We also plan to carry on the tradition of a silent auction. Please give some thought to auction items you might be willing to donate in support of OdonataCentral.

The Prince Albert Travelodge (3551 2nd Avenue West, 1-800-578-7878) will serve as headquarters for most non-survey activities. The hotel offers wifi and an in-house restaurant. Twenty-five rooms have been set aside for the "Dragonfly Society" until 30 June 2013. The best rate is \$95.00 plus tax (\$11.40). In addition, twenty-five rooms are booked, also until 30 June, at the Prince Albert Super 8 Motel (444 2nd Avenue West, 1-306-953-0088) located about 1.6 kilometers (1 mile) down the road. The rate for the Super 8 is \$104.50 plus tax (\$12.35). This rate includes wifi and a continental breakfast. Please book early.

Survey activities will be centered on Prince Albert National Park. The park comprises an area larger than the state of Rhode Island and includes some of the most pristine aquatic systems in western Canada with bogs, fens, swamps,

marshes, lakes and streams all represented. Attendees will be supplied with maps and permits along with some precautions for working in protected areas. The town of Waskesiu, in the heart of the park, provides a convenient location for mid-day rendezvous with other attendees to share survey activities.

The pre-meeting, also headquartered in Prince Albert, will take place 10–11 July. Attendees will have an opportunity to sample a wide range of transitional habitat between aspen parkland to the south and boreal forest to the north. Possible sampling locations include MacDowall Bog, which should be buzzing with newly emerged darners, and the Gem Lakes, which are usually rich in Emeralds. The pre-meeting also provides an opportunity to scout out Prince Albert National Park and adjacent wetlands for preferred sampling locations.

The post-meeting is scheduled for 15–17 July in Missinipe, Saskatchewan. Missinipe is situated on the Canadian



Figure 1. Jade Lake, one of the Gem Lakes. Photograph by David Halstead.

continued next page...

Calendar of Events

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

Event	Date	Location	Contact
DSA SE Regional Meeting	26–28 April 2013	Richmond, Virginia	Paul Bedell <pbedell@richmond.edu>
DSA Annual Meeting	12–15 July 2013	Prince Albert, Saskatchewan	D. Halstead <halstead@siast.sk.ca>



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Shield and is truly the jumping-off point for high adventure. You can rent a floatplane to take you to one of 100,000 lakes in the region, float a kayak on one of the many rivers, or simply follow the road to Churchill River, Stanley Mission, Southend, or any one of a number of other northern destinations.

In an effort to reduce costs and encourage camaraderie among attendees, six group cabins have been booked with Thompson Cabins in Missinipe. The cabins are featured on the post-meeting link of the DSA Annual Meeting web page. They are \$440.00/night, tax included, and are appointed with full kitchen facilities, BarBQ, two bathrooms, washer and dryer and two bedrooms with double beds, one bedroom with three single beds, and a hide-a-bed in the common area. The cabins will accommodate four individuals comfortably (\$110.00/night) and as many as seven or eight individuals if necessary (much less than \$100.00/night).

For this arrangement to work, groups of two to four individuals must be willing to commit to a 50% deposit in the amount of \$600.00, with the deposit becoming non-refundable after 15 May. The Prince Albert Group has already booked one of the cabins, so I'm asking other groups, typically travelling together, to make the same pledge. Individuals wishing to share these accommodations are welcome to make arrangements with the sponsoring hosts for each cabin. The names of the sponsoring hosts and their contact information will be available on the post-meeting page of the DSA meeting website. There are also a limited number of cabins available for those wishing to make their own arrangements, but these facilities are not pre-booked and will not last long. Most of the smaller cabins have a capacity for one to three individuals at \$115.00 to \$287.00 per night. To make your booking call toll free 1-800-667-5554 and ask for Wendy. Make sure to mention you are with the Dragonfly Society. There are also two campgrounds in the immediate vicinity and more conventional hotel accommodations 80 kilometers (50 miles) south of Missinipe in LaRonge. Please see the web page for more information about the LaRonge facilities.

Part of Saskatchewan's attraction has to be the allure of the unknown. The province is just shy of Texas in terms of size and among the least surveyed state or provincial jurisdictions in North America, especially in the north. Many discoveries have yet to be revealed, and with a concentration of DSA Annual Meeting participants, many discoveries are likely to be made during the summer of 2013.

Saskatchewan also has an extremely favorable summer cli-



Figure 2. Boundary Bog in Prince Albert National Park. Photograph by David Halstead.




Figure 3. Prince Albert and the Northern Saskatchewan River. Photograph by David Halstead.

mate (it's -20°C as I write this in late November). Average daily temperatures for mid-July are 23°C (73°F), but temperatures can exceed 29°C (84°F) on one day in ten. That's not to say it won't rain—there's a better than 50% chance of a thunderstorm on any given day, but recent trends have seen drier than normal climate in the north. Most importantly for dragonfly aficionados, the days are much longer (almost 17 hours of daylight in July), leading to greater capture opportunities for netters and photographers alike.

Finally, you have to witness the explosion of dragonflies and damselflies that occurs in Saskatchewan to believe it. The flight season is just over four months long, so every hour of those extended days is critical for feeding and development of larvae and adult alike. Saskatchewan has a motto on its license plates "Land of the Living Skies" that for many refers to the spectacular drama of colour and cloud that plays out in our prairie sky. For me, it refers to the large swarms of darners and emeralds that amass in the evenings as they chase the dying rays of sunlight at the conclusion of another perfect summer day.

Dragonflies that may be of interest include the Canada Darner (*Aeshna canadensis*), Lake Darner (*A. eremita*), Vari-

able Darner (*A. interrupta*), Sedge Darner (*A. juncea*), Azure Darner (*A. septentrionalis*), Zigzag Darner (*A. sitchensis*), Subarctic Darner (*A. subarctica*), Black-tipped Darner (*A. tuberculifera*), and Shadow Darner (*A. umbrosa*). In addition, there should be ample representation from the emeralds including, but not limited to, American Emerald (*Cordulia shurtleffii*), Ringed Emerald (*Somatochlora albicincta*), Lake Emerald (*S. cingulata*), Delicate Emerald (*S. franklini*), Hudsonian Emerald (*S. hudsonica*), Kennedy's Emerald (*S. kennedyi*), Ocellated Emerald (*S. minor*), Brush-tipped Emerald (*S. walsbii*), Whitehouse's Emerald (*S. whitehousei*), and Williamson's Emerald (*S. williamsoni*). There's also a good chance that Muskeg (*Somatochlora septentrionalis*) and Quebec Emeralds (*S. brevicincta*) are present in the region though they've yet to be seen in the

province. Expect also to see representatives of the gomphid and libellulid clan including the Pale (*Ophiogomphus severus*) and Boreal Snaketail (*O. colubrinus*), Boreal (*Leucorrhinia borealis*), Crimson-ringed (*L. glacialis*), Hudsonian (*L. hudsonica*), Canada (*L. patricia*), and Belted Whiteface (*L. proxima*), Black Meadowhawks (*Sympetrum danae*), and Chalk-fronted Corporals (*Ladona julia*). Among damselflies, expect to see River Jewelwings (*Calopteryx aequabilis*), Prairie (*Coenagrion angulatum*), Subarctic (*C. interrogatum*), Taiga (*C. resolutum*), Northern (*Enallagma annexum*), Boreal (*E. boreale*), Marsh (*E. ebrium*), and Hagen's Bluet (*E. hageni*), Sedge Sprite (*Nehalennia irene*), and Emerald (*Lestes dryas*), Spotted (*L. congener*), Northern (*L. disjunctus*), Sweetflag (*L. forcipatus*), and Lyre-tipped Spreadwing (*L. unguiculatus*). Expect also to see the unexpected. 

2013 Southeast DSA Regional Meeting


Paul Bedell <ppedell@richmond.edu>

The 2013 Southeast regional meeting of the DSA (SEDSA) will be held in Richmond, Virginia, from 26–28 April 2013. Our focus will be *Ophiogomphus* nr. *susbehcha*, recently discovered to occur in the James River, with lesser numbers on the Potomac. Additional info about the species can be found at Richard Orr's website <<http://www.marylandinsects.com/PotomacSnaketail.html>>. This is an early-emerging dragonfly. At present, we know that it occurs in the James River, from the James River Park system (in the center of metropolitan Richmond) west through the Piedmont region from as early as late March into early May. We will be searching for this species, as well as other early emergers such as *Gomphus abbreviatus* (Spine-crowned Clubtail), *G. viridifrons* (Green-faced Clubtail), and *Neurocordulia virginienensis* (Cinnamon Shadowdragon). A nice variety of other early odonates should be present in central Virginia at this time including *Helocordulia selysii* (Selys' Sundragon) and *Epithecica costalis* (Slender Baskettail) at nearby Pocahontas State Park. This is at the beginning of the odonate season here, so don't expect a big species list. And unpredictable general weather patterns may result in an early or late emergence. But late April is actually later in this particular *Ophiogomphus* flight season, so it should be present regardless.

Field trip locations will include many parks and boat landings on the James River, and collecting permits will be obtained. Our headquarters motel will be the Hyatt Place Richmond Arboretum, 201 Arboretum Place, Richmond, Virginia 23236, in the southwest of the metro area <http://www.richmondarboretum.place.hyatt.com/hyatt/hotels-richmondarboretum-place/place/index.jsp?src=agn_dtc_hp_lclb_gplaces_ricza&hyattprop=yes>. This is an excellent motel with a great breakfast, and is reasonably priced and convenient compared to our other options.

Marion Dobbs has worked on setting up a website for us at <<http://mamomi.net/SEDSA2013/SEDSA/Welcome.html>> and we thank her greatly!

You may contact Paul Bedell <ppedell@richmond.edu>, Anne Wright <abwright@vcu.edu>, Steve Roble <Steve.Roble@dcr.virginia.gov>, or Richard Groover <rgroover@reynolds.edu> for further information.

We look forward to seeing you here to get a great start to the 2013 field season! 

Don't Forget to Renew Your Membership!

This is the final ARGIA of 2012, so it's time to renew your membership, unless you have already paid for 2013 or beyond. To renew your DSA membership and/or subscribe to Bulletin of American Odonatology, use the form in the print issue or visit <http://www.odonatacentral.org/index.php/PageAction.get/name/DSA_Membership>.

Boreal or Bust—the 2012 Joint NE DSA and Great Lakes Odonata Meetings

Colin Jones <colin.jones@ontario.ca>

On the evening of 6 July 2012, 31 people from 10 states and provinces converged at Sault Ste. Marie, Ontario for the joint Northeast Regional DSA and Great Lakes Odonata meetings. We crammed ourselves into the tiny meeting room in the Super 8 motel to reunite old friendships, make new ones and to discuss the many places we would be visiting over the course of the weekend in the hunt for northern odonates.

On our first full day the group ventured north to the Chippewa and Batchawana rivers in search of riverine odonates, one of the main targets being Extra-striped Snaketail (*Ophiogomphus anomalus*). The Chippewa and Batchawana are just two of many beautiful and pristine rivers that flow into the crystalline waters of Lake Superior. Accessing these rivers is not easy and involves driving up the so-called “Mile 38 Road”—a rough and bumpy forest access road that requires a vehicle with good clearance and preferably 4-wheel drive because you never know what state such roads will be in! Fortunately for us, most of this road was in pretty good condition except for the last few kilometres (that seemed more like hundreds!) to access the Batchawana later in the afternoon.

Overall, despite a great day weather-wise, the odonate activity was quite slow for this time of year. The spring and early summer was very warm and emergence occurred much earlier than average in 2012. As a result, many of the clubtails (Gomphidae) we were hoping to catch up with

were scarce to absent and were clearly nearing the end of their flight period. Nevertheless, with many eyes (and nets), and by stopping at as many sites as we could manage, by the end of our first day we totalled an impressive 46 species!

Highlights of the day for many included several Riffle Snaketails (*Ophiogomphus carolus*), a species that was to become one of the most commonly encountered clubtails of the meeting, Ocellated Darner (*Boyeria grafiana*), emerging Zebra Clubtails (*Stylurus scudderii*), both Delta-spotted and Twin-spotted Spiketails (*Cordulegaster diastatops* and *C. maculata*), a Ski-tailed Emerald (*Somatochlora elongata*) and, of course, several Extra-striped Snaketails but not until we reached the Batchawana River at the end of the road! We still needed to turn around and make the long and bumpy drive all the way back!!!

We began Sunday morning by visiting the Goulais River Fen, a large peatland north of Sault Ste. Marie. The exceptionally warm spring and early summer, combined with near-drought conditions once again made things tough for us. There was very little standing water in the peatland and very little activity. Patience paid off, however, and eventually Kyle Holloway netted a lone *Somatochlora* that was cruising down the dirt track that runs along the edge of this immense peatland—Incurvate Emerald (*S. incurvata*), a provincially rare bug and a new county record!

The remainder of this day was spent on the Goulais River, another beautiful river flowing into Lake Superior and one that E. B. Williamson visited in 1906. Once again, the activity was a little slower than we had hoped for but one thing was certain, we certainly had our fill of Riffle Snaketails! Our cumulative list by the end of Day 2 was 55 species!

In the evening, with many thanks to Valerie Walker, we managed to secure a classroom in Sault College for our evening presentations, which was much more comfortable than the tiny meeting room at the motel. Mark O'Brien (University of Michigan) presented on why primary source data is still the best, Harvey Lemelin (Lakehead University) opened our minds to human/insect relationships and the myth of “entophobia”, Colin Jones provided an overview of the initiatives of the Migratory Dragonfly Partnership and Nick Donnelly illustrated just how confusing meadowhawks (*Sympetrum* spp.) can be due to individual variation and especially hybridization!



Figure 1. The post-meeting trip gang at the edge of the Arctic Watershed. Marla Garrison, Josh Rose, Bryan Pfeiffer, Glenn Corbiere, Eric Corbiere, Ed Lam, Kyle Holloway, David Bree (kneeling), Colin Jones and Harry Adams. Photo by Bryan Pfeiffer.

On Monday morning, while many people departed, ten of us ventured further north into the Arctic Watershed, to the small northern community of Chapleau for the post-meeting trip. Some people took the scenic drive along the coast of Lake Superior through Lake Superior Provincial Park, one of the most spectacular stretches of highway in Ontario, while others took the inland route past many rivers, lakes and peatlands. For those of us that stuck around, we were certainly not disappointed. Perhaps because we were that much further north, or maybe because this area wasn't as affected by drought conditions, but whatever the reasons, odonate activity was much better than it was further south.

Much to the relief of many, especially Ed Lam, we finally caught up with a major target of the meeting, when we found a bounty of Boreal Snaketails (*Ophiogomphus colubrinus*) on the Shawmere River east of Chapleau. A brief stop at the sandy-bottomed Le Blanc Lake to eat lunch added Tule Bluet (*Enallagma carunculatum*) to our meeting list and a beautiful little kettle lake nearby was teeming with yet another new *Enallagma*, Northern Bluet (*E. annexum*). A Bonaparte's Gull flew in and landed on this lake, illustrating just how far north we were! This Boreal nesting gull had likely come in from a nearby breeding site to feed.

Our second full day in the Chapleau area was to become "The Quest for *Somatochlora*" and we were certainly not disappointed! By the end of the day we had confirmed five species including Ski-tailed (*S. elongata*), Delicate (*S. franklini*), Brush-tipped (*S. walshii*), Ocellated (*S. minor*), and what was certainly the highlight for most, the big, beefy Lake Emerald (*S. cingulata*). A sixth species cruising high over the road was likely Forcipate Emerald (*S. forcipata*) but it was simply too high for us to capture and confirm. In total, we added 10 more species to the total meeting list resulting in a grand total of 65!

Northern butterflies were another highlight of the post-meeting trip and we managed great views of Pink-edged



Figure 2. A male Lake Emerald (*Somatochlora cingulata*) was one of the highlights of the post-meeting trip. Photo by Bryan Pfeiffer.



Figure 3. We finally caught up with the northernmost snaketail, Boreal Snaketail (*Ophiogomphus colubrinus*), on the Shawmere River during the post-meeting trip. Photo by Colin Jones.

Sulphur (*Colias interior*), both Bog and Dorcas Copper (*Lycaena epixanthe* and *L. dorcas*), Hoary Comma (*Polytonia gracilis*) and Jutta Arctic (*Oeneis jutta*).

The sightings of several Black Bears (including females with cubs), a large fresh wolf scat, the clean, crisp northern air, and highways so quiet that we could run around with our nets chasing dragonflies without a vehicle in sight were all aspects that made this meeting both memorable and a true northern experience!



Request for Specimens

I would like to borrow specimens of the following species for DNA work: *Amphiagrion* sp. from Indiana, *Orthemis levis* from South America, and *Dythemis nigrescens* from Texas. Only a leg will be used and the specimens have to be less than 10 years old. If you have any questions, please let me know. Thank you very much!

Jerrell J. Daigle

<jdaigle@nettally.com>

DSA/GLOM Joint Meeting , Sault Ste. Marie, Ontario, 6-10 July 2012



Back row: Mark O'Brien, Ailsa Donnelly, Michael Ready, Nick Donnelly, Robert Cohen, Kyle Holloway, Bob Curry, Glenda Slessor, Pamela Deerwood, Glenn Corbiere, Eric Corbiere, Adrienne O'Brien, Bob Dubois, Harry Adams, Colin Jones, Bryan Pfeiffer. Front row: John Arthur, Carl Linhart, Josh Rose, Valerie Walker, Gabriel Lemelin-Wiersma, Harvey Lemelin, Bill Smith, David Bree, Ed Lam, Ken Tennesen, Danny Johnson. Not pictured: Brenda Van Ryswyk, Marla Garrison, John McKee, Cindy McKee. Photo by Harry Adams.

The 2012 Annual Dragonfly Festival at Bitter Lake NWR

Jerry K. Hatfield, Lubbock, Texas <l.hatfiejk7@yahoo.com; jerry.hatfield@umchealthsystem.com>

The Annual Dragonfly Festival at Bitter Lake National Wildlife Refuge near Roswell (Chaves Co.), New Mexico, was held 8-9 September 2012. Despite overcast skies and cooler temperatures during the main event, all had fun. We were able to net quite a few species, including:

Anax junius (Common Green Darner)
Enallagma basidens (Double-striped Bluet)
E. civile (Familiar Bluet)
Erythemis collocata (Western Pondhawk)
Erythrodiplax berenice (Seaside Dragonlet)
Ischnura barberi (Desert Forktail)
I. denticollis (Black-fronted Forktail)
Lestes alacer (Plateau Spreadwing)
Libellula composita (Bleached Skimmer)
L. pulchella (Twelve-spotted Skimmer)
L. saturata (Flame Skimmer)
Plathemis subornata (Desert Whitetail)
Rhionaeschna multicolor (Blue-eyed Darner)

The real exciting highlight of the event, however, took place during our pre-festival tour leader's excursion on the refuge to get a closer look at the field assigned areas for tours. While scoping things out from one of the refuge vans, we caught sight of an odd-looking dragonfly that turned


out to be a male *Erythrodiplax umbrata* (Band-winged Dragonlet) that was not only new to Chaves County but to New Mexico State as well! A few photographs were secured to validate the new record (OC#381665). 




Figure 1. Band-winged Dragonlet (*Erythrodiplax umbrata*) photographed on 7 September 2012 at Bitter Lake National Wildlife Refuge, Chaves Co., New Mexico, representing a record for New Mexico. Photograph by J. Hatfield.

Final 2012 Treasurer's Report

Jerrell J. Daigle, DSA Treasurer <jdaigle@nettally.com>

We began the 2012 year with a balance forward of \$23,140.51. The minimum level for filing IRS tax forms has been raised to \$50,000 annually, so we do not have to worry about exceeding the old \$25,000 level. Currently, we have a DSA membership of about 400. Income and expenses are lower so far due to the new cost structure of available cheaper electronic versions of ARGIA. Our expenses were for printing issues of ARGIA (issue 24), incorporation fees, annual business meeting expenses

for South Carolina meeting, and for the awarded 2012 Donnelly fellowship. In addition, we established a fee-free account with another bank for non-USA members as our current bank is now charging extra fees for processing checks from overseas members. In addition, we submitted payment of \$1,000 to the University of Texas for computer storage space for ARGIA and BAO. It is anticipated that we will finish the 2012 year with a balance of approximately \$19,000. 

Remembering Ken Soltesz

Paul Novak <pgnovak@gw.dec.state.ny.us>

I returned from vacation last week to an e-mail from Nick Donnelly saying that Ken Soltesz had passed away. My prayers and condolences go out to the Soltesz family, his wife Joyce and three daughters Tammy, Susie and Cathy. Ken was 65 when he passed on. I will miss Ken; the New York odonate community will miss Ken.

I first met Ken in 1990 after I had moved to Mt. Kisco in Westchester County for a Land Steward position with what was then the Lower Hudson Chapter of The Nature Conservancy. Ken knew that I was living in a house on the TNC's Butler Sanctuary, and knew that a previous naturalist for TNC had made a small insect collection that was housed, though poorly curated, at the Sanctuary. Ken also knew I had worked for awhile at the New York State Museum in Albany, and when he phoned one night, I learned that the collection included what was at the time the only New York specimen of *Libellula axilena* (Bar-winged skimmer). So I found the collection and we picked an evening for Ken to come over to look at the collection with me, thinking that specimen should be transferred to the State Museum. Ken arrived with a shoebox full of beautiful specimens he had collected, mostly in Westchester County, copies of large, daunting taxonomic references by Walker and by Westfall, an identification guide he had made up with family characteristics in a key and drawings he had made of many common species, along with what were at the time, the only field guides to dragonflies and damselflies, Sid Dunkle's two guides for the Florida Peninsula, Bermuda and the Bahamas. Ginger Carpenter's excellent guide for Cape Cod would arrive the following year, but the Massachusetts guide and Ed Lam's fantastic damselfly guide were still years away. I don't remember how long we spent that night, looking at Ken's specimens and the ones in the TNC collection, looking at Walker


and Westfall, and just talking about dragonflies, but it was a good while.

I had taken Introductory Entomology and Insect Taxonomy courses in college, and yes, I had a few odonates in the small collections required for these classes, but I did not truly "emerge" into the world of dragonflies until I met Ken. Some time after our initial get-together, Ken told me of an upcoming gathering of a handful of northeastern odonate enthusiasts to be held at his house on nearby Oscaleta Lake. Though I was barely a teneral, Ken encouraged me to come over and join the group that included Nick and Ailsa Donnelly, Richard Orr, Allen Barlow, Skip Blanchard, Hal While, and John Michalski. The enthusiasm and knowledge of the group and the hospitality shown by Ken and Joyce was infectious as we spent an evening trying to snag *Neurocordulia* at dusk off the end of the dock and surveyed the Cross River Ward Pound Ridge Reservation the next day.

At the time, Nick had developed a first New York State odonate list and was busy compiling records for his first Bulletin of Odonatology. The Lower Hudson Chapter had also recently purchased a small preserve on the Nev-ersink River in Sullivan County and also held a conservation easement at another property there. This beautiful river supported some globally rare freshwater mussels and Ken wondered what it might hold for dragonflies, possibly *Ophiogomphus anomalus* (Extra-striped Snaketail), given the 1951 historical record of that species from nearby Port Jervis. While we did not find that species on a first visit, Ken's capture of *Ophiogomphus aspersus* (Brook Snaketail) was exciting enough for me. During the summer of 1991, I collected a handful of specimens from various sites of interest to the Chapter and enjoying looking at them with

Ken as he made the species determinations. In the fall of 1991, I left Westchester and headed north to Albany to become Assistant Zoologist at the New York Natural Heritage Program. Based on Nick's 1992 BAO complete list for New York, Ken developed state "rarity" ranks for all odonates found in New York along with the habitat types they occupied. With both Ken and Nick's lists on hand I was able to ramp up Heritage Program efforts to survey for rare dragonfly and damselfly species in New York. I enlisted Ken as a contract biologist for several years, initially to search for *Ophiogomphus anomalus* on the Delaware River (at Ken's suggestion). Ken was tireless in his search, collecting dozens of jars of exuviae from dozens of access points, floating a long stretch of the river, walking open areas on hillsides adjacent to the river. His efforts met with success in June 1993 when he found an *O. anomalus* exuvia, thereby re-discovering the existence of this species in New York after a 22 year absence. While not finding a large or extensive occurrence, Ken and I found additional locations for the species on the Delaware in 1993. Ken's initial collection of a strange gomphid exuvia also occurred in 1993, followed in 1994 with the collection of adult gomphids that were to be identified as an extreme disjunct population and new subspecies of *Gomphus septima* (Septima's Clubtail). Even after the arrival of Ginger's Cape Cod guide, Ken's identification guide remained extremely valuable to me as I began to

collect odonates during the course of my fieldwork across the state. Ken was as giving of his time as anyone new to a group could ever ask whenever I had questions, and most of the species determinations in my first few years were done by Ken. I enjoyed a number of field days with Ken that I still greatly treasure.

With new field guides and digital cameras taking the odonate world by storm and with federal State Wildlife Grant funding in hand, New York followed in Paul Brunelle's footsteps in Maine and began the New York Dragonfly & Damselfly Survey (NYDDS) in 2005. I conducted several workshops during each of the first two years of the project and Ken's identification guide and keys to Northeastern Anisoptera larvae (or portions thereof) were provided to newcomers as handouts at each workshop. Ken also served on the Advisory Committee for the first couple of years of the project. While Ken's declining health and move to Tennessee made it difficult for him to continue to participate in NYDDS, it would not be the slightest stretch to say that without Ken there would not have been a New York Dragonfly & Damselfly Survey project starting up in 2005. While recent years have seen me much less involved with odonates, memories of Ken are always and ever shall beon my mind when my dragonfly net comes out or I am just enjoying looking at these beautiful animals. Thank you, Ken; rest in peace. 

Ken Soltesz—An Appreciation

Nick Donnelly <tdonnelly@binghamton.edu>

The recent death of Ken Soltesz has left a huge hole in the lives of the New York Ode community. His energy, capacity for really hard work, enthusiasm, and generosity will not be seen around here again for a very long time.

Ken contributed heavily to downstate New York records for my first paper on the Odonata of New York (BAO, 1992), and also for the second paper (WDA meeting 1999).

His large body of records has been crucial for our knowledge of the odonate fauna of New York (summarized in the New York Dragonfly and Damselfly Survey (2005–2009) report). In fact, Ken's work was the "anchor" for this very important part of the state.

Most of us became acquainted with Ken for the first time in 1990, when he organized a DSA Northeastern meeting at the Ward Pound Ridge Reserve in Westchester Co., New York, where Ken was the park naturalist. This was (for me) one of the most enjoyable DSA regional meetings that I have ever experienced, partly because of the

marvelous venue and interesting odes, but mainly because of the hospitality of Ken and his wife Joyce.


Most of my interaction with Ken in subsequent years involved the Delaware River, where Ken was doing extensive dragonfly surveying. In 1994, he had found exuviae of a strange *Gomphus*. In 1995, he was paddling down the Delaware River with Joyce and their daughters when their raft sped past a boulder in a rapids. With a "WHAT'S THAT?" shout he actually stopped the raft, hopped out (if that is the word), struggled upstream through the raging current and netted the first adult specimen of *Gomphus septima delawarensis* (Septima's Clubtail Northern form)!

A later exercise was an Odonata inventory for West Point Military Reservation. Most people are familiar with the monumental architecture and Hudson River setting of the Military Academy; few are acquainted with a large "wild" area on the Reservation used for artillery (and other military) training of cadets. Ken picked his way warily through this tangle of splintered vegetation and documented an

impressive odonate fauna, including an additional (and furthest north) record of *Gomphus rogersi* (Sable Clubtail).

My last field trip with Ken and Joyce was in 1999 on the Wallkill River, where he had found a new locality for *Gomphus fraternus* (Midland Clubtail), an uncommon species in New York. By this time, as a result of diabetes, his health had deteriorated seriously. Not long thereafter his vision became very poor and he and Joyce retired to eastern Tennessee, where Ailsa and I had an enjoyable visit


with them in 2009.

We will all miss Ken a lot. Not only was he a thoroughly self-taught odonatist, but he was also perhaps the most generous person I have ever met. He did not hesitate to give you his time, his knowledge, and his superbly prepared specimens. Ken was a “keeper”. We all extend our deepest regrets to Joyce and his daughters Tammy, Cathy, and Susie. 

Gayle Thomas Strickland—Obituary

Taken from The Advocate, Baton Rouge, Louisiana

Born 6 October 1931 in Napoleonville, Louisiana and died in his home on 13 October 2012. Gayle was the son of Roy Lee Strickland and Rose Boudreaux Strickland. The family moved to his father's hometown of Centreville, Mississippi when Gayle was an infant, where he grew up. He received a Bachelor of Science degree at Mississippi Southern, and a Master of Science at Tulane. He was employed as a research chemist at Ethyl Corporation and Georgia Gulf. Gayle was passionate about his hobbies, from telescope making to teaching tennis. Intensely knowledgeable about nature, he taught Louisiana State University Leisure Classes on birding, did surveys of the butterflies and more recently the dragonflies of Louisiana. He was an accomplished photographer, with many of his photos appearing in published field guides. Hundreds of his insect and spider images appear on the website <BugGuide.net>. Gayle was a lifelong student of human behavior, and was fascinated by the theories of Julian Jaynes. Gayle loved to share his passions and was an excellent teacher. He was

never bored. He is survived by his wife, Jeanell; daughters and sons-in-law Laurie and Tom Huard of Haymarket, Virginia and Susan and David Jensen of Baton Rouge; son and daughter-in-law Alan and Susan Strickland of Chesapeake, Virginia; brother and sister-in-law Roy and Dorothy Strickland of Ferriday, Louisiana; grandchildren Amanda Bruce Parker, Daniel Bruce, and Ingrid Jensen; and niece Sheridan Strickland. Preceded in death by his parents and his nephew, Robert Joseph Strickland. The family would like to extend heartfelt thanks to his excellent doctors throughout the years, including Dr. David Hanson and his staff at Louisiana Hematology Oncology Associates, and to the fine staff of St. Joseph Hospice, especially Penny Perkins and Kathy Haynes. Family and friends will gather to celebrate Gayle's life at a later date. Expressions of sympathy may be sent as donations to John James Audubon Foundation, P.O. Box 1002, Gloster Mississippi 39638 or St. Joseph Hospice. 

DSA is on Facebook



For those of you who stay connected using social networking sites, The Dragonfly Society of the Americas now has a Facebook page. Information, announcements, and links relating to the Society as well as photos and discussions contributed by those who “like” the page are found here. Find us at <<http://www.facebook.com/DragonflySocietyAmericas>> or just search for “dragonfly society” within Facebook and the page will appear in the results list.

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).

Rob Cannings Retires

Rob Cannings has retired as Curator of Entomology at the Royal British Columbia Museum in Victoria, British Columbia. Rob joined the RBCM on 2 January 1980 and retired exactly 33 years later. From 1987 to 1996 he also managed the Natural History Section at the Museum. He has been named a Curator Emeritus and will continue his research projects there.

Rob grew up in the grasslands of the Okanagan Valley in southern British Columbia and his early fascination with these habitats and their associated ponds and lakes led to his later interest in robber flies (Asilidae) and dragonflies (Odonata), which were diverse there. His undergraduate and MSc studies examined chironomid midge assemblages in grassland saline lakes. Although for years he has focused on the systematics and faunistics of dragonflies and robber flies, he publishes widely on many insect groups, from mantidflies and moths to lampyrid beetles and bumble bees. In retirement, Rob says he'll concentrate more on the Asilidae than he has in the past. His main focus in robber fly research has been the systematics of *Lasiopogon*, diverse in North Temperate regions, which was the subject of his doctorate, although he has a fondness for *Efferia*, too. Studying the diversity of the asilid fauna of Canada, especially, will be a priority.

Rob has a strong interest in popularizing insects and insect identification through handbooks, keys and the internet. He is the author or co-author of several books, including *The Dragonflies of British Columbia* (1977), *Birds of the Okanagan Valley, British Columbia* (1987), *The World of Fresh Water* (1998), *Introducing the Dragonflies of British Columbia and the Yukon* (2002), and *The Systematics of Lasiopogon* (Diptera: Asilidae) (2002).



Rob has served on the Scientific Committee of the Biological Survey of Canada (Terrestrial Arthropods), the Invertebrate Subcommittee of COSEWIC (Committee on the Status of Endangered Wildlife in Canada) and the British Columbia Invertebrate Recovery Team.



Active in the Entomological Society of British Columbia, Rob was President (1986, 2001) and Regional Director to the Entomological Society of Canada (1983–1986). He started the ESBC newsletter *Boreus* in 1981 and was editor until 1991; he is an associate editor of the ESBC Journal. He has served as the chair of the Entomological Society of Canada's Endangered Species Committee.

In former lives, Rob worked as a biologist and nature interpreter for British Columbia Parks and the Canadian Wildlife Service and was a lecturer and museum curator at the University of British Columbia. He earned a BSc and MSc from the University of BC; his PhD comes from the University of Guelph.

In 2008 Rob and his two brothers, Richard and Syd, were made Fellows of Okanagan College for "bringing British Columbians and Canadians a richer appreciation of the natural world through their writings, professional activities and dedication". Rob was presented the 2009 Bruce Naylor Award, a national honour that recognizes "exceptional contributions to the study of museum-based natural history in Canada".

After taking a break for a few months, Rob says he'll pick up his projects where he left off, working at home and visiting the RBCM collection a day or so a week. He can still be reached at his RBCM e-mail address <rcannings@royalbcmuseum.bc.ca>. Although at the moment there is a hiring freeze in the British Columbia government that will likely last until the provincial election in May, Rob is confident that a new curator will be hired before long. In the meantime, for inquiries or other communication with RBCM Entomology, contact the Collections Manager Claudia Copley, at <ccopley@royalbcmuseum.bc.ca>, (250-952-0696).



Pale-faced Clubskimmer (*Brechmorhoga mendax*) in the Texas Panhandle

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I observed and photographed a new species for Lubbock County, Texas this past spring. I found a single male (stray?) *Brechmorhoga mendax* (Pale-faced Clubskimmer) on the Llano Estacado Audubon Society Trail off Buffalo Springs Lake. As a result of several days of much-needed spring rains in mid-May, I observed a few rivulets adjacent to the north side of the stream (North Fork Double Mountain Fork of Brazos River) that empties out of Buffalo Springs Lake. Over and alongside one of these temporary rivulets I spotted the skimmer patrolling an area about 10–15 yards in length. I watched closely in an attempt to get a better look and to be able to identify it. After a few minutes of observing his circuitous route back and forth (down toward and over the creek then back towards me and the wider flood-stage bank), he selected a few perching sites. It was at this moment I realized it had to be none other than *B. mendax*. After getting several decent photos of it perched at two separate areas, I concluded this was one I had never observed in Lubbock Co., and since no prior records existed for its occurrence, it qualified as species number 66 (OC#374981) for the county. 



Figure 1. Pale-faced Clubskimmer (*Brechmorhoga mendax*) at Buffalo Springs Lake (Lubbock Co.) on 15 May 2012, representing a first county record. Photo by J. Hatfield.

New Records for Taylor County, Texas

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On 17 April of this year (2012), I ventured southeast to Abilene State Park (Taylor Co., Texas). At that time I obtained several new county records, which included:

Lestes australis (Southern Spreadwing)
Argia fumipennis (Variable/Violet Dancer)
Argia moesta (Powdered Dancer)
Argia nahuana (Aztec Dancer)
Argia plana (Springwater Dancer)
Argia translata (Dusky Dancer)
Basiaeschna janata (Springtime Darner)
Didymops transversa (Stream Cruiser)
Epiplatys petechialis (Dot-winged Baskettail)


I revisited the area in mid-summer (31 July 2012). This outing turned up even more interesting and exciting photographic records:

Dromogomphus spoliatus (Flag-tailed Spinyleg)
Phyllogomphoides albrighti (Five-striped Leaf-tail)
Phyllogomphoides stigmatus (Four-striped Leaf-tail)
Dythemis velox (Swift Setwing)

Dythemis fugax (Checkered Setwing)
Erythemis plebeja (Pin-tailed Pondhawk)
Libellula comanche (Comanche Skimmer)
Libellula luctuosa (Widow Skimmer)
Perithemis tenera (Eastern Amberwing)
Sympetrum vicinum (Autumn Meadowhawk)



Figure 1. Pin-tailed Pondhawk (*Erythemis plebeja*) photographed 31 July 2012 at Abilene State Park, Abilene, Texas. Photo by J. Hatfield.

Two surprises from this latter excursion were *Phyllogomphoides albrighti* and *Erythemis plebeja*! 

Calopteryx aequabilis (River Jewelwing) in British Columbia

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Calopteryx aequabilis (River Jewelwing) was first recorded in British Columbia (BC) in 1998 at Christina Creek, the outlet of Christina Lake, in the southern interior of the province about 18 km east of Grand Forks (Cannings 2002, 2003; Cannings *et al.* 2005). This is about 75 km north of the nearest known population in Washington State (OdonataCentral 2012). Until recently, Christina Creek was the only known BC locality for the species.

The River Jewelwing site at Christina Creek is on private property and is vulnerable to the negative effects of introduced fish and aquatic plants as well as stream bank erosion caused by boats and jet skis (Cannings 2003). Because the only known population in BC was small, isolated and vulnerable, the species has been designated S1 (Red List) by the BC Conservation Data Centre (BCCDC 2011).

Until 2010, the known range of *Calopteryx aequabilis* extended from Newfoundland south to West Virginia and Indiana and west in the northern forests to northern Alberta (Acorn 2004, Paulson 2009). In the West, there are additional scattered populations, especially concentrated in the central Great Plains (Colorado, Wyoming, South Dakota and Nebraska) and one in the Pacific Northwest and parts of the Great Basin (Washington, Oregon, northern California, Idaho, Montana, northern Utah and Nevada). Several old subspecies, mainly described from the West, are not considered distinct by most workers (Walker 1953, Paulson 2009) but nevertheless indicate variation in the extent of dark pigment in the wings.

On 25 July 2009, Pat Marklevitz and Tanya Debroux saw two male River Jewelwings on the Hay River east of Fort Nelson, BC (58.65593°N 120.43087°W) (Cannings 2010). The river here flowed deeply and slowly and the banks were covered with *Carex* and other emergent vegetation. Given the occurrence of *Calopteryx aequabilis* in the boreal forests of northern Alberta (Acorn 2004), its presence in northeastern BC had long been suspected and more records in the region were anticipated. This expectation was fulfilled when, on 26 June 2012, Jeremiah Kennedy saw more than 25 individuals courting and mating (males and females were photographed) on Elleh Creek (58.50600°N 121.92340°W), about 88 km west of the 2009 Hay River sighting. *Carex*, *Rosa* and *Heracleum* covered the riverbanks within a forest of *Picea*, *Larix* and *Populus*.

Will MacKenzie and his parents, Ken MacKenzie and Kristi Iverson, collected a male and female *Calopteryx* on 19

July 2012 along Bridge Creek (51.64402°N 121.28892°W) in Centennial Municipal Park in the town of 100 Mile House, BC. *Scirpus microcarpus*, *Carex aquatilis*, *C. utriculata* and various *Salix* species grew along the water's edge. The female was captured in riparian vegetation in an old back channel of the creek; the male was netted over water. This record was a real surprise to BC odonatologists—the location is far from both the Ellah Creek record, which is 765 km to the north, and the Christina Creek one, 365 km to the southeast. Moreover, southern BC is relatively well collected for Odonata and finding *Calopteryx* in a new locality so distant from Christina Creek was completely unexpected.


To put these new northwestern records in more context, in 2010 Catling *et al.* (2011) recorded the River Jewelwing on the Kakisa River near the southwestern corner of Great Slave Lake, Northwest Territories. They also reported a 2009 sight record on the Jean Marie River southeast of Fort Simpson. I have recently seen larval *C. aequabilis* specimens from the Mackenzie Valley collected in the early 1970s; these records will be reported at a later date. The damselfly probably is widespread in the southern parts of the Northwest Territories.

The population in the boreal forest east of the Rocky Mountains in BC is likely large and widely distributed. There are many suitable streams for the species in this huge region, which is mostly remote, difficult to access and poorly collected. On the other hand, the two southern populations are widely separated. Few streams suitable for *Calopteryx* apparently exist in southern BC, and most of these have been examined for Odonata, at least at some point along their courses. However, the discovery of the Bridge Creek population suggests that more sites might be found in unexpected places. Although the southern populations still could be considered at-risk, the status of *Calopteryx aequabilis* in BC should be re-evaluated in the light of these new discoveries.

Acknowledgements

Ken MacKenzie deposited the two specimens from 100 Mile House in the Royal BC Museum collection and supplied collection data. Jeremiah Kennedy and Pat Marklevitz provided photographs and information for their sightings. Syd Cannings and Donna Giberson commented on a draft of the manuscript.

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First Report of Black Meadowhawk (*Sympetrum danae*) for Nebraska

Loren and Babs Padelford, 1405 Little John Road, Bellevue, Nebraska 68005, <lpdlfrd@cox.net>; **Rick Schmid**, Director of Operations, Fontenelle Forest, 1111 Bellevue Blvd., Bellevue, Nebraska 68005, <rschmid@fontenelleforest.org>

On 21 September 2012 Rick Schmid found four small black dragonflies among many Cherry-faced Meadowhawks (*Sympetrum internum*) and several other species of odonates at a small pond in Fontenelle Forest, a private forest preserve in Bellevue, Sarpy County, Nebraska. Due to drought conditions, the water level in the pond had been low with bare soil around the edges all summer. It had recently been filled from a spring-fed stream and now with a higher water level, there was vegetation standing in water around the edges. Rick called Loren and Babs Padelford to report the black dragonflies he had netted and photographed. They joined him at

about 3:00 pm when four male black dragonflies were again found sitting in the tall grass at the edge of the pond. One was netted, measured, photographed and released by the Padelfords. From the all-black coloration and the small size (29 mm), all of the observers agreed that they were male Black Meadowhawks (*Sympetrum danae*). Subsequently, on 23 September, the Padelfords revisited the pond and found five single males and a mating pair.

The area where the meadowhawks were found is located in the floodplain of the Missouri River and was flooded under about six feet of running water for three months in the summer of 2011. The area has been changed considerably with many dead trees, and several new species of weeds resulting from the flood.

The North American range of the Black Meadowhawk is in the northern tier of states, and Canada into Alaska, Colorado and New Mexico (Dragonflies and Damselflies of Texas and the South-central U.S., by John C. Abbott, p. 299; BugGuide <<http://bugguide.net/node/view/18322/data>>). The closest sighting to Fontenelle Forest for this species was in Sac County in northwest Iowa on 26 September 2001 (Iowa Odonata Survey, at <<http://www.iowaodes.com/skimmers/mead-blac.asp>>).

Note: On 22 September 2012, Black Meadowhawks were found at Heron Haven in Omaha, Douglas Co. by Brian Peterson. 



Figure 1. Black Meadowhawk (*Sympetrum danae*) pair in copula, representing a new species for Nebraska. Photograph by Barbara K. Padelford.

Of Biogeography and *Sympetrum danae* (Black Meadowhawk): Two Mysteries

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First Mystery: Migration

As concern about global climate change mounts, efforts have been made to monitor and document northward extensions to the geographical ranges of numerous plants and animals, including damselflies and dragonflies. No surprise. However, *Sympetrum danae* (Black Meadowhawk), seemingly contrary to their close association with all high latitudes, high altitudes, and all things boreal, have surged southward.

In Minnesota, *Sympetrum danae* is solidly established in the northern reaches of the state, where there are boreal forests and vast peatlands; only rarely is it encountered in the southern part of the state. Thus, when a population of *S. danae* was discovered at a wetland in southern Wisconsin (OC# 381936), I was mildly intrigued. Subsequently, when this species showed up at a southern Minnesota wetland near where I live and where it had not previously been observed (OC# 381976), my musings began to include thoughts of migration. I wondered if the drought and wildfires in northwest Minnesota had triggered an exodus? And was the Mississippi River providing a corridor for this southward flight?

Examining the distribution map on OdonataCentral for this species, it seems that some kind of mass movement or migration has occurred. Over the last two years numerous new records for *S. danae* have accumulated across the Midwest with state records in Illinois and Nebraska and

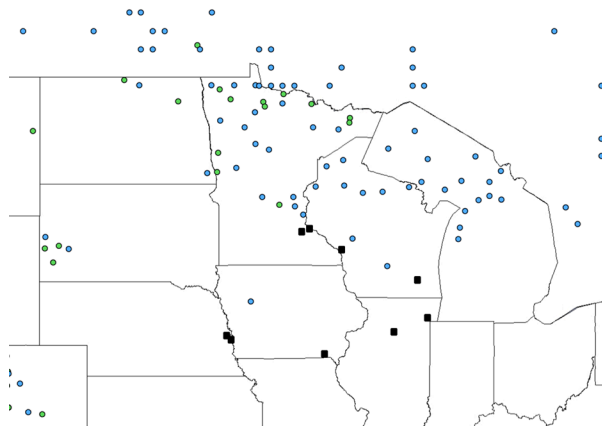


Figure 1. *Sympetrum danae* records for the Midwest. Square dots indicate new southern records from 2011 and 2012. (This map was adapted from OdonataCentral distribution viewer; the mid-Illinois record for Putnam County, not in the Odonata Central database, is a tandem pair netted by Cynthia McKee on 8 October 2011, personal communication)

one very nearly in Missouri, just above the state line in southern Iowa (see Figure 1). These records are not of wayward individuals, for in nearly each instance mature males and females were found together. While *S. danae* is considered an occasional migrant in Europe (Corbet, 1999), there has been no evidence of similar behavior in North America. But it appears now that we also experience an occasional downdraft of black dragonflies. One possible way to confirm that these dragonflies are indeed migrants would be to conduct stable isotope analysis on wings of this species. This analysis, currently being used on other migrant dragonflies and birds, can rather accurately determine the latitude of where the specimen emerged, which can then be compared to that of where it was captured.

Second Mystery: two species, a subspecies, or a bad case of dimorphism?

A few years ago, Erik Pilgrim, while conducting his phylogenetic study of the genus *Sympetrum* (Pilgrim, 2006), uncovered something rather astonishing, namely that there are two species of *Sympetrum danae* in North America—genetically good but morphologically cryptic sister species, living side by side, hidden in plain sight. The split, which Pilgrim designated geographically between lower North America (specimens from Utah, Michigan, and Wisconsin) and the Palearctic plus Alaska, indicated that the populations had been separated long enough for species-level differences to accumulate, and that the Alaska population possibly represented a re-invasion from Asia. The two species of *S. danae* were, at least genetically, as valid as other morphologically distinct species such as *Sympetrum obtrusum* and *Sympetrum rubicundulum* (possibly better). This surprising discovery prompted a close study of the morphology of *S. danae*, but Pilgrim found no difference in hamule, penis, or vulvar lamina. Thus, given that the two species were not distinguishable by sight or microscope, the investigation of this matter appears to have stopped there.

Recently, using OdonataCentral to compare photographs and specimens collected in Minnesota with those from other parts of the continent, I noticed two distinct color forms for female *S. danae*—a yellow form and a dark form. 1) The yellow form has the dorsal surfaces of the abdomen colored solidly yellow with only a few small black markings on the final segments. And there is no extension of the black lateral markings apically, so that these markings together form a single black line along the side of the abdomen (Figure 2B and Figure 3). This yellow color form

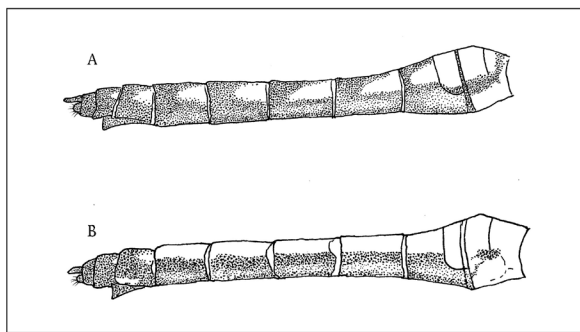


Figure 2. Variation in the lateral abdominal patterning of female *Sympetrum danae*. (A) North Dakota, drawing based upon OC#333263. (B) California; drawing based upon OC#5732. Drawing by Scott King, 2012.

has shown up in Alaska, Oregon, California, the mountain ranges of the Great Basin, and the southern Rockies. And it is this form that is pictured in most guide books. 2) The dark form has the dorsal surfaces of the abdomen distinctly patterned in black and yellow. The black lateral markings extend upwards and meet apically to form rings at the rear of each abdominal segment (see Figure 4). These black rings often extend forward along the top of each segment forming points that enclose triangular areas of yellow (see Figure 2A). This color form, the dark form, is widespread east of the Rockies, though it is also found in Washington and Oregon.

That the two color forms correspond to the two species proposed by Pilgrim is a bit of a stretch and would need to be verified by additional genetic analysis and a better understanding of the geographical distribution of the color forms. But then again, as Alfred Russel Wallace once pointed out, “differences of surface-texture, of colour, or in the details of the same general scheme of colour-pattern or of shading, give an unmistakable individuality to closely allied species.” Other explanations of these variations in color-pattern might include dimorphism, the effects of



Figure 3. *Sympetrum danae*. Yellow form female (pruinosity on the underside of the abdomen indicates it's mature) from Scott Lake, Lane County, Oregon, 5 September 2008. Photograph by Jim Johnson.

temperature and/or age, and, well, just plain old variation. Interestingly, these two color forms are not limited to North America. Japanese odonatologist Naoya Ishizawa was kind enough to provide me with a photograph of a dark form female *S. danae* from Japan as well a link to a website with many more examples (cited below). In Great Britain and Europe, the yellow form appears predominant.

A map of the two color forms as they occur in North America might provide some useful insight. So if readers have photographs or specimens of *S. danae* that they would be willing to share or loan, please contact me at the e-mail address provided above. Feel free to forward your thoughts on this subject as well.

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Figure 4. *Sympetrum danae*. Dark form female (teneral) from Lost River Road, Koochiching County, Minnesota, 11 July 2012. Photograph by Ken Tennessen.

First record of the Atlantic Bluet (*Enallagma doubledayi*) for Oklahoma

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While exploring McGee Creek Wildlife Management Area (WMA), Atoka County, Oklahoma, on 2 September 2012, we were surprised to discover a population of *Enallagma doubledayi* (Atlantic Bluet). The majority of the population, approximately 30 males and one female, was at a small pond within piney woods (Fig. 1; 34.42361°N, 95.90626°W). Another male and female were found at a much smaller pond only about 15 meters away. Both ponds were located within a few meters of a well-maintained dirt road. Vegetation at the ponds was limited to sedges and grasses of low stature along the immediate shoreline; there were no lily pads or emergent vegetation, both of which were prevalent at other ponds in WMA. The ponds appeared to be fairly shallow throughout, with mostly clear water around the edge that was more tea-colored toward the center. Other species at the main pond included *Nehalennia integricolis* (Southern Sprite), a first for the county, *Enallagma signatum* (Orange Bluet), *Anax junius* (Common Green Darner), *Tramea lacerata* (Black Saddlebags), and *Tramea carolina* (Carolina Saddlebags). We departed the ponds after about 45 minutes of exploration, as it had gotten fairly late (~19:00 CDT).

We returned to McGee Creek WMA on the morning of 8 September and spent about the same amount of time surveying the WMA. We located a third pond with *E. doubledayi*, this one nearer to 30 m away. As on 2 September, we captured numerous individuals to examine their terminal appendages. None of the bluets at these clearer-water ponds were *E. civile*, although we did have *E. civile* elsewhere in the WMA, at a muddy pond bordered by a mix of broadleaf trees and pines, on 8 September. Our total count of *E. doubledayi* on 8 September was about 60 males; we saw no females. We collected two males on 8 September to add to the three males (one of them found dead) and single female we collected on 2 September. Two males (SP 390; SP 395) and the female (SP 393) were retained in the personal collection of the authors, which is housed at the Oklahoma Biological Survey, whereas the other three specimens were donated to the University of Texas–Austin Insect Collection (UTIC). One of the males (UTIC#49307; SP 392) exhibited a broken antehumeral on the left side of its thorax; otherwise, all specimens and individuals we encountered had terminal appendages and, more subtly, abdominal patterns typical *E. doubledayi*.

We spent the rest of 8 September and much of the next day surveying the broader region in an effort to locate similar habitat in which we might find *E. doubledayi*. Our

surveys were unsuccessful, which was not too surprising given that *E. doubledayi* is primarily an eastern species. Indeed, the species was not known to occur west of the Mississippi River until Sid Dunkle discovered it in Collin County, Texas, in the 1990s. Dunkle found and collected a single male that day despite examining many *Enallagma* bluets, as all other individuals proved to be *E. civile* (pers. comm.). *Enallagma doubledayi* has since been recorded in Anderson and Bastrop Counties, Texas (Abbott 2001, 2011), including a healthy population at Gus Engeling Wildlife Management Area, Anderson Co., discovered in 2011 by Martin Reid and Greg Lasley. Louisiana is the only other state west of the Mississippi River in which established populations have been located; in 2004, Gayle and Jeanell Strickland discovered the first record for Louisiana in Natchitoches Parish (Ellzey 2004). The species has been found since in three other parishes: St. Tammany, Rapides (Mauffray 2012), and Union (OC 374977) .

We do not know if *E. doubledayi* has expanded its geographic range westward in recent decades or if the species was overlooked prior to Dunkle's discovery. Regardless, it does appear that all records have been in pine woodlands, suggesting a tie to clear, acidic waters and sandy soils. We urge observers in Oklahoma, Texas, and Louisiana to search out additional locations that meet these ecological conditions, and urge observers in Arkansas, where the species has yet to be recorded, to focus on such habitats, especially in the southwestern portion of that state. Of note, our records are considerably later in the season than



Figure 1. Pond where *Enallagma doubledayi* (Atlantic Bluet) was first discovered in Oklahoma at McGee Creek Wildlife Management Area in Atoka County.


previous reports west of the Mississippi, most of which extend only to mid-June, suggesting that the seasonal window in which this species may be found is longer than was thought.

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Ophiogomphus westfalli (Westfall's Snaketail), a New Species for Iowa

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In 2006, the Iowa Department of Natural Resources began a statewide survey effort known as the Multiple Species Inventory and Monitoring (MSIM) program. MSIM is intended to produce an inventory of Iowa's wildlife and provide baseline data for long term monitoring. MSIM surveys have helped document range expansions and clarify the distribution of a number of rare or under-surveyed odonate species, and have produced a number of first state records (Harms *et al.*, 2012). The authors have all conducted odonate surveys for the MSIM program, although in different years (2008, 2006, and 2010 respectively).

On 16 June 2010, Drey was conducting an MSIM survey near the Boone River at Boone Forks Wildlife Area (Boone Forks) in Hamilton County, Iowa. While walking through a grassy opening bordering the river, she observed a pair of dragonflies in tandem that she did not recognize. She obtained a photo, which was sent to then-MSIM program leader Karen Kinkead, and then on to Johnson and Brees. Brees noted that *Ophiogomphus smithi* (Sioux Snaketail) seemed the most likely species based on range, but tentatively suggested that the photo more closely resembled *O. westfalli* (Westfall's Snaketail), as unlikely as that possibility seemed. Johnson agreed and sought opinions from experts familiar with that species. She received favorable responses, although it was clear that specimens would be needed for confirmation given the highly unlikely location. Follow-up searches by Johnson, Kinkead, and Brees in late June and July 2010 were unsuccessful due to poor weather and extensive flooding in the area.

On 4 June 2011, Brees and Johnson returned to Boone Forks with Matt Kenne, who had helped research potential locations and access points during the winter. An extremely large emergence of *Gomphus fraternus* (Mid-

land Clubtail) was underway, which made finding other species difficult, and no *Ophiogomphus* were observed. On 11 June 2011, Brees and Johnson returned to the site, and Brees collected two male *Ophiogomphus*. On 19 June 2011, Brees and Johnson searched the site again, and Johnson collected a female *Ophiogomphus*. These three specimens are consistent with Drey's photographed *Ophiogomphus* pair and were collected from the same grassy opening. Searches of similar habitat up- and downstream of the site, and at river accesses such as boat ramps, were ineffective. In an effort to locate additional sites, Brees and Ernie Brees canoed approximately 15 miles of the Boone River from Briggs Woods Park to Bell's Mill Park (adjacent to Boone Forks) on 2 July 2011. During this trip, eight *Ophiogomphus* were observed along with several other probable sightings. Due to high river flow, it was not possible to stop to collect specimens. The *Ophiogomphus* observed, presumably patrolling males, were consistently found cruising up and down the river at midstream over long riffle runs. While *Gomphus fraternus* was ubiquitous, with multiple individuals patrolling any given stretch of river, the *Ophiogomphus* were observed only as single individuals separated by apparently unoccupied stretches of river lacking riffles. This was our final search of the Boone River in 2011.

On 17 June 2012, Brees returned to the Boone Forks site and collected a male specimen. Brees, Johnson, and Kenne visited the site again on 24 June 2012 but only a single female was observed. On 1 July 2012, Brees and Kenne waded approximately 2.5 miles of the Boone River beginning at Albright Access. Four male snaketails were observed, all perched on rocks within riffle areas. Kenne was able to collect one male specimen. This was our final search of the Boone River in 2012.

The five specimens we collected were sent to Ken Tennessen for examination. He compared the one female and four male specimens to specimens of *O. westfalli* taken in Arkansas and to the original description. He concluded that the Iowa specimens are referable to *O. westfalli*; however, he noted that the male specimens have “stockier” epiprocts than seen in the Arkansas material (K. Tennessen, pers. comm.) and warrant further study. A larger series from Iowa will be required to determine the consistency and taxonomic significance, if any, of these differences.

Since its description in 1985 (Cook and Daigle), *O. westfalli* has been considered an Ozarks and Ouachita Mountains endemic. Harp and Trial conducted surveys in Missouri targeting this species, and reviewed all sources of records known to them (Harp and Trial, 2001). Their combined surveys and records search documented 72 sites in Missouri and 10 in Arkansas. In addition, nymphs from extreme southeastern Kansas taken in the 1970s likely represent *O. westfalli* (R. Beckemeyer, pers. comm.). All Missouri records in Harp and Trial are from the southern half of the state and south of the Missouri River. The north-most Missouri location and the Iowa site are separated by approximately 480 kilometers (300 miles). Hamilton County, Iowa bears little resemblance to the Ozarks of Missouri and we are genuinely puzzled by the existence of this population. However, the Boone River does share some general characteristics with occupied Ozark and Ouachita streams. Harp and Trial list the following traits of such streams: second- to fifth-order, not heavily influenced by springs, at least moderate current, well-defined riffles, relatively clear water, sand-gravel substrate, and not heavily impacted by agriculture or forestry. The Boone River fits this description fairly well, and the Boone watershed is considered one of the healthiest in Iowa. The stretch of river from Briggs Woods Park to Bell’s Mill Park is cool, clear, and runs swiftly through a

deep, primarily wooded valley with numerous rocky riffle runs. Few other Iowa rivers would appear to offer this combination of features, and most are likely unsuitable for the species due to turbidity and sedimentation from agricultural runoff. Limited searches of the Winnebago and Shell Rock rivers by Kenne and Brees have not located additional populations.

The *O. westfalli* population found on the Boone River represents the fourth member of the genus to be documented in Iowa. *Ophiogomphus rupinsulensis* (Rusty Snaketail) and *O. smithi* are locally distributed in northeastern Iowa, and *O. severus* (Pale Snaketail) was recently recorded for the first time in extreme northwestern Iowa (Plymouth County) by Brees and Cory Gregory (record #321397 in Abbott, 2012). This unlikely discovery of *O. westfalli* in north-central Iowa raises a number of questions that we hope to answer in future summers. Collection of additional specimens should clarify how significantly the Iowa population differs from those in Missouri and Arkansas. We also hope to determine whether this population is truly disjunct from the main range, or whether the species has been widely overlooked in the intervening area. Harp and Trial understandably restricted their Missouri surveys to Ozark streams, and therefore did not search in northern Missouri (G. Harp pers. comm.). We doubt that *O. westfalli* is extant in southern Iowa based on our past field experience and the poor water quality of most rivers there, however the difficulty we have had in locating this species on the Boone River precludes ruling out that it may occur at low density on even relatively well-surveyed rivers and streams. We hope to conduct additional targeted searches to better define the range in Iowa.

Acknowledgments

We wish to thank Ken Tennessen for examining and commenting on our specimens; Dennis Paulson for his comments on the original photo; Roy Beckemeyer, Nick Donnelly, and George Harp for answering questions related to Kansas and Missouri records; and Matt Kenne for his help in planning our search and in the field.


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Figure 1. Male Westfall’s Snaketail (*Ophiogomphus westfalli*) at Boone Forks Wildlife Area, Hamilton County, Iowa on 17 June 2012. Photo by Aaron Brees.

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Bonkers in Belize

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I took a quick trip to Belize last month to escape the cold and soak up the sunshine down south. I flew into the airport at Ladyville, got my room nearby, and proceeded to look for dragonflies around the airport that evening. I saw a couple of *Orthemis* patrolling a ditch next to the rental cars. I got one male, but it had black wings and a purple thorax, unlike the *O. ferruginea* (Roseate Skimmer) in the States. I retired for the night in anticipation of what tomorrow would bring!

I hiked down the road and found a nice *Eleocharis* marsh filled with *Nehalennia minuta* (Tropical Sprite) and *Micrathyria debilis*, which is endemic to the Yucatan peninsula. Nearby, I found a tannic swamp pool that had a couple of strange *Lestes* that I am unable to identify. A few large iguanas watched my activities from the high sand banks.

The next day, my friend Victor Diaz took me to Burrell Boom where we stopped and collected along the way to the Belize River. At one nice open marsh, we got a couple of *Ischnura capreolus* before a bunch of security guards came rushing out of the nearby complex. It turns out that it was a prison and we were too close for comfort. Fortunately, they sent us on our way as no harm was done. When we were far out of sight, we spotted a tiny sandy stream with flowing water. It looked interesting and I was immediately surrounded by *Argia* as I walked the stream. There were bright blue *Argia gaumeri*, a Yucatan endemic, a purple one resembling *A. frequentula*, and some *Dythemis sterilis*. I did get one bright red *Erythemis haematogaster*. I was really surprised to catch a couple of *Erythemis simplicicollis*

(Eastern Pondhawk) females! I thought I was back in the USA for a minute there!

We stopped at one larger stream nearby and it was waist deep, but the water was clear. There were lots of red *Orthemis levis*, *Dythemis sterilis*, *Coryphaeschna adnexa* (Blue-faced Darner), many *Neoneura amelia* (Amelia's Threadtail), *Neoerythromma cultellatum* (Caribbean Yellowface) with its yellow face, and a couple of strange *Hetaerina* that I am still working on.

I spent the rest of the week in Ladyville walking along a deep tannic canal in a gated community. Lots and lots of dragonflies and damselflies were swarming about, but I had to watch for the caimans, too! Species like *Orthemis ferruginea* (?), *Erythemis attala* (Black Pondhawk), many unidentified *Micrathyria* species, *Brachymesia herbida* (Tawny Pennant), both *Micrathyria marcella* (Hyacinth Glider) and *M. simplex*, plus lots of other libellulids. I was going bonkers! But the highlight was the finding of several mated pairs of my new favorite species of *Telebasis*! Deep in the shade were these very pretty brick red and black *Telebasis*! They were wary and tricky to catch, but I got some over several days of hard tracking! I had no idea what it could be and I have never seen anything like it! It wasn't until I got back to Florida that I was able to key it out. It is the uncommon Central American species called *Telebasis collopistes*. Wow! I was glad to catch some and I can't wait to go back next month or so, and look for more. If anyone is interested in joining me in my next trip to Belize, please let me know. Talk to me later! 

Third Time's a Charm (Back to Panama)

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We have, by now, pretty well covered the summer months in Panama—June in 2010, July in 2011, and August in 2012. This trip started as the others—arrival late at night at Tocumen Airport, a cab driver who assured us that he knew exactly where our guest house was, and then a crawl

down dark streets among the former military houses in the “Zone”, while we all looked for invisible house numbers, and our driver tried to find people to ask . . . Some things never change. It was good to get back to the warm, humid, sticky tropics. Enough of that . . .

Our party this year was the three of us (Nick and Ailsa Donnelly, and John Michalski), our fearless leader, John Heppner, with his (seemingly) tons of equipment to catch the world's smallest insects (the well-named micromoths), and Terry Stoddard, a lepidopterist known for his strongly smelling baits. The pickup would be pretty raunchy tomorrow.

The next day we made an early start, stopped by the Canal to watch an incredibly large container ship leave the harbor, and proceeded to Santa Fe, arriving in time for an hour's walk and some collecting before dark. We started off with a female *Thaumatoneura*—the giant waterfall-dwelling damselfly featured in the first article of this series—and an *Epigomphus subquadrices*, which turned out to be the only gomphid we netted on the entire trip.

Santa Fe turned out to be its usual lovely self. Nestled in a mountain pass at 900 meters, it is the “gateway” to the new Santa Fe National Park. This park-on-paper-only is shortly to be a reality, now that the new road to the Caribbean coast has finally been punched through (and soon to be serially deforested, if past experience is any guide). We drove the second day on this road to close to the Caribbean shore. Odonates we had not previously found at Santa Fe included *Rhionaeschna cornigera*, which JM netted via an enviable overhead-backhand as he simultaneously sank to his knees in quicksand, *Hetaerina fuscoguttata*, *Argia oenea*, and *Argia talamanca*; Ailsa also found another male of the undescribed red-eyed *Argia* that she found for the first time in 2010. Off to a good start!

Besides getting a long (and frustrating) look at a male *Thaumatoneura* perched right at the lip of a waterfall high overhead (and who refused to come closer to our nets), we took several species we had not taken previously. The prize of these was a *Gynacantha tibiata* that Ailsa netted on a pond in the forest. This day-flying *Gynacantha* features a lovely yellow end of the abdomen. We took *Sympetrum illotum* (new to the region) at this pond, scads of *Rhionaeschna psilus*, and an *Anax concolor*. John found *Hetaerina majuscula* (new for Panama) and *Miocora peraltica* at a nearby shady stream.

We moved on, westward to Mt. Totumas, which is at 2000 meters and close to the Costa Rican border. This is one of the finest montane forests we have ever visited in Central America, and last year we found two species new for Panama here: *Cordulegaster godmani* and *Palaemnema reventazoni* (which I thought might not be that species last year, and have now decided that indeed it was). John added a third new country record, *Sympetrum nigrocreatum*, and I was able to find several more *Hetaerina majuscula*. We saw several more *Cordulegaster* this year, and again found the

females ovipositing in small streams in the forest.

It was a great place for hummingbirds and monkeys as well—over the course of a few days we had good, close sightings of Spider Monkeys, White-faced Capuchins, and Mantled Howlers. The moth collectors did so well at their lighted bedsheets that within a few days, everyone's belongings were densely populated with small moths that flitted out whenever you shook out a jacket, backpack, or pair of sneakers. The guesthouse we stayed at, the Mount Totumas Cloud Forest Lodge, was excellent and we recommend it to anyone who really wants to get away from everything—4-wheel drive is absolutely required.

Leaving this place somewhat reluctantly we spent a night at an even higher mountain lodge (Los Quetzales) close to Volcan. We arrived too late in the day for collecting and left too early in the morning, but the lodge furnished us with superb views of a small, very cute raccoon relative known as a Cacomistle. These little guys (gray, with long, banded tails) came close to the lighted moth sheet in order to grab beetles, which they really love to eat. It was quite a show, and they more than made up for the fact that not a single ode was seen on this diversion. The surrounding habitat, which included a series of natural-looking trout ponds woven among the native forest, actually looked quite promising for odonates, but time did not permit an extra day or two to find out.

The next stop (Rio Indio Lodge) was situated along a beautiful river just over the mountain from El Valle, and only now reachable by 4-wheel drive. We had seen this place briefly last year and decided that there would be few if any odes worth catching. We turned out to be correct (we suspect the large commercial chicken farms upstream in every direction), but the location was very good for moths, and for many other aquatic insects. Numerous blue Morpho butterflies of at least three species made regular, and collectible, appearances throughout our stay. The lodge itself could only be called strange. The bathroom was huge and well equipped with toilets and showers. It was so nice that you did not immediately notice that there were no doors! We were told this was a German tradition. OK. . .

We added few odes of interest. *Macrothemis pseudimitans* was nice to find, and I found another *Heteragrion atrolineatum*. A tremendous downpour, followed by the most dramatic, muddy flash flood most of us had seen, also contributed to the suspicion that this was not a friendly habitat for small aquatic creatures.


On our way to our final destination, we stopped briefly at two streams in the hills, got some interesting damselflies,

and then headed for Sierra Lloronas, a simple but very nice lodge on the east side of the Canal, near the Caribbean coast. Crossing the Canal, we got a brief look at the new canal, which will be finished in a few years and will be able to take the gigantic container ships, which presently have to off-load their containers at one terminus, have them carried across the isthmus on railroad cars, and then loaded at the other side. The Panamanians have re-created the shipping method used through the 1800s!

Sierra Lloronas is a lodge only about 200 meters in elevation, in forest just far enough from the industrial noises of Colón that you can imagine you are really in the wild. Happily the birds and insects did not mind these noises, nor the distant lights of Colón, and we could easily imagine that we were in tropical wilderness. The forest paths were especially treacherous—steep and muddy—so that going even a kilometer was real work. There were many nice things: *Philogenia zeteki*, and several *Argia*s that we had not seen previously, including *Argia adamsi*, which I had found abundantly in the Canal Zone in 1971, and another of Ailsa's red-eyed *Argia*. We also found several *Heteragrion* that I had found in that earlier trip and had named *H. valgum*. John caught two "evening fliers", a *Gynacantha nervosa*, and *Triacanthagyna septima*. These are always fun to try to catch in the last fading daylight before dinner; no tropical trip is complete without a "night flier" experience. The forest featured beautifully marked poison frogs—don't pick them up with your bare hands! *Dendrobates auritus* seems to know that it is poisonous, and it is not the least bit shy.

The featured ode here was a new species of *Palaemnema*, which is one of the smallest Nick has seen in that genus. John took the first one along a path close to the lodge, and Nick found another male and female in a shallow trench near the path. Not a huge catch, but a very satisfying one.

One day John and Ailsa prevailed on John Heppner to take a trip down to the coast and along to Portobelo, an old colonial coastal city where Sir Francis Drake apparently met his sticky end centuries ago. Besides lots of sunshine and warm temperatures, John and Ailsa took many species we had not seen during the preceding two years, simply because we had never collected habitats like these. Some were widespread old friends, like *Nephepeltia phryne*, *Anatya normalis*, and *Uracis imbuta*, all small libellulids which are nice to find. There were black-winged *Erythrodiplax funerea*, which is wide-ranging along the Pacific coast but not usually found in large numbers. The hit of this side trip was a small, probably undescribed species of *Erythrodiplax* with dark basal spots in the hind wing and looking for all the world like a miniature *E. kimminsi*.

After three years we now have a list of 86 species, four of which we have not yet identified, and five of which are undescribed. We would like to go back again, but the next objective will be the Darien, close to the Colombian border. As far as we know, no one has previously looked for odes here. If we can only figure out how to do it... 

The Nick and Ailsa Donnelly Fellowship

The Nick and Ailsa Donnelly Fellowship will be used to promote and facilitate the attendance of colleagues to the annual Dragonfly Society of the Americas meeting by paying up to \$1,000 per awardee for travel and travel-related expenses to attend the annual meeting. Preference is to be given to Latin American colleagues and students. More than one award may be given per year at the discretion of a committee made up of at least three members of the Executive Council. Funds in the fellowship that are not awarded for travel may be used for research, education and outreach activities that have as their primary purpose promoting the knowledge of Odonata of the New World. Preference is to be given to graduate students conducting odonate research. The committee will accept applications for travel and research grants and make awards based on merit and potential for successful research leading to publication. Awardees of a travel grant must make a presentation at the annual Dragonfly Society of the Americas meeting, and awardees of a research grant will be encouraged to present their findings at a DSA annual meeting and publish in a peer-reviewed journal such as the Bulletin of American Odonatology.

If you would like to apply, please send an e-mail to John Abbott <jcabbott@mail.utexas.edu>, with the title and abstract of your talk or poster or a research project, a brief statement indicating your financial need, and a CV or resume. Deadline for each year is 1 March, unless otherwise stated.

Striped Saddlebags (*Tramea calverti*)—First Louisiana Record

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On 8 October 2012, Jeff Trahan and I went to the Red River National Wildlife Refuge—Bayou Pierre Unit, Yates Tract in Red River Parish to search for Ceranaus Blues. These butterflies are uncommon in Louisiana, but had recently been seen in adjacent parishes. We hoped to establish a record for Red River Parish.

The Yates Tract is located off of Highway 1 about 2 miles from the intersection of Highway 1 and Highway 509. The habitat consists of bottomland hardwoods along the river, freshwater moist soil impoundments managed for shorebirds in the fall and waterfowl in the winter, and an old airstrip covered in plants such as Baccharis, Goldenrod, Aster and Dewberry.

While doing shorebird surveys we have seen hundreds of dragonflies, mostly *Anax junius* (Common Green Darner), *Erythemis simplicicollis* (Eastern Pondhawk), *Miathyria marcella* (Hyacinth Glider) and *Tramea* (Saddlebags). Rarely do they stop for photographs. On this day I was able to photograph a *Tramea lacerata* (Black Saddlebags) and what I first thought was a Hyacinth Glider. When I looked at the photo on the computer I realized it was not a Hyacinth Glider and thought it might be a Striped Saddlebags (*Tramea calverti*). This species was not present in Bill Mauffray's list of Louisiana dragonflies so I was hesitant to submit it to OdonataCentral without confirmation. I sent the photo to Greg Lasley who confirmed that it was indeed a Striped Saddlebags. Thus, this appears to be the first Louisiana record (OC#382088) of this species.

Acknowledgements

Thanks to Greg Lasley for confirming the identification.

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Figure 1. Striped Saddlebags (*Tramea calverti*) from Red River NWR Bayou Pierre Unit, Yates Tract. Photo by R. Seidler.

Mass Movement of Spot-winged Gliders (*Pantala hymenaea*) in Panama

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On 1 September 2012 we observed a mass movement of Spot-winged Gliders (*Pantala hymenaea*) from the top of the Canopy Tower, an ecotourism lodge in the Canal Area, Panama (9.08° N, 79.65° W). The tower is located at the highest point (235 meters above sea level) in the immediate area, some 41 km and 17 km from the Caribbean and Pacific coasts at Colón and Panama City, respectively. It is surrounded on all sides by lowland rain forest and is 2.2 km ENE of the Panama Canal.

We spent an hour (08:30–09:30) observing from the roof

of the tower (at canopy height, about 25 meters above ground) during good weather. During that time, we estimated 2500–3000 individual *P. hymenaea* passing close enough to the tower to be seen by naked eyes. The flight was from just above the canopy to not much more than 10 meters above it. Numbers were estimated from repeated minute-long counts of around 50/minute. It was difficult to determine the extent of the flight, as we were not sure, even using binoculars, whether individuals were spread over a broad front or confined to the stream that passed us.

All individuals were heading straight east, along the length of the country and seemingly headed toward South America. The flow of individuals fluctuated somewhat, but there were always dragonflies in sight. No other species participated in this flight, as far as we could tell. By the time we had to leave the roof, the flight seemed to be slacking off, but we then descended to ground level and could not continue to document it.


Early on 31 August, there was a dramatic arrival of wind and heavy frontal rain, followed by sunny spells during the morning and clouds in the afternoon. We considered it possible that this storm had generated or contributed to the movement. 1 September dawned murky, although the sun had appeared by the time the gliders were moving past us.

On 2 September we saw another brief movement of Spot-

winged Gliders over us at Altos del Maria, above El Valle del Antón, Coclé Province (8.65° N, 80.0° W). One of the most interesting things to us about both of these flights was the lack of other species.

Spot-winged Gliders are among the odonate species known to be migratory (Corbet 1999), and DP has seen similar unidirectional flights in Nayarit (thousands; Paulson 2002) and Oaxaca (hundreds), Mexico, the former associated with a frontal storm.

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Hunting for *Tramea* in Wisconsin and Minnesota

Dan Jackson <DanJackson@LBWhite.com>

I am a long-time birder and have also always been interested in Lepidoptera and Odonata. However, I was really bitten by the Odonata “bug” in 2009 and I started surveying for the Wisconsin odonata survey. One of the species that I was very excited to find that year was *Tramea onusta* (Red Saddlebags). I found them in small numbers in the area where I live in the southwest part of Wisconsin along the Mississippi River. This is a species that is very uncommon in Wisconsin so that was an exciting find for a budding Odonata enthusiast.

In 2010, the upper Midwest had a very early spring and I found *T. onusta* very regularly throughout this area during the first half of the flight season. This included discoveries of some of the first known ovipositing locations in the state including one from which Bob DuBois and I were able to successfully catch and rear several nymphs to support his effort to review and update identification keys for *Tramea* exuviae. By comparison, 2011 started with a late spring and *T. onusta* were very difficult to find. In fact, I had only a single sighting for the entire flight season in southwest Wisconsin.

When 2012 started with an even earlier spring than 2010 (three weeks or more ahead of normal), I was optimistic that the new flight season would once again bring a strong flight of this migratory species into this part of the country. My hope for a great year for *Tramea* sightings was certainly realized. I spotted my first *Tramea lacerata* (Black Saddlebags) of the flight season 19 May 2012 in Grant

County (located in the southwest corner of Wisconsin on the Mississippi River) and two days later, I saw my first of the year in La Crosse County, about 70 miles farther north along the Mississippi. *Tramea onusta* were not far behind, with my first sighting of the flight season occurring in La Crosse County on 4 June 2012 and from that date until about 10 August 2012, I saw adults of both of these species on an almost daily basis.

Interestingly, there were two peaks of *T. onusta* sightings during this period. They moved into and through the area in large numbers for the last three weeks of June and into the first week of July and then the movement slowed to a trickle. Then, in late July, during an extremely warm period, there was another significant movement of this species that lasted for another two weeks. During this entire period, *T. onusta* were found on almost all of my forays into the field and the movement of both *T. lacerata* and *T. onusta* into the upper Midwest was so big that both species were reported in the northern tier of counties in Wisconsin and even farther north in northeastern Minnesota.

Since *T. onusta* was so common during this period, I decided to take the opportunity to find and report this species for all of the counties along the Mississippi River in this area. After work on 21 June 2012, I crossed the Mississippi to find them in Winona County, Minnesota. I specifically targeted a prairie restoration at the I-90 rest area near Dresbach, Minnesota. This rest area is located

on the banks of the Mississippi and has a small prairie restoration which I hoped would be in use as a roosting and foraging area for migrating *Tramea onusta* and other odonates.

I was not disappointed. When I entered the prairie, I saw several foraging *T. onusta*. Unfortunately, they were all feeding actively and did not allow me the chance to catch them or to get a picture for an OdonataCentral report. After 30 minutes, I got frustrated and decided to head back to my car. As I headed out, I was excited to see a dragonfly perched on the very tip of a small dead shrub. The silhouette looked right for *Tramea* so I dropped my net and began a stalk to try to get a picture. As I got closer, I could see that it definitely was a “red” Saddlebags. I started shooting pictures from 20 feet and gradually worked closer. As I got closer, I realized that this individual had a solid black tip to its abdomen and I got excited with the thought that I had found a *Tramea carolina* (Carolina Saddlebags). The dragonfly flew down and landed near me in the tall weeds. As I took more pictures, I noticed that it had stripes on the thorax!! I had no idea what I was looking at, but knew that it wasn’t any of the saddlebags that were expected in the region. I quickly backed away, retrieved my net, and caught it. A quick check in my books made me realize that I had found a male *Tramea calverti* (Striped Saddlebags)—the first ever recorded in Minnesota!!



Figure 1. *Tramea calverti* (Striped Saddlebags) at L. B. White in Onalaska, Wisconsin, 30 July 2012. Photo by Dan Jackson.


The next day, I made another attempt to find *T. onusta* in Houston County, Minnesota. Once again I saw many migrating and patrolling Red Saddlebags and once again I had trouble catching one or finding one perched for a photo. I finally started shooting pictures of patrolling males in hopes of getting a photo good enough for an OC record. When I checked my photos, I was amazed to find that I had taken pictures of another male *T. calverti* as well as male and female *T. onusta*.

Over my lunch hour on 21 June 2012 (the day that I found my first *T. calverti* in Minnesota), I had seen a “red” Saddlebags with a black abdomen tip while surveying at a location in Wisconsin. My camera had focused on a weed a few feet behind it when I tried to get a picture and it had then flushed and disappeared. After finding the two *T. calverti* in Minnesota, I began to wonder if I had seen one in Wisconsin. I started making daily trips in hopes of finding one in Wisconsin.

About a week later, on 28 June, I headed to the same spot where the one “got away”. I saw a few *T. onusta* patrolling over the water near the shoreline of a spillway dike as soon as I got out of the car. A few minutes later, I spotted a Saddlebags perched on top of a dead bush at the water’s edge. It appeared to have narrow saddles so I quickly started a stalk. Unfortunately, the day was slightly overcast and the light was horrible. However, I was able to get a good look and poor pictures of the first *T. calverti* reported in Wisconsin before it flushed and headed out over the weed beds offshore.

Starting on 25 July, during the second major movement of *Tramea* into the area, I had even more luck with this species. I eventually found and recorded eight more *T. calverti* in four different Wisconsin counties (La Crosse, Vernon, Trempealeau, and Shawano). Jym Mooney, another Wisconsin Odonata enthusiast, was also able to find one in Grant County during this period. The Shawano record was especially interesting as Shawano is about 175 miles northeast of La Crosse and not in the Mississippi River drainage.

This was definitely an unexpected find and exciting time for me. Here is a list of the 2012 *T. calverti* sightings for Minnesota and Wisconsin:

- 21 June: ♂, Dresbach Rest Area, Winona Co., Minnesota
- 22 June: ♂, Houston Co., Minnesota
- 28 June: ♂, La Crosse, La Crosse Co., Wisconsin
- 25 July: ♂, Trempealeau, Trempealeau Co., Wisconsin
- 26 July: ♂, Onalaska, La Crosse Co., Wisconsin
- 27 July: ♂, Stoddard, Vernon Co., Wisconsin
- 29 July: ♂, Shawano, Shawano Co., Wisconsin
- 30 July: ♀, Onalaska, La Crosse Co., Wisconsin;
♂, Stoddard, Vernon Co., Wisconsin
- 4 August: ♂, Grant Co., Wisconsin (Jym Mooney)
- 5 August: ♂, Trempealeau NWR, Trempealeau Co., Wisconsin
- 6 August: ♀, La Crosse, La Crosse Co., Wisconsin 

“If You Build It...”

Kelby Ouchley <rockybranch@centurytel.net>

As a career wildlife biologist for 30+ years, I have long been indoctrinated with the mantra that nature is best served if we “manage” it. However, as my on-the-ground experience accumulated I gradually concluded that the opposite is true in many situations. Nature often does best if just left alone to thrive on its own and heal if necessary. Working with endangered and invasive species can be exceptions to this philosophy. While sitting in my front porch rocker recently I pondered how odonates might fit into this line of thought. It occurred to me then that another exclusion to my tenet might exist in the man-made pond just down the hill.

Our home place that we call Heartwood is located in rural Union Parish of northeastern Louisiana. It consists of 72 acres of uplands, historically a mixed pine/hardwood site, and riparian bottomland hardwoods bordering a small tributary of Bayou D’Arbonne. Wetland habitat with standing water on Heartwood is ephemeral and manifests itself most dramatically with infrequent backwater flooding in the lowest area. To me it doesn’t seem to be prime odonate habitat.

In 2002 I dammed a swale in the uplands to create a small pond (roughly 100 x 75 feet), mainly for wildlife habitat. When full it is 7 feet deep. The substrate is fine red clay, i.e. mud, and there is virtually no emergent vegetation. After observing the pond for a couple of years it became obvious that the watershed was too small and the droughts now too frequent to keep the pond filled year round. It often evaporates to a depth of two feet in the summer and fall. For this reason I decided not to introduce fish to the pond.

Still, the pond does provide good wildlife habitat in the form of water for a host of species including deer, raccoons, squirrels, several aquatic turtles and snakes, and many types of birds; but, what about the odonates? In 2009, fellow Fish and Wildlife Service retiree Berlin Heck injected me with his interest in this order of insects, and so began my clumsy attempts to finally learn something about a group of animals without backbones. Other veterans, especially Greg Lasley and Dennis Paulson, tolerated (and continue to do so) my elementary inquiries and misidentifications.

I keep a close watch on the area year round, and to date the small, 10 year old, man-made pond has yielded five species of damselflies and 26 species of dragonflies in the four years that I have been scrutinizing it. The vetted photographic records are compiled in the OdonataCentral

database and include the following:

Damselflies:

Lestes australis (Southern Spreadwing)
Enallagma doubledayi (Atlantic Bluet)
Enallagma aspersum (Azure Bluet)
Ischnura posita (Fragile Forktail)
Ischnura hastata (Citrine Forktail)

Dragonflies:

Anax junius (Common Green Darner)
Nasiaeschna pentacantha (Cyrano Darner)
Arigomphus lentulus (Stillwater Clubtail)
Arigomphus maxwelli (Bayou Clubtail)
Gomphus oklahomensis (Oklahoma Clubtail)
Dromogomphus spinosus (Black-shouldered Spinyleg)
Cordulegaster obliqua (Arrowhead Spiketail)
Didymops transversa (Stream Cruiser)
Macromia illinoiensis (Swift River Cruiser)
Epithea cynosura (Common Baskettail)
Platthemis lydia (Common Whitetail)
Ladona deplanata (Blue Corporal)
Libellula luctuosa (Widow Skimmer)
Libellula incesta (Slaty Skimmer)
Libellula flavida (Yellow-sided Skimmer)
Libellula incesta (Slaty Skimmer)
Libellula vibrans (Great Blue Skimmer)
Orthemis ferruginea (Roseate Skimmer)
Perithemis tenera (Eastern Amberwing)
Celithemis elisa (Calico Pennant)
Celithemis fasciata (Banded Pennant)
Erythemis simplicicollis (Eastern Pondhawk)
Erythrodiplax minuscula (Little Blue Dragonlet)
Pachydiplax longipennis (Blue Dasher)
Tramea carolina (Carolina Saddlebags)
Pantala flavescens (Wandering Glider)
Pantala hymenaea (Spot-winged Glider)

Two of these species, a pair of *Enallagma aspersum* in tandem (OC#313386) and a female *Arigomphus lentulus* (OC#318987), are state records. Additionally, other sightings not yet confirmed include:

Epithea princeps (Prince Baskettail)
Tramea lacerata (Black Saddlebags)
Tramea onusta (Red Saddlebags)

Heartwood is on the edge of the D’Arbonne Swamp, a

vast wetland complex that includes permanent and seasonal water in bayous, sloughs, oxbow lakes, and brakes. That I've never been able to find some species on the list such as *Gomphus oklahomensis* and *Celithemis elisa* in the adjacent swamp speaks to the specialized requirements of certain odonates. Likewise, *Argia apicalis* (Blue-fronted Dancer) and *Argia tibialis* (Blue-tipped Dancer) are abundant on the bayou's edge several hundred yards from my pond but absent there. I don't know why some

odonates are attracted to the pond. I often see various species patrolling territory, mating, ovipositing, and foraging there. Perhaps the absence of predatory fish is a factor. I suspect the reason is more complex and involves more details than exist in our current knowledge.

Before the pond was built it would have been difficult to record a half dozen transient species on the dry upland site. So does this mean that if you build (i.e. manage) it,


they will come? The answer seems obvious as there are plenty of examples of stock ponds, large and small reservoirs, and even sewage treatment facilities and ditches that provide good odonate habitat (assuming they are not biological sinks). Perhaps the odonate response to my pond is not unusual in the least. I'm still of the opinion that it's best to take care of existing natural areas and allow Nature to carry on, but it's comforting to know in this changing world that at least some odonates appear to respond to man-made habitat if such mitigation ever becomes necessary. It's not too soon for us to start taking a closer look at the physical and biological parameters required by every species of dragonfly and damselfly, just in case. 



Figure 1. Odonate habitat at Heartwood, Union Parish, Louisiana. Photo by Kelby Ouchley.

A New Case of Westward Dispersal of an Afrotropical Species to the West Indies: Keyhole Glider *Tramea basilaris* (Palisot, 1805) in Cuba (Greater Antilles)

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Working on a small collection of specimens from Cuba housed in the Nantes Museum of Natural History, I was surprised to find a male *Tramea basilaris* (Keyhole Glider) between several *T. abdominalis* (Vermilion Saddlebags) and other species including: *Ischnura ramburii* (Rambur's Forktail), *Telebasis dominicanum*, *Dythemis rufinervis*, *Erythrodiplox umbrata* (Band-winged Dragonlet), *Orthemis* sp. cf. *ferruginea*, and *Scapania frontalis*, collected in only two localities (Camargüey and Baracoa). The specimen is a male with both right wings damaged at the tips and labeled as follows: Cuba, Baracoa, 12.X.1984, E. Simon leg.

This constitutes, to my knowledge, the first record for the Greater Antilles, the fourth from the New World, and precedes the first documented observation of this species from the New World in Suriname by Belle (1988). I've already reported the observation of *Tramea basilaris* (Keyhole Glider) from the West Indies (Meurgey,


2008; Meurgey & Picard, 2011). This afrotropical species was recorded for the first time in the West Indies from Martinique (2006) and Guadeloupe (2008) in the Lesser Antilles. In Martinique, a single male was caught near Trois-Ilets south of the island, and additional specimens were seen egg-laying in October 2008 (four of them were caught as voucher specimens). In Guadeloupe a single male was observed near the shoreline at Pointe-des-Châteaux, located at the extreme east of the island in October 2009. Since that time and despite intensive searches during the wet season, no additional specimens were seen on both islands.

Tramea basilaris is a highly vagrant species in Africa and swarms of hundreds of individuals can be seen during the monsoon time along the Atlantic coasts. It is not surprising that some individuals can reach the Antilles or the South American continent following the trade winds that blow from east to west in winter. This is particularly

evident considering the hundreds of *Schistocerca gregaria* (Desert Locust) observed almost every year in the Lesser Antilles.

As for the Lesser Antilles, the Cuban specimen was caught during the rainy season (which is between October and December in the Lesser Antilles). This new record suggests that this species may be observed in the southern states of the USA, especially Florida.

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Earlier Emergence of Anisopterans Due to Global Climate Change?

Richard Groover <rgroover@reynolds.edu>

In the spring of 2012, I observed three anisopterans emerged as adults earlier than in previous years. At the Reynolds Stormwater Pond #2, Henrico County, Virginia (N 37.638 W 77.473), *Anax junius* (Common Green Darner), *Plathemis lydia* (Common Whitetail), and *Epiplatys cynosura* (Common Baskettail) were observed earlier than normal for central Virginia. These species were captured (vouchers are available) on 31 March 2012; the shade temperature was 26°C and the weather was clear and sunny. March had been unusually warm for central Virginia. These three species were possibly first colonizers of a new stormwater pond, which is approximately 0.10 hectares in size.


Photoperiod was normal for this time frame, but Corbet (1999) says that temperature also induces cues that activate neuroendocrine responses for metamorphosis into adults. Ott (2001) links dragonfly distribution with global climate changes. Clausnitzer *et al.* (2009) also support Odonata responses to global climate changes.

I propose to gather from any and all members of the Dragonfly Society of the Americas any data you collect on early season emergence of anisopterans over the next three years (2013–2015). I will assemble the data for a possible future article. I will send a reminder to DSA members

each year. Any records you can report for 2012 would also be appreciated. I will let someone else enjoy the retrieval of zygopteran data, thus please do not send me such.

If you have records to report, please send me the genus and species, with a GPS location of that sighting. If you have vouchers, please report them as well.

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ARGIA is going all-digital!

Don't forget that beginning in 2013, ARGIA will no longer be available in hardcopy form. It will only be accessible as a PDF online through OdonataCentral <www.OdonataCentral.org>. The reason for this change is to eliminate the costs of printing and shipping. While this may be a difficult transition for some of us, it has several tangible benefits, including lower annual dues and full-color issues.

Some Possible Mis-Uses of GPS

Nick Donnelly <tdonelly@binghamton.edu>

A few issues back I wrote on the glories of GPS and its uses for field studies. Since then, I have encountered some examples of mis-uses of my favorite toy (as I called it). These could well lead to problems down the road.

First, one has to understand that the “accuracy” given on several of the commercial GPS units must not be taken too literally. This “accuracy” is usually presented as the radius of a circle within which the point is supposed to occur. This is not exactly what one thinks it is. The found positions from each satellite might all be shifted to one side, so that real point may fall outside the reported circle. The biggest effect which causes errors in GPS is atmospheric moisture, which slows the radio signals which are the basis of the technique. These errors are most likely to happen when moisture is not homogeneously distributed in the atmosphere around your location.


It is also a kindness to others if you report only the digits that are significant. Almost all commercial devices report numbers that are beyond the inherent accuracy of the system! Examples of maximum accuracy are 08.8911°; 08° 50.11'; or 08° 50' 11.2" (depending on how you report positions). For UPS, knock off the final digit (1 meter). Your real accuracy is almost certainly not quite as good as this.

A more serious problem arises when trying to match your GPS location to a map, such as what one can bring up on GoogleEarth or similar programs. The problem is that the maps themselves may be located incorrectly in these programs. For the U.S., the standard topo set is now adjusted on these mapping programs to as little as +/- 10 meters,

which is better than the accuracy of the instruments. But for the rest of the world the maps may not have been adjusted, and the accuracy is often much less.

Recently I matched GPS locations on a South Pacific island of interest and found that they were off by approximately 200 meters. For Panama locations, they were off apparently by about 50 meters. This bothers me not at all, and it should not bother you either. But why is there a problem? I have heard of two cases where workers found their field locations on a GoogleEarth image and then adjusted their field GPS points, so as to have the “corrected” position! Wrong, wrong, wrong . . .

Your GPS is probably more correct than the GoogleEarth map. Not all maps have been adjusted and some may never be. The problem is that since the beginning of surveying, map makers have always realized that their reported latitudes and longitudes were probably incorrect. As I noted in my previous article, the first place where the equator was accurately surveyed on the earth (in Ecuador) is off by a few hundred meters.

The real problem with all this may be that someone who wants to find your reported location uses your “corrected” values, and finds themselves some distance from the real place where you were. Better to report your field values; these will not change, although they will be subject to errors, of course. If you want someone to find your original point, the best you can do is simply to give him your original numbers. Don't correct these!!! 

New Book Announcements

Les Libellules des Antilles françaises, by François Meurgey and Lionel Picard

(translated from overleaf; book is written in French)

This richly illustrated book is the first monograph on the French West Indian Odonata. The first five chapters present general aspects of the study framework and characteristics of Odonata (geographical context, habitat, morphology, biology and ecology, current threats to these insects and study skills). Two richly illustrated identification keys follow, the first devoted to adults and the second concerning larvae and exuviae.

Chapter 7 presents specific monographs for the 41 species currently known from the French Antilles. For each, three to four pages illustrated with color photographs (males, females, mating, tandem, etc.) are complemented by a board of five distribution maps at different scales (Americas, West Indies, French West Indies and local stations).

The text is usually comprised of five to six sections, including 1) Criteria for identification, in which the authors complete adult identification keys and provide a rigorous description of each species, comprising variations among them; 2) Possible confusion with other species; 3) Distribution and abundance; 4) Ecology, including characteristics of larval habitat for each species; 5) Biology

and behavior, with information about male and female behaviors and data on reproduction and life history; and 6) Threats and conservation measures.

The final chapter offers a dozen “Where to Watch Dragonflies” sites in Guadeloupe, Les Saintes and Martinique. Two appendixes present a complete bibliography, distribution table of the whole odonate fauna of the Caribbean, a glossary, and taxa index.

This comprehensive book finally fills a gap in the French West Indies Odonata and thus constitutes an indispensable basis for all naturalists and scientists interested in this fauna.

Available from nhbs.com (book #189731) or <pensoft.net/product.php?p=12579>.

A Manual for the Identification of the Dragonflies and Damselflies of New Guinea, Maluku, & the Solomon Islands, by John Michalski

561 pages, 8 pages of color photos, 1275 line illustrations
Kanduanum Books

Hardback: July 2012

ISBN: 978-0-615-63726-6

Price: USA, \$75.00 postpaid (shipping weight 5 lbs / 2.3 kg)


Outside the USA: USD 55.00 plus postage (estimated postage to Europe = USD 55.00)

Contact author: <huonia@aol.com>

First comprehensive guide to ALL 620 species of dragonflies of New Guinea and the neighbouring islands, which is home to ten percent of the world’s dragonfly fauna. Nearly half of the species are found nowhere else on Earth. Includes 1275 illustrations and eight pages of color plates showing representative species and habitats.

Includes introductory sections on structure, habitat, history, collection and photography, as well as appendices discussing taxonomic questions and a full bibliography. Illustrated keys to all taxa, and illustrations of larval forms where known.

Over the past ten years there has been a growing interest in the dragonflies of this remarkable part of the world. This manual brings together all of the published research on this fauna from its origins in the 1800s to the present.

Look for the Dragonflies and Damselflies of New Guinea, Maluku & the Solomon Islands on OdonataCentral soon. Portions of the book with keys and figures will be available through the site. 

A Manual
for the Identification of

**The Dragonflies
and Damselflies
of
New Guinea,
Maluku and
the Solomon Islands**



John Michalski

Advice Column

This is probably well-known to veteran odonate chasers, but the placement of “artificial” perches can help greatly in viewing, photographing, or capturing many dragonfly species. I’ve spent much time trying to get photos of males in flight before I realized that part of the reason they were not landing was because there was no good place to perch. Several long sticks stuck into the shallows near a pond shore (for skimmers or saddlebags) or a large rock set in a stream (for clubtails) can often make a patrolling male stop and pose right where you want it...sometimes within seconds! If it’s a site you visit often, you can enhance your viewing opportunities with a number of such well-placed perches.

James N. Stuart, Albuquerque, New Mexico

If you have any short notes of advice you’d like to pass on to fellow odonate enthusiasts relating to anything you’ve learned in your experiences with odonates, send them to the editor and we’ll share them.

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, University of Texas Insect Collection, 3001 Lake Austin Boulevard, Suite 1.314, Austin Texas, USA 78703, <jcabbott@mail.utexas.edu>; material for BAO must be sent to Steve Hummel, Lake View, Iowa, USA 54982, <shummel@iowa-telecom.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

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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. 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, Florida, USA 32311. More information on joining DSA and subscribing to BAO may be found at <www.dragonflysocietyamericas.org/join>.

Back cover: (upper) Swamp Spreadwing (*Lestes vigilax*) at a pond near Meadows of Dan in Patrick County, Virginia. Photograph by Greg M. Hill. **(lower)** Bluets on a stalk of Tule photographed at Fish Slough at the northern end of the Owens Valley just east of the Sierra Nevada Mountains. Photograph by Ron Oriti.

