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Front cover: Male Boreal Whiteface (*Leucorrhinia borealis*), Municipality of Anchorage, Anchorage, Alaska, June 2015.
Photo by Jim Burns.

Southwest/California OdeBlitz, 27–30 August 2015

Tony Godfrey <artfullbirds@yahoo.com> and Kathy Biggs <bigsnest@sonic.net>

The 2015 Southwest/California OdeBlitz was a huge success, with 36 participants from 12 states attending the biggest blitz ever organized by Dave and Kathy Biggs. Our hosts and field trip organizers were Tony and Shela Godfrey, and the Orion group area at the City of Rocks State Park was the “official” base camp. Many participants also stayed at hotels in nearby Deming and Silver City. Despite being held towards the end of our monsoon season, the blitz was blessed with sunny days of temperatures in the low 80s, and comfortable evenings in the low 60s.

On the morning of 27 August, Tony and Shela organized a pre-blitz visit to the East Tank, located on the City of Rocks State Park property. Not officially open to the public, this four acre earthen stock tank had only once recently been surveyed for Odonata.



Plateau Spreadwings (*Lestes alacer*), City of Rocks State Park, New Mexico. 27 August 2015. Photo by Terry Hibbetts.

From a parking area at the end of a dirt road, about 20 people hiked the 1.1 miles to the tank. Once we arrived at the tank, we found several Great Spreadwings (*Archilestes grandis*), as well as the only Plateau Spreadwings (*Lestes alacer*) of the blitz. Familiar Bluets (*Enallagma civile*) were abundant throughout this and the next few days. Mexican Forktails (*Ischnura demorsa*) were the only other damselfly encountered. We had a good selection of dragonflies, with Blue-eyed Darners (*Rhionaeschna multicolor*), many Flame Skimmers (*Libellula saturata*), Roseate Skimmers (*Orthemis ferruginea*), Blue Dashers (*Pachydiplax longipennis*), Wandering Gliders (*Pantala flavescens*), many Eastern Amberwings (*Perithemis tenera*), Common Whitetails (*Platthemis lydia*), Variegated Meadowhawks (*Sympetrum corruptum*), and both Black and Red Saddlebags (*Tramea lacerata* and *T. onusta*). A non-odonate highlight for many was the Texas Horned Lizard.

As the temperature rose, we headed back to our vehicles and took the short drive back to the Orion group area. More attendees arrived during lunch, just in time for a short excursion to nearby Katfish Kove. Located in Luna County, Katfish Kove was recently purchased by new owners. The previous owners had closed the area to the public for over twenty years. During that time, the ponds were neglected and became overgrown with cattails. The new owners are improving the property by removing most of the cattails and adding nature trails. Located along the Mimbres River, the area consists of several oxbow ponds. The mature Fremont cottonwoods are home to nesting Harris’s Hawks and Common Black-Hawks. In addition to most of the odes seen in the morning we added to the blitz list Sooty Dancer (*Argia lugens*), Arroyo Bluet (*Enallagma praevarum*), Plains and Black-fronted Forktail (*Ischnura damula* and *I. denticollis*), Arroyo Darner (*Rhionaeschna dugesi*, a lifer for many), Western Pondhawk (*Erythemis collocata*), and Plateau Dragonlet (*Erythrodiplax basifusca*). The avian highlight during our visit was a Barn Owl that we accidentally flushed.

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Calendar of Events

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

Event	Date	Location	Contact
NymphFest	4–6 March, 2016	Bennington, Vermont	Bryan Pfeiffer <bryan@bryanpfeiffer.com>
DSA SE Meeting	1–3 April, 2016	Alexandria, Louisiana	Bill Mauffray <iodonata@gmail.com>
DSA Annual Meeting	15–17 July, 2016	Provo, Utah	Alan Myrup <alanmy@comcast.net>
Int. Congress of Entomology	25–30 Sept. 2016	Orlando, Florida	S. Büsse <sbuesse@zoologie.uni-kiel.de>

continued from previous page...

On the morning of 28 August, we headed north to a restaurant and general store in the small community of San Lorenzo, where we had arranged previously to meet the participants staying in hotels in Silver City. This would be the arrangement for the next three days. A caravan of about 20 vehicles took the scenic drive over the Mogollon Mountains to the West Fork of the Gila River. The trailhead to the West Fork is located at the large parking area below the Gila cliff dwellings. Almost immediately after exiting our vehicles, a Persephone's Darter (*Aeshna persephone*), another lifer for many, was found hanging-up in a tree. We began our leisurely hike up the West Fork of the Gila River. There were numerous river crossings and all the participants wore waterproof footwear. The much sought-after Arizona Snaketail (*Ophiogomphus arizonicus*) was almost immediately observed. Another highlight was seeing Dashed Ringtail (*Erpetogomphus heterodon*), a species currently known in the US only in New Mexico and Texas.



Dashed Ringtail (*Erpetogomphus heterodon*), West Fork Gila River, Gila National Forest, New Mexico, 28 August 2015. Photo by Bosque Bill.

Other species reported were Canyon Rubyspot (*Hetaerina vulnerata*), Variable and Springwater Dancer (*Argia fumipennis* and *A. plana*), many Painted Damsels (*Hesperagrion heterodoxum*), Desert Firetail (*Telebasis salva*), Serpent Ringtail (*Erpetogomphus lampropeltis natrix*), Pale-faced Clubskimmer (*Brechmorhoga mendax*), and many Red Rock Skimmers (*Palaethemis lineatipes*), and a photo of the first county record of Cardinal Meadowhawk (*Sympetrum illotum*). The amphibian highlight was a sight of the seldom-seen Arizona Toad. Several participants managed to find time to visit the famed Gila cliff dwellings—after rangers evicted a bear and her cub from one of the dwellings!

Our original itinerary had us scheduled to visit the Middle Fork of the Gila River in the afternoon. It was almost 2 pm when we finally left the scenic West Fork, and a quick stop downstream proved fruitless after being shut down by heavy clouds. A group meeting was called and we unanimously changed our plan for the next day. Instead of visiting the Rio Grande River on a crowded Saturday, we opted to visit the Middle Fork. On our way back to our various lodgings, the majority of participants

stopped at the restaurant in San Lorenzo. The Mexican plates and the fish and chips special were a tasty treat following an exhilarating day in the field.

Sunday morning we did the 70 mile drive to the Middle Fork of the Gila River. With clear skies and temperatures in the 70s, we knew we were in for a good day. Powdered and Blue-ringed Dancer (*Argia moesta* and *A. sedula*) were new species for the blitz, and a male Filigree Skimmer (*Pseudoleon superbus*) was flushed by one observer. The highlight of the day, though, was observing three species of Ringtail all perched on the same rock—White-belted (*Erpetogomphus compositus*), Serpent, and Dashed! At least 12 Dashed Ringtails were found during our hike.



Painted Damsel (*Hesperagrion heterodoxum*), West Fork Gila River, New Mexico, 28 August 2015. Photo by Bosque Bill.

On our way out of the Gila, several of us visited the nearby picturesque Forks campground and day use area. No additional ode species were encountered, but the scenery and a flyover by a Peregrine Falcon and Common Black-Hawk were a great way to end another excellent day in the field. We later found out that one of the participants, Marion Dobbs, had ventured over to Bill Evans Lake in Grant County. In the only patch of cattails at the lake, she photographed the first Great Pondhawk (*Erythemis vesiculosa*) for western New Mexico.

The Godfreys definitely upped the ante for all future Southwest Blitzes with an evening barbeque catered by City of Rocks State Park volunteers Charlie and Terri Brown. The delicious fruit bowl carved in a large watermelon, with a dragonfly decoration, was an added surprise. Professional astronomer Kevin Koski from Kingman, Arizona, hosted an after-dinner presentation on Pluto. His scheduled star-



Sympetrum illotum (Cardinal Meadowhawk), West Fork Gila River, Gila National Forest, New Mexico, 28 August 2015. Photo by Tony Godfrey.

gazing party was unfortunately cancelled due to overcast skies. Later that evening, a thunderstorm and high winds kept most campers in the Orion group area awake; in fact, several folks chose the safety of their cars for the night, with one couple fleeing a shredded tent!

On our final day of the blitz, some participants began their long journey home, while those who remained took a short trip to the Mimbres River Preserve, where the Mimbres River was flowing at above-normal levels due to the previous night's rain. The only species added for the blitz was a Pacific Forktail (*Ischnura cervula*), but Kathy Biggs made a new friendship with an American Rubyspot (*Hetaerina americana*).

We then drove a few miles to Bear Canyon Lake, which is owned by the New Mexico Game and Fish Department and requires a trout stamp to visit. Luckily, we had encountered the local ranger the previous day at the Forks campground, and he graciously gave us permission to visit without a trout stamp.



Laura Gaudette and Terry Hibbetts aming for a Ringtail or two on the Middle Fork Gila River. Photo by Kathy Biggs.



Erythemis vesiculosa (Great Pondhawk), a new record for Grant County, New Mexico. Photo by Marion Dobbs.



Serpent Ringtail (*Erpetogomphus lampropeltus natrix*) joined by Dashed Ringtail (*E. heterodon*) and American Rubyspot (*Hetaerina americana*). Photo by Matthew Matthiessen.

One of our participants stopped at Bill Evans Lake to look for the Great Pondhawk. We had no luck with the pondhawk, but a single Amethyst Dancer (*Argia pallens*) was the last new species added to the blitz list, for a final count of 41.

Acknowledgements

We would like to thank the City of Rocks State Park staff and volunteers for their valuable time and assistance for the entire blitz. Many thanks also to Kevin Koski, who volunteered to host the Pluto presentation after driving several hundred miles from Kingman, Arizona. Finally, many thanks to all the awesome participants who made this one of our most successful ode blitzes. We hope to see you all at the 2016 Southwest/California OdeBlitz.

Species list (county records are indicated with an asterisk; Ca = Catron Co., Gr = Grant Co.)

ZYGOPTERA (DAMSELFLIES)

- Great Spreadwing (*Archilestes grandis*)
- Plateau Spreadwing (*Lestes alacer*)
- American Rubyspot (*Hetaerina americana*)
- Canyon Rubyspot (*H. vulnerata*)
- Variable Dancer (*Argia fumipennis*)
- Sooty Dancer (*A. lugens*)
- Powdered Dancer (*A. moesta*)
- Amethyst Dancer (*A. pallens*)
- Springwater Dancer (*A. plana*)
- Blue-ringed Dancer (*A. sedula*)
- Familiar Bluet (*Enallagma civile*)
- Arroyo Bluet (*E. praevarum*)
- Painted Damsel (*Hesperagrion heterodoxum*)
- Pacific Forktail (*Ischnura cervula*)
- Plains Forktail (*I. damula*)
- Mexican Forktail (*I. demorsa*)

Black-fronted Forktail (*I. denticollis*)
Desert Firetail (*Telebasis salva*)

ANISOPTERA (DRAGONFLIES)

Persephone's Darner (*Aeshna persephone*)
Arroyo Darner (*Rhionaeschna dugesi*)
Blue-eyed Darner (*R. multicolor*)
Pale-faced Clubskimmer (*Brechmorhoga mendax*)
White-belted Ringtail (*Erpetogomphus compositus*)
Dashed Ringtail (*E. heterodon*)
Serpent Ringtail (*E. lampropeltis natrix*)
Arizona Snaketail (*Ophiogomphus arizonicus*)
Western Pondhawk (*Erythemis collocata*)

Great Pondhawk (*E. vesiculosa*), Gr*
Plateau Dragonlet (*Erythrodiplax basifusca*)
Flame Skimmer (*Libellula saturata*)
Roseate Skimmer (*Orthemis ferruginea*)
Blue Dasher (*Pachydiplax longipennis*)
Red Rock Skimmer (*Paltothermis lineatipes*)
Wandering Glider (*Pantala flavescens*)
Eastern Amberwing (*Perithemis tenera*)
Common Whitetail (*Plathemis lydia*)
Filigree Skimmer (*Pseudoleon superbus*)
Variegated Meadowhawk (*Sympetrum corruptum*)
Cardinal Meadowhawk (*S. illotum*), Ca*
Black saddlebags (*Tramea lacerata*)
Red Saddlebags (*T. onusta*)



Back: Tony Godfrey, Justin Jones, Buck Snelson, Bill Prather, Heidi & Eric Eaton, Sandra Hunt-von Arb, Bosque Bill, Matthew Matthiessen, Dave Welling, Jeanise Smith **Middle:** Shela Godfrey, Tim Geddes, Marion Dobbs, Terry & Diana Hibbitts, Shelly & David H. Small, Laura Gaudette, Nancy McIntyre, Jeanne Tinsman, Greg Lasley, Norman Barrett **Front:** Chris Heavilin, Leslie Flint, Dave & Kathy Biggs, Ron Oriti, Cheryl Lasley, Mike Ready, Inez Prather **Point:** Marceline VandeWater **Not pictured:** John & Cynthia McKee, Mike Thomas, Charlie Brown

Don't Forget to Pay Your DSA Dues for 2016!

Amazingly enough, 2015 is almost behind us, so it's time to think about renewing your DSA dues to continue your membership in 2016. Annual dues are only \$15, and include a digital subscription to ARGIA. Your dues help sustain the publications and work of the DSA, including OdonataCentral, a fantastic resource used by so many of us on a regular basis. You can download a PDF of the membership form on the OdonataCentral web site at <http://www.odonatacentral.org/index.php/PageAction.get/name/DSA_Membership>. If you're not sure when your membership expires, e-mail DSA Treasurer Jerrell Daigle at <jdaigle@netally.com>. Thank you for your support in 2015!

NymphFest Set for 4–6 March 2016 in Vermont

Bryan Pfeiffer <bryan@bryanpfeiffer.com>

A celebration of skins, a bacchanal of burrowing hooks, NymphFest returns in 2016. Sorry, no debauchery here—only a weekend of study and celebration of the larval form. Our featured speaker will be the “Prince of the Prementum” Dr. Ken Tennessen. Save the date and set your compass for Bennington, Vermont, from 4–6 March 2016. You can attend for the entire weekend or only a day or two. We’ll meet at the One World Conservation Center <<http://one-worldconservationcenter.org/>> for lectures, workshops, and even a few field trips. The registration fee, payable at the door, is \$50 for the entire weekend or \$35 for any single day.

NymphFest will be a great opportunity to discover and learn about dragonflies and damselflies at a time when most of us are wistful for their flights of summer. We’ll run workshops, specimen swaps, and identification sessions. We expect to have scopes and bench space available as well. We’ll even bust through the Vermont ice to collect nymphs in a nearby river and pond.

This year’s NymphFest is brought to you by the Northeast chapter of the Dragonfly Society of the Americas (NE DSA) and the Vermont Center for Ecostudies <www.vtecostudies.org>. Earlier NymphFests were also held in presidential election years of 2004 and 2008. Note that NymphFest will replace the usual summer field meeting of the Northeast DSA chapter.

The “Super NAC” (NymphFest Action Committee) is still working out event details and logistics, including arranging lodging options near our meeting site. We’re also accepting proposals for short presentations. Send those to Mike Blust at <BlustM@greenmtn.edu>. We also welcome anyone with expertise to assist in our identification sessions. Basically, the plan is to gather informally on Friday evening, 4 March. The NymphFestivities begin officially Saturday morning, 5 March. Watch our informal web site for updates <<http://bryanpfeiffer.com/nymphfest>>; to register, send me an email at <bryan@bryanpfeiffer.com>.



NymphFest 2016
Bennington, Vermont March 4-6


Celebrating the aquatic stage of
DRAGONFLIES and DAMSELFLIES
with lectures, workshops and field trips
Featured Guest: Ken Tennessen

One World Conservation Center
Bennington, Vermont
\$50 for the weekend or \$35 per day

Registration and details at:
www.bryanpfeiffer.com/nymphfest

Brought to you by
The DRAGONFLY SOCIETY of the AMERICAS Northeast Chapter
VERMONT CENTER for ECOSTUDIES
Uniting People and Science for Conservation


We’re honored to bring Ken Tennessen to this event. Ken is now at work on a manual to Odonata nymph identification, and he knows more about dragonfly nymphs than just about anyone. But we’ll also have other experts on hand to present on various topics, and to work with participants on learning and identification.

Questions about logistics and other details can go to our lead organizer, the “Superstar of *Stylurus* Skins,” Kevin Hemeon at <mariekevinhemeon@msn.com>. Please also contact Kevin if you can help with the identification sessions. 

Second Announcement—2016 DSA Southeast Regional Meeting

Bill Mauffray, International Odonata Research Institute <iodonata@gmail.com>

The 2016 SE DSA meeting will be in spring 2016 (tentative date 1–3 April). The base of operations will be the Super-8 hotel off of I-49 just north of Alexandria, Louisiana near the Alexandria International Airport. This location will provide easy access to the Kisatchie National Forest. Bill Mauffray and Steve Shively will co-host the gathering. Target species include some of our regional endemics

such as *Cordulegaster sarracenia* (Sarracenia Spiketail) and *Gomphus oklahomensis* (Oklahoma Clubtail). We will also be on the lookout for *Ophiogomphus* on some of the sandy/gravelly streams, even though none have been reported from west of the Mississippi within the state. If you are interested in the meeting, please e-mail Bill at <iodonata@gmail.com> to be added to the e-mail group. 

New Mobile App for Dragonfly Identification

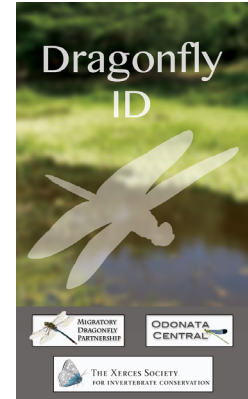
John C. Abbott, Alabama Museum of Natural History, University of Alabama, Tuscaloosa, Alabama
<jcabbott@gmail.com>

The new app “Dragonfly ID” is a collaboration between BirdsEye, OdonataCentral, and the Xerces Society, with special thanks to the membership of the Dragonfly Society of the Americas and the users of OdonataCentral, the Migratory Dragonfly Partnership, and PondWatch for their contributions. The app brings the power of the BirdsEye infrastructure to create all-new dragonfly-finding tools for avid dragonflies and people interested in identifying the species around them. The app is currently available for free download on iOS platforms. The Android version is under development and will be coming soon!

Dragonfly ID provides a handy resource for on-the-go information about the status and distribution of odonates in North America. The app features bar charts built from the OdonataCentral database of sightings, map displays of recent sightings submitted to OC, species descriptions, images, and more. It also features a great help function that

allows you to narrow down the species you are seeing by indicating a specimen’s color, size, and habitat. The app will then also refer to what has been seen in that same area recently and bring up a list of possible choices from which you can select.

You can contribute to making Dragonfly ID the best app for dragonflies in North America! We are always looking for help with editing text, and we need additional photographs to help users identify the dragonflies they see. Please visit <<http://www.birdseyebirding.com/apps/dragonfly-id-app/>> for more details and to download the iOS version of Dragonfly ID.



Some features of the Dragonfly ID app: (Left) Species description. (Center) List of species recently sighted at a specific location, including thumbnail photo, and flight date range. (Right) Map of recent sightings for individual species.

Minutes of the DSA Annual Business Meeting, State College, Pennsylvania, 27 June 2015

Steve Valley, DSA Secretary <svalley2@comcast.net>

Jim Johnson, who completed his term as DSA President, began the meeting with a statement of gratitude to the society for the last couple of years. He said "If you will spare me a moment for two parting shots" and proceeded to take two photos of the group. Jim then announced Chris Hill as the new DSA President.

Chris addressed the group and introduced and thanked Betsy Leppo for putting together the meeting. Betsy, who works for the Natural History Society, thanked us for being there and putting up with the weather. The species count is up to 65 for the whole group, so far, but with streams and rivers rising it may not be realistic to stay around for the post-trip. She thanked Mike Blust for managing money and picnic arrangements; Dan Bogar, Ben Colcher, and Ken Lebo for leading trips; and Ken for also handling the t-shirts. She thanked Hal White and Jim White as trip leaders with help from Mike Slater, and Tony Shock and Buck Snelson for also leading a trip. Thanks to Jerrell Daigle for all of his guidance and assistance; to Ed Lam for the t-shirt design; to Chris Hill and Jim Johnson for their DSA leadership; and Mike Moore for his excellent website design. Bryan Pfeiffer could not be here but helped out, as did Andy Deans from Penn State. Silent auction tables are laid out for bids until 4 pm. Hal White's book is for sale for \$30.

Chris Hill began the business meeting and Jerrell Daigle handed out the meeting buttons—a *Rhionaeshna mutata* (Spatterdock Darner) head with an *Anax longipes* (Comet Darner) reflected in its eyes. Steve Valley asked everyone to please sign the list by the door and include their addresses. We have 85 people in attendance. Everyone stood and introduced themselves and said where they live:

Jim Burns from Arizona.

Chris Beatty and Kristen Numata from California.

Hal White, Jim White, Michael Moore, and Kitt Heckscher from Delaware.

Jerrell Daigle and Buck Snelson from Florida.

Marion Dobbs from Georgia.

Steve & Marcia Hummel from Iowa.

Yvette Liautaud, Kathy Kozacky, Joe Roti Roti, and Marla Garrison from Illinois.

Joshua S. Rose and Jason Forbes from Massachusetts.

Melissa Sanchez Herrera, Jessica Ware, Mike Hannisin,

Nancy Watson from New Jersey.

Ailsa & Nick Donnelly, Fred & Peggy Sibley, Kevin

Hemeon, Annette Oliveira, Meena Haribal, Walter Chadwick, and Charles R. Smith from New York.

Bob Glotzhober and Andrew Boose from Ohio.

Jason Bried from Oklahoma.

Cary Kerst and Steve Valley from Oregon.

Clark Shiffer, Mike May, Betsy Leppo, Ken & Karin

Lebo, Lane Loya, Amanda Whispell, Benjamin Coulter, Dan Duran, Tony Schoch, Clay Corbin, Dennis McNair, Michael Slater, Carl Gardner, and Dan Bogar from Pennsylvania.

Chris Hill from South Carolina.

Greg Lasley and John & Kendra Abbott from Texas.

Alan Myrup from Utah.

Mike Blust from Vermont.

Steve Roble, Anne Wright, Richard Groover, Ken Larsen, Michael Ready, William Pendleton, and Paul Bedell from Virginia.

Jim Johnson From Washington.

Ken Tennesen and Bob DuBois from Wisconsin.

Steve Valley moved that we accept the minutes for 2014 as published in ARGIA Vol.26, No.3, seconded by Jim Johnson. Unanimously accepted.

Steve Valley announced officer election: Marion Dobbs as regular member and Bob DuBois as president elect. There were 59 votes with one abstention.

Jerrell Daigle gave the Treasurer's report. Preliminary 2015 report: began with balance of about \$25,000, currently have about 255 members (with about 80 people unpaid) currently \$25,700. Expenses included a loan for t-shirts, incorporation fees, and Donnelly traveling grants (two at \$750 each). Quarterly reports are being sent to the Executive Council. The trend in membership numbers is down. We are losing people who have been five or six year members, but getting some new members. Almost all new members are coming in as a result of OdonataCentral.

Jerrell Daigle presented new meeting proposals. Requested suggestions or volunteers for red carpet proposals. The annual meeting proposal for next year is by Alan Myrup from Utah. Alan came to the podium and gave a presentation proposing we hold the 2016 meeting in Provo, Utah at Brigham Young University in the entomology museum in mid-July. A nice collection of insects will be available. Northern Utah will be the main meeting site. Zion and Capitol Reef National Parks will be the pre-meeting loca-

tions. T-shirt plan is to get an image of the Great White Throne with a Red Rock Skimmer (*Paltothemis lineatipes*)! Post-meeting plans are pending.

Chris Hill mentioned that we do a regular rotation so that every five years you can expect an annual meeting in your region. Jerrell spoke on other regional meeting proposals. SE regional meeting 24–26 July 2015 in Erwin, Tennessee, with Richard Connors, and Mary Jane & Steve Krotzer as hosts. *Tachopteryx thoryei* (Gray Petaltail), *Somatochlora elongata* (Ski-tipped Emerald), and *Cordulegaster erronea* (Tiger Spiketail) are target species.

Steve Hummel gave the BAO report. He said that Jim has the issue for Vermont ready to go, and he has some papers for the next issue. Hopefully, we will get the next two issues in the not-too-distant future. If you have something you want to submit to BAO send it to Steve at <mshummel@iowatelecom.net>. Mostly BAO articles are much longer than those in ARGIA, we tend to do distributional studies for states or regions and more technical things. The guidelines for submission are published in ARGIA and BAO. Mike May asked if the viability of BAO is an issue. Steve H. said we are OK for the next two issues. Steve Roble asked about what volume is being published; Jerrell said the next issue will be Vol.11, No.3 and we need something for Vol.11, No.4. Jerrell said he thinks BAO is on its last legs. Dan Bogart asked if it was considered a peer-reviewed journal and Steve H. answered yes.

Celeste Mazzacano is not here to give a report on ARGIA. Chris H. said that she is doing a great job and great things are happening with this publication.

There are no reprints or specimens for exchange or trade this year.

New Business

Richard Groover made a proposal. He addressed the issue of attracting new members and suggested providing small research grants. He proposed “the DSA establish a small grant program and that it be competitive and that anyone seeking the grant would have to be a DSA member. He recommended that the grant amount be \$1000. We might have to secure some funding from outside sources and then the president could establish a committee to make the selection and that the award could be presented formally.” Jerrell D. believes our bylaws indicate this is part of the objective of DSA. An amendment to the proposal was suggested, that the research be followed up with a report at a meeting in a year or two and that the travel expenses be supported in addition to the research money (Joe Roti Roti).

Continued discussion: Chris Beatty made a comment that it should be a student grant. Richard G. did not agree. Bob Glotzhober said it should be open to amateurs. Mike Moore thought the money was a little on the low side and should be at least \$2500. Chris H. said it was good to have the discussion but probably it might not be the time to pass it until we have an endowment associated with it. The Executive Council (EC) needs to have this discussion. We need to think about funding long term and where the money comes from. Jessica Ware said that it would be worthwhile for the people applying to write a small budget. Richard agrees on establishing a budget, however, you cannot seek money unless you have something to identify. You must go to donors with something tangible, but if we try to sit back and wait to build an endowment it will drag things out too much; base it rather on available funds the EC could just award individually. Mike Blust mentioned that DSA dues are not very high and perhaps we should bump up dues and put a portion towards the award. John Abbott mentioned that the reason dues are cheap is because ARGIA went digital, and to bring in more members. Another thing we could do is list the initiatives? Fred Sibley said didn't this start as a way to increase membership....my own feeling is not to increase but to reduce dues. Chris H. said \$15 is already quite low. Bob G. suggested that EC try to define research—some would say distributional studies are not research. Jerrell says it is covered by BAO. Steve V. said we don't really have any expenses now. Jerrell said we have to pay for computer space at UT for OdonataCentral. Our fund is building up, but Jerrell said our membership is still going down. Steve V. said it isn't going down because the dues are too high. Fred S. is trying to return the discussion to the idea of how we increase membership. Or change it to supporting research. Mike M. says on OdonataCentral pages there are over 1000 people....but most of them are not DSA members. Jessica W. mentioned that for the



Hal White (R) presents the DSA Lifetime Membership Award to Clark Shiffer (L), one of DSA's founding members. Photo by Steve Valley.

WDS there is a travel grant and she had two people apply. There is definitely interest.

Richard G. re-defined the purpose of his proposal and said that membership is not the main issue, but research funding is difficult for academics. Kendra Abbott said birders and butterflyers are the biggest groups—why not put ads in their journals. Jerrell said that almost all the new members in the last few years are from the efforts of the regional coordinators.

The discussion turned towards Latin American involvement. Ken Tennessen discussed that the Latin American odonatists are thinking about starting their own society. He does not believe that they have ever felt a part of DSA. They haven't tried to come to our meetings or support any of our publications. Perhaps we should reach out to keep in touch with their new society, but he doesn't believe they wish to be a part of our society. Nick Donnelly added the Cubans have participated in BAO and we should try to make contact. Jerrell D. said we have a lot of members from Colombia and Brazil. He said that he believes he can get some more members from Colombia and that the animosity is from the Argentinians. We used to have contacts in Ecuador,


and we have people in Venezuela. Ken recognizes that, but all of them want to form a new society. We can work with them. John Abbott is not surprised at all about that; he gave a talk in Mexico and noticed a similar trend, the idea of the imperialistic American coming in and trying to take over. Perhaps we can refocus, look at our name and advertise.

Straw poll was taken for being in favor of instituting a small grants program for supporting research and passed unanimously.

Straw poll was taken for support for publications; more in favor than opposed.

Straw poll was taken for initiating an advertising campaign; almost all in support.

Hal White presented the DSA Lifetime Membership Award to Clark Shiffer, one of the original founding members of DSA.

Steve Valley took the group photo during the break. 

Do Pharate Adults of Lotic Anisoptera Make In-stream Movements to Preferred Emergence Sites?

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Introduction

Exuviae are the shed exoskeletons left behind when odonate nymphs leave the water and transform into adults (emerge). More accurately, the pharate adult is the life stage imprisoned within the exoskeleton at the time of, and for some time prior to emergence (metamorphosis begins well before emergence), and is therefore the stage that selects the emergence site and support. The value of exuviae collections for species' detection, determining distributions, identifying diel and seasonal emergence patterns, and for many other ecological applications is beyond question (Corbet, 1999 [7.4]; Oertli, 2008; Raebel et al., 2010). Since field time is always limited, guidance for identifying prime areas along rivers to target exuvial collections (assuming such areas exist) would help optimize sampling time and efficiency. However, clues for doing so are limited in the odonatological literature. I've often wondered if certain riverbank areas might have greater densities or diversity of exuviae than others, and if so, which ones?

Distributions of Anisoptera exuviae along rivers after emergence often are clumped, as opposed to being randomly distributed. Sometimes a cluster of exuviae will be found on a single stem or clump of roots with no other exuviae nearby (Fig. 1). Occasionally, a number of exuviae will be found along a short stretch of riverbank while nearby bank areas are devoid of exuviae or nearly so. These aggregations



Figure 1. Lone cluster of exuviae on a muddy bank.

suggest that pharate adults sometimes move to preferred emergence sites. There are ample literature references for often small-scale, apparently out-of-water site selections to preferred emergence supports, and about vertical and horizontal distances traveled from water (summarized by Corbet, 1999 [7.4]; Worthen, 2010). However, my focus in this note is not about these usually small-scale selections of emergence supports (hereafter referred to as micro-scale selection), but rather is on whether broader areas are selected by some lotic species prior to leaving the water (hereafter called macro-scale selection). For lotic species, macro-scale selection could involve substantial transverse and longitudinal instream movements with respect to an often substantial current as pharate adults actively approach preferred emergence areas.

The realization that pharate adults might exercise some degree of macro-scale selection prior to leaving the water is not new, but this phenomenon has been documented primarily for lentic species. Corbet (1957) noted that most pharate adults of *Anax imperator* (Emperor Dragonfly) moved to the southern end of a pond prior to emergence where they emerged mostly in shaded areas. Even micro-scale selection is no small matter for *A. imperator* as amazingly, pharate adults moved onto the shore at night and selected their emergence supports two days before emergence! Corbet (1962, p. 113) further noted that many species (not named) choose shaded emergence sites. Conversely, Beynon (1995) found that *Leucorrhinia dubia* (White-faced Darter) emerged on the northwestern margin of a bog pool where they were warmed by the direct rays of the morning sun. Similarly, *Gomphus pulchellus* (Western Clubtail; a Western European species that inhabits clean ponds and canals) emerged mainly on the west and north margins of a pool where they also were warmed by the morning sun (Suhling and Muller, 1996, p. 39). Finding shelter from the damaging effects of wind likely also plays a role in micro- and macro-scale selection, as noted for *Pyrrhosoma nymphula* (Large Red Damselfly; Corbet, 1952) and for many small coenagrionids (pond damselflies; Corbet, 1962). Wright (1946) observed many mature nymphs of *Sympetrum ambiguum* (Blue-faced Meadowhawk) in shallow, heavily

vegetated areas around the edge of a pond, but exuviae were found only along the southwestern edge in large clumps of grass, which offered some protection from wind and perhaps predators.

Despite this documentation for lentic species, macro-scale selection has evidently not been documented for odonates in fast-water habitats, and clumped distributions of exuviae along rivers could be explained in other ways. As possible examples, differential predation rates on pharate adults in various cover types as they approach and ascend emergence areas, longer persistence times of exuviae in more sheltered areas (summarized by DuBois et al., 2014), and non-random distributions of mature nymphs in their instream habitat, could all create the appearance of non-random, macro-scale emergence site selections when perhaps none exist.

While conducting exuvial surveys along rivers in Wisconsin, I've noticed that grassy banks often seemed to have higher densities of some gomphid (clubtail) exuviae than shrubby or heavily forested banks. This impression was speculative, as I hadn't tried to quantify any comparisons. But the idea persisted, and because my goal is often to maximize the number of exuviae collected with my field time to increase the probability of detecting rare species, I've selected open grassy banks for sampling whenever available. This speculative site-selection process has likely been influenced by the fact that open grassy areas are easier for me to sample than brushy areas.

On 10 June 2009, while collecting exuviae along the Middle River in Douglas County, I found a north-flowing reach (N 46.5723°, W 91.8838°) that was forested on one bank (Fig. 2) but open and mostly grassy on the bank directly opposite (Fig. 3). This presented an opportunity for an emergence site comparison that might detect macro-scale selection on a single river reach on the same day with the same suite of Anisoptera species and precipitation history (2.6 cm of rain during the previous six days, measured at the Richard I. Bong Airport in Superior, about 22 km distant; <<http://www.wunderground.com/history>>, accessed 8 September 2014). My objective was to compare and contrast the densities and detection probabilities of Anisoptera exuviae on the two banks that differed in solar aspect and their types of dominant vegetation.

Methods

Two sampling stations were selected, one on each bank, each 15.24 m long. The station on the forested east bank was dominated by red maple (*Acer rubrum*) and balsam poplar (*Populus balsamifera*),



Figure 2 (L). Forested bank of Middle River, Douglas County, Wisconsin.
Figure 3 (R). Grassy bank of Middle River.

with paper birch (*Betula papyrifera*), white spruce (*Picea glauca*), and common serviceberry (*Amelanchier arborea*) also present. Low dominants on the east bank were Canada bluejoint (*Calamagrostis canadensis*) and two species of fern. The station on the grassy west bank was dominated by reed canarygrass (*Phalaris arundinacea*, ~80% of the ground cover) and Canada bluejoint, with the low herbaceous plants northern bush honeysuckle (*Diervilla lonicera*), American elder (*Sambucus canadensis*) and two species of aster (*Symphotrichum*). Characteristics of the stream channel were not measured, but there were no obvious aspects that suggested more or higher quality nymph habitat on one side of the thalweg (deepest part of the channel) than the other. Densities of nymphs throughout the reach were not estimated prior to sampling for exuviae.

I searched exhaustively for exuviae by visually scanning all visible surfaces (vegetative and ground) from the water's edge to distance of about 1.25 m up the bank while wading slowly along the shoreline. Although some pharate adults of certain species will travel horizontally many meters before selecting an emergence support (e.g. Hill and Hill, 2008), the great majority of exuviae will be found along a fairly narrow strip no more than 1 m wide along the water's edge (Corbet, 1999, p. 256). The scanning process included gently parting taller vegetation with my hands to improve visibility on stems and on the ground. Some exuviae were found on vegetated emergence supports while others were on the ground where some had been flattened down by recent rains. My sampling speed was not measured on this date, but has averaged about one meter per minute when collecting exuviae exhaustively on riverbanks (DuBois, 2015).

Four collecting passes were made along each bank, and exuviae population densities and detection probabilities were estimated using a depletion population estimator (MicroFish 3.0; <<http://www.microfish.org/>>) as described by DuBois (2015). I use the term population in the statistical sense of an aggregation of individuals that are not necessarily animate, and consider the population to have been limited to the number of visibly detectable exuviae in the defined sampling area on each bank. A depletion estimator operates on the principles that as a known number of individuals are removed from a defined area with each sample, the catches are affected in subsequent samples, and that a constant sampling effort will remove a constant proportion of the individuals present at the time of sampling. The application of this tool for estimating densities of exuviae and the assumptions associated with it were discussed by DuBois (2015). A pass consisted of one collecting trip along a bank station in one direction. Each subsequent pass began immediately after the prior pass and proceeded in the opposite direction. I maintained a similar level of search intensity on each pass in order to maintain equal sampling effort. All

found exuviae were placed in jars with date and location labels and were identified in the lab using appropriate keys and by comparing them with reared exuviae.

Results

The population estimate of exuviae on the grassy west bank (all species combined) was about twice as high as the estimate on the forested east bank (Table 1). The grassy bank held 3.2 exuviae/m (per linear meter of riverbank) whereas the forested bank held 1.5 exuviae/m. Densities of *Ophiogomphus carolus* (Riffle Snaketail), *O. rupinsulensis* (Rusty Snaketail), and *Gomphus adelphus* (Mustached Clubtail) were all higher on the grassy bank. Densities of three other species were too low for meaningful comparisons. Small sample sizes also precluded reaching any conclusions about differences in species composition of exuviae on the two banks.

Detection probabilities of exuviae (all species combined) were close to 50% and were similar for the two bank vegetation types (Table 1). Therefore, on any given pass along either shore, I found about half of the visibly detectable exuviae present and there was no apparent effect of bank vegetation type or solar aspect on my ability to detect exuviae.

Discussion and Conclusions

Some lentic odonates have exhibited macro-scale selection of emergence areas and some lotic species may do so as well, although doing so could be a more arduous process for lotic species because of difficulties presented by the current. If such selection does occur in lotic systems, then exuviae collection efficiency might be improved by identifying preferred emergence sites. My finding of higher densities of gomphid exuviae on a grassy west bank than on a forested east bank is not explained by differences in detection probabilities, which were similar on the two banks. This finding thus lends a meager bit of affirmation to the macro-scale selection hypothesis, but much more replication of this sort is needed. Because the two banks differed both in their extent of shading and their aspect relative to the morning sun, and the gomphid species in this study likely emerged during the early morning hours (e.g. Gibbs, Braden, and Boland, 2004), some selection may have occurred in favor of the bank that was less shaded and more quickly warmed in the early morning hours, in a manner similar to *Leucorrhinia dubia* (Beynon, 1995) and *Gomphus pulchellus* (Suhling and Muller, 1996).

However, the results from this single trial with small sample sizes are clearly not definitive and other explanations for non-random distributions of exuviae are possible as mentioned earlier. My goal in sharing these preliminary data in ARGIA is to stimulate research on the possibility of

macro-scale emergence site selection by lotic Anisoptera. However, to be comparable among sites, exuviae collections should be standardized (DuBois, 2015). I suggest using a multiple-pass, population estimation tool similar to the one used here, because detection probabilities can be easily estimated, allowing exuvial densities at multiple sites to be readily compared. Researchers should not assume that exhaustive collecting during a single pass will find all or even the great majority of exuviae present on vegetated riverbanks (DuBois, 2015).

Acknowledgments

I thank S. LaValley for identifying the riparian vegetation along the sampling reach.

References

- Beynon, T.G. 1995. *Leucorrhinia dubia* (Vander Linden) at Shooter Pool, Chartley Moss, Staffordshire, in 1994. *Journal of the British Dragonfly Society* 11: 1–9.
- Corbet, P.S. 1952. An adult population study of *Pyrrhosoma nymphula* (Sulzer) (Odonata: Coenagrionidae). *Journal of Animal Ecology* 21: 206–222.
- Corbet, P.S. 1957. The life-history of the Emperor Dragonfly *Anax imperator* Leach (Odonata: Aeshnidae). *Journal of Animal Ecology* 26: 1–69.
- Corbet, P.S. 1962. A Biology of Dragonflies. H. F. & G. Witherby LTD., London.
- Corbet, P.S. 1999. *Dragonflies: Behavior and Ecology of Odonata*. Cornell University Press, Ithaca, New York.
- DuBois, R.B. 2015. Detection probabilities and sampling rates for Anisoptera exuviae along river banks: influences of bank vegetation type, prior precipitation, and exuviae size. *International Journal of Odonatology* 18(3):


Table 1. Numbers of exuviae collected during four passes along grassy and forested banks of the Middle River, Wisconsin, with population estimates and detection probabilities. Numbers in parentheses indicate standard error (SE).

Taxon	Numbers of exuviae collected				Exuviae population estimate	Detection probability (for one pass)
	Pass 1	Pass 2	Pass 3	Pass 4		
<i>Grassy Bank</i>						
<i>Ophiogomphus</i> (3 species ¹)	11	2	3	2		
<i>Gomphus</i> (2 species ²)	15	6	5	1		
<i>Cordulegaster maculata</i>	0	0	0	1		
Total	26	8	8	4	49 (2.94)	0.49 (0.08)
<i>Forested Bank</i>						
<i>Ophiogomphus</i> (2 species ¹)	1	2	0	0		
<i>Gomphus</i> (2 species ²)	10	4	4	1		
Total	11	6	4	1	23 (1.75)	0.51 (0.11)

¹ *O. carolus* (Riffle Snaketail) and *O. rupinsulensis* (Rusty Snaketail) were both common; one exuvia of *O. colubrinus* (Boreal Snaketail) was collected on the grassy bank.

² *G. adelphus* (Mustached Clubtail) was common and a few *G. lividus* (Ashy Clubtail) were on each bank.

205–215.

- DuBois, R.B., W.A. Smith, and M.S. Berg. 2014. Extended opportunities for collecting Anisoptera exuviae late in the season along rivers. *ARGIA* 26(4): 16–19.
- Gibbs, K.E., B. Bradeen, and D. Boland. 2004. Spatial and temporal segregation among six species of coexisting *Ophiogomphus* (Odonata: Gomphidae) in the Aroostook River, Maine. *Northeastern Naturalist* 11(3): 295–312.
- Hill, C.E. and A.B. Hill. 2008. *Didymops* and *Macromia* go walkabout: long distance crawls by odonate larvae to emergence sites. *ARGIA* 20(3): 16–17.
- Oertli, B. 2008. The use of dragonflies in the assessment and monitoring of aquatic habitats. In Cordoba-Aguilar, A. (ed.). *Dragonflies and Damselflies: Model organisms for ecological and evolutionary research*. Oxford University Press Inc., New York, pp. 79–95 (Chapter 7).
- Raebel, E.M., T. Merckx, P. Riordan, D.W. MacDonald, and D.J. Thompson. 2010. The dragonfly delusion: why it is essential to sample exuviae to avoid biased surveys. *Journal of Insect Conservation* 14: 523–533.
- Suhling, F. and O. Muller. 1996. Die Flußjungfern Europas (Gomphidae). Die Neue Brehm-Bücherei, Westarp, Magdeburg & Spektrum, Heidelberg, 237 pp.
- Worthen, W.B. 2010. Emergence-site selection by the dragonfly *Epithea spinosa* (Hagen). *Southeastern Naturalist* 9(2): 251–258.
- Wright, M. 1946. A description of the nymph of *Sympetrum ambiguum* (Rambur), with habitat notes. *Journal of the Tennessee Academy of Sciences* 21: 135–138. 

First Record of *Stylurus amnicola* (Riverine Clubtail) in Tennessee

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I photographed a single male *Stylurus amnicola* (Riverine Clubtail) along the Wolf River adjacent to the William B. Clark State Natural Area in Rossville, Fayette County, Tennessee on 30 June 2015. The photographs included a dorsal and a lateral view. The clubtail was initially tentatively identified as *Gomphus fraternus* (Midland Clubtail) and submitted to OdonataCentral (OC) as such on 15 July 2015. Steve Krotzer recognized the photographed specimen as *Stylurus amnicola*, and his identification was confirmed by Dennis Paulson. The correctly identified *S. amnicola* photographs were resubmitted to OC on 17 August 2015 (OC#435071). This photograph represents the first documented Tennessee state record for *S. amnicola*. Plans have been made to return to the site in 2016, in the hope of collecting a voucher specimen.

The Riverine Clubtail range includes a spotty distribution from the southern portion of Quebec south along the Atlantic coast to Georgia east to Louisiana and northwest into Nebraska and the southern portion of Manitoba. A majority of records are from North Carolina and from states north of Tennessee.

Needham and Westfall included Riverine Clubtail on the Alabama list in their 1955 manual of the dragonflies of North America. Unfortunately, no specific details have ever been found, nor has a specimen (Tennesen et al., 1995). Mauffray and Beaton (2005) include a single record for Riverine Clubtail in Georgia, from late June 1983 in Houston County just south of Macon. Since 1983, Giff Beaton has visited this site on numerous occasions but has never observed adults or exuviae (G. Beaton, pers. comm.).




Two views of *Stylurus amnicola* (Riverine Clubtail), William B. Clark State Natural Area, Fayette County, Tennessee, 30 June 2015. Photos by Allan Trently.

Occurrences in Louisiana are based on two undated Dot Map records (Donnelly, 2004). Based on the limited information, it is safe to conclude that the range of the Riverine Clubtail south of Tennessee is unknown.

Besides the 1983 Georgia record, the next latest dated record from the southeast is from 1981 in North Carolina, approximately 600 miles (900 km) from the 2015 Tennessee record. From the data available, it can be reliably stated that Riverine Clubtail is rare in the southeast United States. Efforts should be made to revisit the William B. Clark State Natural Area site and other accessible sites along the Wolf River in Tennessee and Mississippi.

Literature Cited

- Donnelly, T.W. 2004. Distribution of North American Odonata. Part I: Aeshnidae, Petaluridae, Gomphidae, Cordulegastridae. *Bulletin of American Odonatology* 7(4):61–90.
- Mauffray, B. and G. Beaton. 2005. The distribution of dragonflies and damselflies (Odonata) in Georgia. *Bulletin of American Odonatology*. 9: 21–66.
- Needham, J.G. and M.J. Westfall, Jr. 1954. *A Manual of the Dragonflies of North America (Anisoptera)*. University of California Press, Berkeley, California. 615 pp.
- Tennessee, K.J., J.D. Harper, and R.S. Krotzer. 1995. The distribution of Odonata in Alabama. *Bulletin of American Odonatology* 3(3): 49–74. 

Tramea onusta (Red Saddlebags) New to Oregon

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Tramea onusta (Red Saddlebags) was a species that I never imagined would be found in Oregon, at least not in my lifetime, but that was before this year. Following an apparent northward push in California earlier in the year, Tony Kurz found two in coastal Del Norte County only about 10 miles south of the Oregon border on 16 July 2015. That was during a time of uncharacteristically warm weather.

That changed everything. After all, how much trouble is 10 easy miles along the beach for a “glider” with a warm tail wind? I immediately thought of a location to check in northern Curry County, Oregon. This was Arizona Beach State Park, which has a nice freshwater wetland only a few hundred feet from the beach and with quick, easy access from Highway 101. Although it’s about 50 miles from the California border (following the coastline), I figured that would be the first place I’d look since I was coming from the north.



Tramea onusta (Red Saddlebags) site in Arizona Beach State Park, Curry County, Oregon, 29 July 2015. Photo by Steve Valley.



Tramea onusta (Red Saddlebags), Curry County, Oregon, 29 July 2015. Photo by Jim Johnson.

On 29 July while on our way to some California locations, Steve Valley and I stopped in at the Arizona Beach wetland and it only took us about a minute to see that *Tramea onusta* was present amongst many *T. lacerata* (Black Saddlebags). I spotted one fly by, and when I yelled at Steve that I saw one, he yelled back, “Me too!” It was difficult to judge how many were present since the whole wetland is not viewable from any one location, but at one point we figured that a minimum of four lone males as well as a tandem pair were there. It seems likely that more were present.

We managed a few identifiable flight shots; I caught one male and Steve caught two. Not only was the dragonflying hot, but it was literally hot with a high temperature of about 100°F (officially 100.9°F in Gold Beach). This is highly unusual for the Oregon coast, even the southern portion, and I imagine it had something to do with *T. onusta* paying us a visit.

The find was exciting, but we decided that we should move on since we had a lot of driving to do in California. We stopped at Arizona Beach again on our way back north on 2 August, but the weather was cool and a bit rainy, so nothing was flying. After alerting others about this discovery, Ron Lyons visited the Arizona Beach wetland on 5 August and saw a tandem pair of *T. onusta*. The appearance of this species in Curry County was only the beginning.

On 3 August, Norm Barrett found two patrolling male *T. onusta* at the Jackson County Motorsports Park near White City. Three males were observed the next day, and sightings were intermittent with one or two individuals at a time through 22 September. This location is about 30 miles north of the California border and not very surprising given the find in Curry County.

The same day they were first found in Jackson County (3 August,) Howard Bruner made a staggering discovery at the Philomath sewage treatment ponds in Benton County—about 175 miles due north of the California border in the central Willamette Valley. Incredibly, Howard found more than 30 individuals of *T. onusta* flying over four settling ponds. This followed a few days of high temperatures over 100°F in Philomath. Additional observations here (by Howard Bruner, Jamie Simmons, Hendrik Herlyn, Oscar Harper, and Dan Nelson) continued through 24 September, which would end up being the latest observation in the state. Counts of 20+ were typical during this period—often including reproductive behavior, although Howard found only a single male on the date.

Tramea onusta was put on the map at another location on 29 August. Ron Lyons photographed a single individual at the New River Area of Critical Environmental Concern in southern coastal Coos County. Previous to that date, Ron had a suspected sighting there on 18 August, and may have photographed one there on 20 August although the photos are inconclusive. This location is not very far north of Arizona Beach (about 30 miles following the coastline),



Tramea onusta (Red Saddlebags), Curry County, Oregon, 29 July 2015. Photo by Jim Johnson.



Tramea onusta (Red Saddlebags) in Oregon, 3 August 2015. Upper: Benton County. Photo by Howard Bruner. Lower: Jackson County. Photo by Norm Barrett.

so I expected Ron would find the species in the area.

I have already mentioned the very warm temperatures coinciding with or preceding some of these observations. I'm no meteorologist or weather watcher, particularly, but I believe these temperature events were due to thermal low pressure troughs extending northward from California into western Oregon. Perhaps these conditions are what brought *T. onusta* into far northern California and ultimately into Oregon. It's something to keep an eye on in the future.

As interesting as where *T. onusta* was found in Oregon during 2015, particularly in Philomath, is where the species was not found. Many people, some already mentioned and others not mentioned, looked for the species at a number of places throughout the western Oregon lowlands including the Rogue, Umpqua, and Willamette valleys (including some locations near Philomath and White City), but none were seen elsewhere. Other observers also kept an eye out for the species on the northern Oregon coast and in the Portland/Vancouver area.

Is it possible that an isolated “flock” (for lack of a better term) of *T. onusta* found its way into the Willamette




Locations of 2015 *Tramea onusta* (Red Saddlebags) records in Oregon and northern California. Adapted from *T. onusta* map at OdonataCentral.

Valley and stayed more or less together at the Philomath sewage treatment ponds? It's hard to imagine that this was the case, but it is suggested by the cluster of so many individuals at Philomath and the lack of additional sightings over a large area. We can never know for sure.



T. onusta (Red Saddlebags), Coos County, Oregon, 29 August 2015. Photo by Ron Lyons.

It will be interesting to see what happens in the years to follow. I suspect that the species is unable to successfully reproduce in the Willamette Valley or on the coast, so I doubt that *T. onusta* will be found emerging either in Philomath or at the coastal locations (I'm happy to be proven wrong). White City has a better chance with its more Mediterranean climate, but only time and continued observation will tell. It may also be years before there's another incursion of the species from the south, but global climate shifts could make that a more frequent event in the future. 

Summary of 2015 *Tramea onusta* (Red Saddlebags) records in Oregon

Location	Date(s)	Observer(s)	OC Submission(s)
Curry Co., Arizona Beach S.P.	29 July	Jim Johnson, Steve Valley	434374
Jackson Co., White City	3 Aug–22 Sep	Norm Barrett	434398, 434453
Benton Co., Philomath sewage treatment ponds	3 Aug–24 Sep	Howard Bruner, Jamie Simmons, Hendrik Herlyn, Oscar Harper, Dan Nelson	434392, 436419, 437032, 438732
Coos Co., New River ACEC	29 Aug	Ron Lyons	435977

Call for Papers for BAO

Bulletin of American Odonatology needs your manuscript submissions to help us keep BAO the vehicle for timely reporting of research on Odonata of the New World. The newest issue was just published in November 2015 (Volume 11, No. 3-4). If you have questions about BAO guidelines, see the last page of this issue of ARGIA or contact Steve Hummel, BAO Editor, at <mshummel@iowatelecom.net>.

Orthemis specimens wanted!

I am looking for specimens of *Orthemis ferruginea* and *Orthemis sulphurata* from Panama. If you have specimens you are willing to loan for examination purposes, please let me know at <jdaigle@nettally.com>. Thank you very much!

Jerrell Daigle

Variation in Cerulean Dancer (*Argia anceps*) in Costa Rica and Arizona


Jim Burns <jbpaztec@aol.com>

When Cerulean Dancer (*Argia anceps*) was first discovered in Arizona in September 2012 in Sycamore Canyon, Santa Cruz County, and the following month in Hot Springs Canyon, Cochise County, I attempted to find and photograph this new-for-North America species, but was too late getting to the first site and could not access the second without four-wheel drive. Cerulean Dancer males were subsequently found in Arizona every year since, but none by me, with my well-documented penchant for being in the right place at the wrong time. Sightings in Arizona have been in June, September, October, and November, but to my knowledge never in July and August, another little mystery to be solved as this Central American species expands northward. Known sites in the U.S. now number nearly a dozen.

This past October I finally stumbled upon four Cerulean Dancer males in Sabino Canyon, Pima County, and I was able to get photographs which I was eager to compare to images I have for Sierra Madre Dancer (*A. lacrimans*) and, more interestingly, Cerulean Dancers that I shot near Turrialba, Costa Rica in August 2014. As suspected, after having seen others' photos of Arizona Cerulean Dancers, my Arizona images showed a couple of noteworthy variations from those I had taken in the drainage ditch near Turrialba (the latter corroborated as *A. anceps* by both Dennis Paulson and Pierre Deviche).

In all the Arizona Cerulean Dancer photos I have seen, including mine, the wings are slightly amber tinted, but not as strongly or obviously as those on the Costa Rica Ceruleans. The most notable difference lies in the amount of black on abdominal segments S5, S6, and S7. On the Arizona Ceruleans the longitudinal stripes on the sides of S7 and the spots of the sides of S5 and S6 do not meet dorsally. On the Costa Rica Ceruleans they do, which gives the latter a closer resemblance to Sierra Madre Dancers than to U.S. Cerulean Dancers.

My photos were not close enough nor at a good angle to show similarities in the shape of the male appendages, but Pierre has an excellent comparison between Sierra Madre and Arizona Ceruleans, appendages included, at <<http://azdragonfly.org/comparison/cerulean-vs-sierra-madre-dancer>>. One other minor difference I've noticed is that the blue on Costa Rica Cerulean and Sierra Madre Dancers seems uniform throughout, whereas the thoracic blue on U.S. Ceruleans seems noticeably darker than the abdominal blue.

In an email conversation with Dennis Paulson about these differences, he said that he is uncertain whether they represent "a cline or just variation in different populations," and he is waiting to see photos of Cerulean Dancer from Panama and study specimens of Ceruleans he has from southern Mexico. In the meantime, odonate enthusiasts in Arizona can only speculate on what this range expansion and physical variation in Cerulean Dancer may have to do with climate change. 



Argia anceps (Cerulean Dancer), male, Pima County, Arizona, October 2015. Photo by Jim Burns.



A. anceps (Cerulean Dancer), male, Turrialba, Costa Rica, August 2014. Photo by Jim Burns.



A. lacrimans (Sierra Madre Dancer), male, Santa Cruz County, Arizona, August 2011. Photo by Jim Burns.

Triacanthagyna trifida (Phantom Darner) in the Florida Panhandle

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Triacanthagyna trifida, Phantom Darner, occurs in the southeastern United States and in the Bahamas and Greater Antilles in the Caribbean (Dunkle, 1989). Abbott (2015) has records of occurrence of *T. trifida* from coastal Louisiana (single record from 2013), coastal Alabama (single record from 2014), coastal Georgia, South Carolina, North Carolina, and Florida. Simpson and Simpson (2005) extended the range of *T. trifida* to coastal Virginia based on a specimens collected in 2002 and 2005. Richardson (2003) has records of nymphs of this species from Jefferson County, Florida and throughout the peninsula of Florida.

Wolfe et al. (1988) defined the Panhandle of Florida as the area from the Ochlockonee River basin in Leon and Wakulla counties on the east to the Escambia River drainage basin in Escambia County on the west. Abbott (2015) has 54 records of *T. trifida* for Florida. One is an adult collected in 2014 from Franklin County east of the Apalachicola River in the Panhandle. The next closest record is from 2005 east of the Panhandle in Jefferson County. Remaining records for Florida are in the northeast and peninsula.

According to Dunkle (1989), *T. trifida* breeds in temporary forest pools, can survive several frosts in its dense forest habitat, is more abundant in wet years, and has a flight season in Florida from July to January. Paulson (2011) gives the habitat as the dense interior of forests and swamps for roosting and seasonally flooded areas for breeding. Richardson (2003) stated the larvae occur in muddy-bottom temporary pools, generally in floodplain or swamp areas.

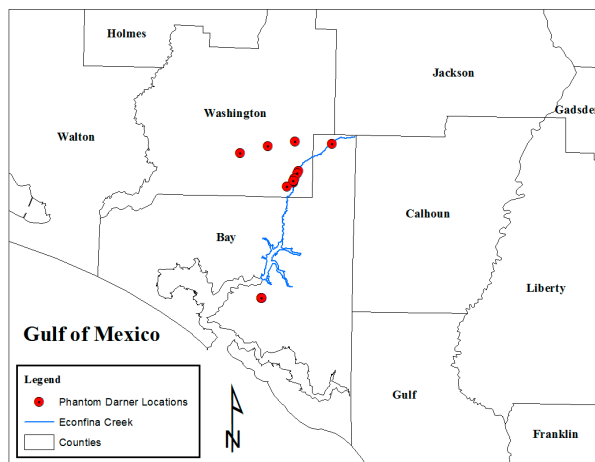


Figure 1. Locations for *T. trifida* (Phantom Darner) in Bay and Washington Counties, Florida.

The authors collected, observed, and/or captured and released *T. trifida* in Bay and Washington counties, Florida in the wet years of 2005, 2012 and 2013. Some specimens of both sexes retained undamaged elongate cerci, but the cerci were damaged or absent in others; Dunkle (2000) stated the ribbon-like cerci of females eventually break off. Eye color of females observed or collected ranged from green to brown, and eye color in male specimens observed or collected ranged from green to blue. Dunkle (2000) stated the eye color of juvenile females is green becoming brown with age, and the eye color of males is green becoming deep blue with age. Based on these criteria, we collected and observed specimens of both mature and juvenile *T. trifida*.

Bay County Records

T. trifida was collected and/or observed at two locations in Bay County, Florida (Figure 1). On 8–10 October 2005, it was observed and collected in the backyard of the Keppner residence in Panama City. The identification of the specimens as *T. trifida* was confirmed by Mr. Jerrell Daigle, and it was suggested that this occurrence was a vagrant. The property contains a freshwater pond and is bordered by a small stream within a closed canopy forest.

The 2005 collection was forgotten until 2012, when a number of *T. trifida* were present in the same backyard from 25 September through 18 October 2012. On 2 September 2013, *T. trifida* was collected again in the same backyard. From 1 October 2013 through 15 November 2013, they were observed on the Keppner property at dusk and/or dawn and on adjacent properties on 35 of the 47 days of observation. We did not observe any specimens from 16–30 November 2013, after which we stopped looking for them. Numbers ranged from one to six observed during each period of observation, and a specimen was periodically collected. *T. trifida* was observed by Himes on 29 September 2013 along the Florida Trail in dense forest along Econfina Creek off Scotts Ferry Road in Bay County. From 1 September to 15 November in both 2014 and 2015, the Keppner yard was searched for *T. trifida* at dusk and sometimes at dawn, but the species was not observed.

Washington County Records

Specimens were collected, collected and released, or observed at 11 locations in Washington County from 17 September through 17 October 2013. The locations were

at a sandhill pond (Little River Pond) in hardwood forest, in hardwood forest along two seepage streams (Daniels Lake seepage stream and a seepage stream in Sunny Hills, Florida), and in hardwood forest at eight locations along Econfina Creek in southeastern Washington County (Figure 1). *T. trifida* were particularly abundant in the hardwood forest along the Florida Trail paralleling Econfina Creek south of Walsingham Bridge in Washington County on 28 September and 5 October 2013 but were not observed north of the bridge (Figure 2).

In one four-hour period walking the Florida Trail south of Walsingham Bridge on 5 October 2013, four specimens were collected; 13 additional specimens were captured and released, and an uncounted number were observed along the trail. Individuals were seen hanging from twigs on shrubs; when disturbed, they would fly from one twig to another a short distance away. All specimens are in the collection of Ed Keppner.

All previous locations for *T. trifida* in Bay and Washington counties were revisited during September and October of 2014, and the Keppner yard was searched in the evenings during September and October 2015. However, none were observed in either year. We do not have an explanation for the periodic occurrence of *T. trifida* in the Panhandle of Florida. One could speculate that the species is breeding in the Panhandle. Thus, we attempted to collect nymphs in what appeared to be temporarily inundated pools in the floodplain and along seepage streams running downslope to the floodplain of Econfina Creek in 2013 and 2014, but without success. One could investigate the possibility that they are breeding in vernal pools as described for the Swamp Darner (*Epiaeschna heros*) by Boose (2014), but this remains to be done.

Acknowledgements

We thank my wife Lisa Keppner for her assistance in collecting and observing specimens during the survey.

Literature Cited

Abbott, J.C. 2015. OdonataCentral: An online resource for the distribution and identification of Odonata. Texas Natural Science Center. The University of Texas at Austin <<http://www.odonatacentral.org>>.

Boose, A.E. 2014. *Epiaeschna heros* (Swamp Darner) and survivorship during dry periods in vernal pools. ARGIA 26(1): 35–37.

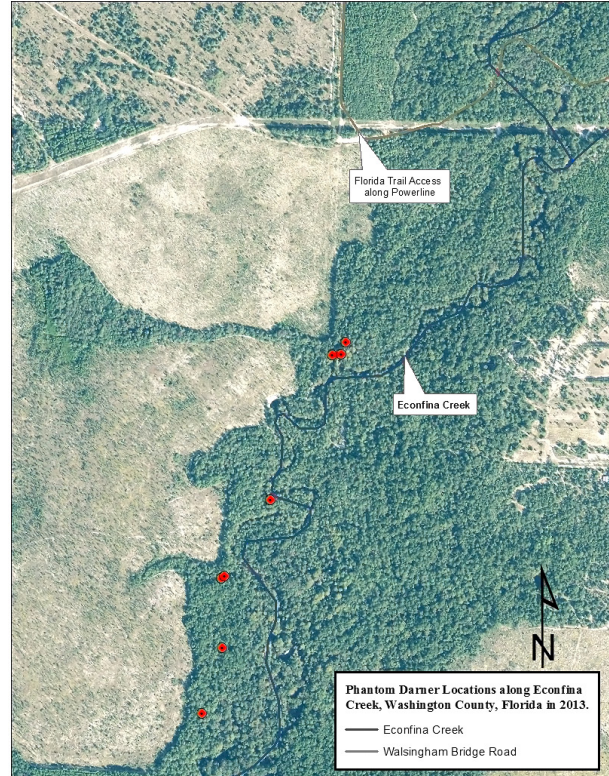


Figure 2. Locations for *T. trifida* (Phantom Darner) along Econfina Creek, Washington County, Florida.

Dunkel, S.W. 1989. Dragonflies of the Florida Peninsula, Bermuda, and Bahamas. Nature Guide, Scientific Publishers, Gainesville, Florida. 155 pp.

Dunkle, S.W. 2000. Dragonflies through binoculars.: field guide to dragonflies of North America. Oxford University Press, New York, New York. 266 pp.

Paulson, D. 2011. Damselflies and dragonflies of the East. Princeton University Press, Princeton, New Jersey. 538 pp.

Richardson, J. 2003. Identification manual for dragonfly larvae (Anisoptera) of Florida. Florida Department of Environmental Protection, Division of Resource Assessment and Management, Biology Section, Bureau of Laboratories, Tallahassee, Florida. 114 pp.

Simpson, R.C. and R.A. Simpson. 2005. The Phantom Darner, *Triacanthagyna trifida*, a dragonfly new to Virginia. Banisteria 26: 17.

Wolfe, S.H., J.A. Reidenauer, and D.B. Means. 1988. An ecological characterization of the Florida Panhandle. Technical Report, Department of the Interior, Washington, D.C.



U.S. Open Dragonflies

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My wife Betsy and I don't play golf, but we do like to watch it on TV. It's a pleasant sport to view, with nice scenery, occasional wildlife (including dragonflies), and polite spectators. So, when we heard that the 2015 U.S. Open would be held near us, at Chambers Bay just south of Seattle, Washington, we decided to attend and see our first golf tournament in person.

Chambers Bay is a large golf course; in fact we logged over six miles of walking the day we were there, and only covered about half of the course. The course is in the "links golf" style; that is, quite dry and barren, as can be seen in Figure 1. There is only a single tree on the entire course.



Figure 1. The 18th hole at Chambers Bay golf course, site of the 2015 U.S. Open. Puget Sound is in the background.



Figure 2. A Blue-eyed Darner (*Rhionaeschna multicolor*) in flight.

Given the aridity of the place, we were surprised when we started to see dragonflies on the course. First we saw some Blue-eyed Darners (*Rhionaeschna multicolor*) patrolling back and forth, as in Figure 2. Later, we saw a Cardinal Meadowhawk (*Sympetrum illotum*) perched near a practice area, as in Figure 3. Shortly after that we saw a couple of pairs in tandem (Figure 4), so we knew there had to be water around somewhere. A little searching turned up a pond that wasn't part of the course and was fenced off from the public, but still quite accessible to the dragonflies.

What was most interesting about the dragonflies at the U.S. Open is that one of them actually interrupted play at one point. This was the first time we had seen play paused for a dragonfly. The player affected was Dustin Johnson,

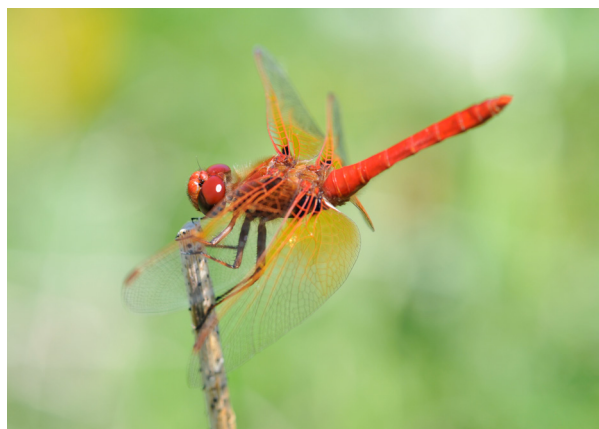


Figure 3. Cardinal Meadowhawk (*Sympetrum illotum*), perched and on the lookout.



Figure 4. Cardinal Meadowhawks ovipositing in tandem.


who finished second in the competition. Here's what happened: on the ninth green, a Blue-eyed Darner (*R. multicolor*) was patrolling back and forth, using the flag in the hole as a convenient landmark for his "territory". When Johnson approached the hole to plan his putt, he suddenly noticed this large dragonfly right in front of him at eye level. It startled him, and he stopped, backed away from the hole, and turned to say something to his caddy. The caddy then grabbed a towel, held it out as far as he could at arm's length, and twirled it around and around several times until he got the darner to leave the area. Johnson was then able to continue with his putt.

It was funny to see the reaction the dragonfly produced. After all, the Blue-eyed Darner is a friendly insect that wouldn't hurt a fly—well, okay, it would hurt a fly, but



Figure 5. A Blue-eyed Darner (*R. multicolor*) happily sits in-hand.

not a person. Figure 6 shows a young girl holding a Blue-eyed Darner on one of my field trips, and she wasn't afraid of it at all.

Unfortunately, dragonflies get a bad rap in western cultures, though if this same thing had happened in Japan it probably would have been seen as a sign of good luck for the golfer! 

St. Croix Cruising!

Jerrell J. Daigle <jdaigle@netally.com>

While Fred and Peggy Sibley surveyed the British Virgin Islands (ARGIA 14:1) and Nick Donnelly did the same for St. John and St. Thomas (ARGIA 14:1), no one has ever done a survey for the island of St. Croix in the U.S. Virgin Islands. Recently, George and Phoebe Harp and I decided to do something about that, and also to celebrate their 50th wedding anniversary. Congratulations!

We stayed at the sheltered Chenay Bay Beach Resort east of Christiansted. It has many self-sufficient cottages, a bar and restaurant, and nice sandy beach. We radiated out from here looking for ponds and freshwater canals for dragonflies. Other days, we did the tourist thing and went shopping or on tours to botanical gardens and rum factories.

The nearby pond at the Southgate Planation Condominiums was the best place, as we got six of the total 12 species for the trip, and all of them new species for St. Croix. This pond and others like it were low, as St. Croix is in the middle of the worst drought in 30–50 years. Horses and deer have eaten all the shoreline vegetation and the banks were muddy. Most of the terrestrial vegetation was acacia, thornbush, mahogany, and mangroves. The drought did not affect the wildlife, as we saw lots of butterflies, hind



Survey pond in St. Croix.

Extra DSA Buttons available!

I have extra buttons from previous DSA annual meetings. If you are missing any or need one, please contact me at <jdaigle@netally.com>. Thank you very much!!

Jerrell Daigle



Jerrell Daigle (R) with George and Phoebe Harp.

deer, terrestrial hermit crabs, iguanas, Jamaican fruit bats, and white-crowned pigeons.

At the end of the trip, we attempted to reach the northwest part of the island where there were a couple of 1,000 foot rainforest mountains and streams. Before we got there, we saw a gorgeous freshwater canal north of Frederiksted. It was loaded with dragonflies and we spent the day there. Here, we saw a mysterious wary golden dragonfly. It took a while, but I finally got it! It was *Perithemis domitia* (Slough Amberwing).


Needless to say, we did not get to the mountains and that will have to be another trip. Already, I am looking into places to stay along the beach near the mountains. If anyone is interested in going next year, please let me know.

An annotated species list is presented below. The lone *Miathyria marcella* (Hyacinth Glider) male caught at the Buccaneer Golf Course at hole #9 is the first record of this species for the U.S. Virgin Islands.

Acknowledgements

I wish to thank Diane L. Freas-Lutz and Olasee Davis of the University of the Virgin Islands for their help for greasing the skids and in locating freshwater habitats.

Species List for St. Croix, September 2015

Lestes forficula (Rainpool Spreadwing), rare
Ischnura ramburii (Rambur's Forktail), abundant
Brachymesia herbida (Tawny Pennant), a few
Erythemis vesiculosa (Great Pondhawk), common
Erythrodiplax berenice (Seaside Dragonlet)= common
E. umbrata (Band-Winged Dragonlet), a few
Miathyria marcella (Hyaconth Glider), 1 male, new for the
US Virgin Islands
Orthemis macrostigma, 1 male at resort laundromat over
flow ditch
O. schmidti = common
Perithemis domitia (Slough Amberwing), rare
Tramea abdominalis (Vermilion Saddlebags), abundant
Pantala flavescens (Wandering Glider), 1 teneral male, the
only one of this widespread and common dragonfly.
seen. Go figure! 

A Splash-Dunk Derby at Beaver Pond

James S. Walker, Anacortes, Washington <jswphys@aol.com>

One of my favorite places to dragonfly is the aptly named Beaver Pond in Winthrop, Washington. Located just down the hill from the spectacular Sun Mountain Lodge, it contains a wealth of wildlife, including beavers, an osprey nest, lots of warblers, rafts of waterfowl, stands of Ponderosa pines and—of course—flights of dragonflies.

My wife Betsy and I visited Beaver Pond early in August 2015 and enjoyed a surprisingly active day of dragonfly behavior. There weren't many species present that day—one darter, one meadowhawk, and three damselflies—but the intensity of the splash-dunk behavior was amazing. This article reports on our observations.

Observing from the Footbridge

When you walk to Beaver Pond from the parking lot, the first thing you encounter is a sturdy wooden footbridge across the end of the pond (Figure 1). The bridge is a perfect viewing platform for dragonfly behavior, and the observations reported here were all obtained at that location.

There were generally about 10 or 12 Paddle-tailed Darters (*Aeshna palmata*) flying low over the water in this area at any given time. They hover frequently (Figure 2), but they also swoop low over the water to catch small flies and chase rivals. Some disappear into the bushes to perch, while others return to the pond refreshed, resulting in an active, constantly changing population.

Contact Information for ARGIA's Editor Has Changed!

Note that my contact information has changed. Henceforth all submissions and inquiries should be sent to <cmazzacano@gmail.com>. My previous e-mail address will be dunfunt as of 1 January 2016, and I will not see any messages sent to that account.

Please update your contacts accordingly. Thanks!

Celeste A. Searles Mazzacano,
Editor in Chief

As soon as we arrived at the bridge, we began to see splash-dunk events involving the darners. When we see this kind of activity, we always call out loud, "One, two, three ..." as the splash-dunks progress, and then we look for, and generally see, the spin-dry (Walker, 2011a) at the end of the event. Observing from the bridge is particularly beneficial for this kind of observation, because it puts the observer at eye level with the spin-dry. We generally had great views of the dragonfly curled up and spinning, and we could usually see the droplets of water spraying off in all directions.

After the spin-dry, we record the number of splash-dunks of that event, which ranged from one to six on this day. In most cases we've observed over the years, there wouldn't be another splash-dunk event for several minutes. In fact, at



Figure 1. Beaver Pond and the footbridge that served as a viewing platform.

Cranberry Lake in Anacortes, Washington, a good day of splash-dunking results in one event every 10 minutes, and a really good day has one event every five minutes. On this day at Beaver Pond, a new event started up as soon as we had written down the results of the previous event. It was almost nonstop splash-dunking for a while. At the peak of the activity, there was roughly one splash-dunk event every 12–15 seconds, and a couple of times there were two splash-dunk events going on simultaneously—something we hadn’t experienced before.

One of the other things we noticed about the splash-dunk events at Beaver Pond is that they generally involved a larger number of splash-dunks than is usual. Typically, we see more single splash-dunk events than any others, but here most of the events had three or four splash-dunks. A plot of the results of the splash-dunking for period of about 10 minutes is shown in Figure 3. Notice the peak corresponding to 3 and 4 splash-dunks.

This distribution is quite different from that seen over the years at Cranberry Lake (Walker, 2011b, 2014), where we’ve observed roughly 500 events. These observations have produced a distribution of splash-dunk numbers that has its largest value at one splash-dunk, and decreases by roughly one half with each additional splash-dunk. Further observation will reveal if the distribution seen at Beaver Pond is simply a fluctuation due to the small number (20) of events observed (quite likely), or an indication of distinctly different behavior at that location.

Interactions during Splash-Dunking

Another interesting aspect of the splash-dunk derby at Beaver Pond is that lots of interactions were observed between splash-dunking dragonflies and others in the vicinity. Usually, splash-dunks are so separated in time and space that no interactions take place. In this case, however, all the events occurred in a confined area, and in rapid succession. Thus, it was common for a dragonfly to splash-dunk once or twice, and then to be intercepted by another dragonfly that would grab it as it tried to fly up from the water. They would struggle briefly before separating. It may be that the intercepting dragonflies (males) were checking the splash-dunking dragonflies to see if they were females. It seemed like many of the splash-dunk events would have continued to more splash-dunks if they hadn’t been interrupted.

In addition, we saw several females engage in splash-dunking, which is unusual; most splash-dunks are performed by males, because they spend the majority of their time patrolling over open water. When a female would start a series of splash-dunks at Beaver Pond, a male would



Figure 2. A male Paddle-tailed Darner (*Aeshna palmata*) hovers as it protects its territory.

quickly intercept her and attach in tandem. To see this behavior happen several times in just a few minutes was unprecedented.

Unusual Conditions at Beaver Pond

It’s natural to ask why the splash-dunk activity was so intense on this particular day. There’s no way to know for sure; it may be simply a convergence of circumstances that combine many of the necessary conditions for splash-dunk behavior.

For example, we have good evidence that splash-dunking serves to clean the body (Walker, 2013). In one notable case, we watched as a darner with a spider web trailing from its abdomen initiated a series of splash-dunks. After the first two splash-dunks the web was still attached, but after the third the web was no longer visible. The darner then gained altitude and did a spin-dry. Thus, conditions that might give a dragonfly the urge to clean itself may

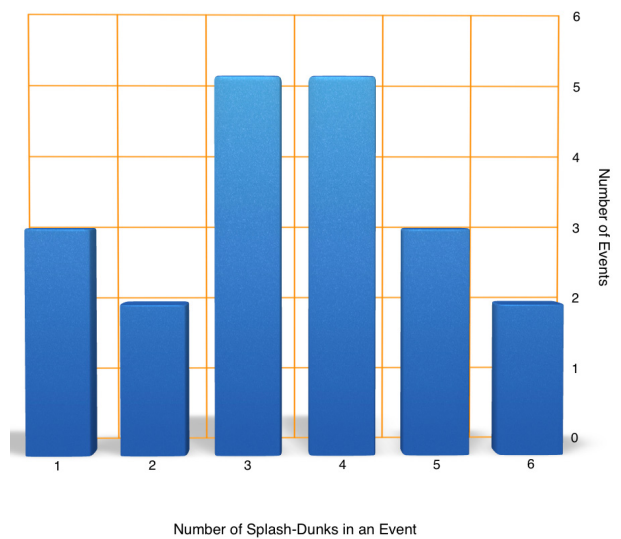


Figure 3. Number of events observed at Beaver Pond, with splash-dunks ranging from one to six.

produce more splash-dunking, as may a mass emergence of a species that is particularly prone to splash-dunking.

On this day there was one unusual condition that deserves mention, and was apparent to us the minute we stepped out of the car. Our visit occurred when forest fires were raging nearby, and forced evacuations of Sun Mountain Lodge a few days after our visit. As we exited the car we noticed a strong odor of smoke, and saw a distinct haze in the air. One can only speculate whether the suspended particulates in the smoke might have induced a desire to splash-dunk to clean the body and clear the spiracles. At the moment, it's just an isolated observation, and there may be nothing to it, but it's something to consider.

Acknowledgements

I would like to thank Betsy Walker for help with these observations.

Literature Cited


- Walker, J.S. 2011a. Spin-dry dragonflies. *ARGIA* 23(3): 29–31.
- Walker, J.S. 2011b. Splash-dunk analysis, 2011. *ARGIA* 23(4): 29–30.
- Walker, J.S. 2013. The strange case of the constipated darter. *ARGIA* 25(3): 29–30.
- Walker, J.S. 2014. Splash-dunk analysis for 2011–2014. *ARGIA* 26(4): 32–33. 

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Please send photos to <cmazzacano@gmail.com> as e-mail attachments (up to 15 Mb), via a file transfer service, or in GoogleDrive, **NOT in the body of an e-mail or Word document!** Photos may be used in later issues, but will never be used for other purposes than ARGIA. Please include date, location (state and county at minimum), and photographer's name for each photograph.

Odonata in the News

Odonata in the News is compiled by the Editor. Please feel free to send me alerts about any noteworthy odonate-related items including news stories, popular articles, and scientific publications at <cmazzacano@gmail.com>. A sampling of recent newsworthy Odonata includes:

Pryke, J.S., M.J. Samways, and K. De Saeleer, A. 2015. An ecological network is as good as a major protected area for conserving dragonflies. *Biological Conservation* 191: 537–545. Freshwaters are highly threatened ecosystems, with agro-forestry being a major threat to sub-tropical wetlands. In the Maputaland–Pondoland–Albany global biodiversity hotspot of South Africa, large-scale ecological networks (ENs) of remnant vegetation have been set aside with the aim of mitigating the adverse effects of plantation forestry. However, the effectiveness of these ENs for maintaining freshwater biodiversity, especially that of still waters, is poorly known. In response, we compare mud wallows of large mammals, ponds and small marshes in an EN with those in an adjacent World Heritage Site protected area (PA) as reference. For this comparison we used

dragonfly adults in view of their effectiveness as bioindicators. A total of 47 species was recorded at 105 sites. The EN shared 74% of its species with the PA. However, equal numbers of range restricted species were recorded from the EN and the PA. Five species were recorded as particular to the EN and seven to the PA, probably due to habitat heterogeneity across this type of landscape. Pond size, habitat heterogeneity, elevation and dissolved oxygen were important determinants for species richness and diversity. Proximity of plantation trees had only a minor effect, and then only on species composition. Mud wallows were the poorest habitat in terms of dragonfly diversity, owing to the intense disturbance. Wallows, ponds and marshes were largely complementary in their species composition. Overall, the freshwater system in the EN was a good surrogate for that in the PA, indicating the effectiveness of these ENs for maintaining the dragonfly assemblage.

DuBois, R.B. 2015. Detection probabilities and sampling rates for Anisoptera exuviae along river banks: influences of bank vegetation type, prior precipitation, and exuviae

size. *International Journal of Odonatology* 18(3): 205–215. Exuviae collections have considerable value in population studies of Odonata, but methods for standardizing collections or estimating densities and detection probabilities have been little studied. I measured sampling rates for Anisoptera exuviae and used a maximum likelihood, four-pass, depletion population estimator to standardize collections and to estimate exuvial densities and detection probabilities along 10 riverbank stations in Wisconsin. First-pass sampling rates averaged slower than the overall average for experienced collectors (0.53 m min⁻¹ compared to 0.90 m min⁻¹) because more exuviae were present on the first pass, increasing picking and handling time. Neither bank vegetation type (grassy versus forested) nor amount of prior precipitation affected sampling rate. Exuviae detection probabilities for a single pass ranged from 0.49 to 0.75, and averaged 0.64. The mean cumulative probability of detection increased to 0.87 after two passes, 0.95 after three passes, and 0.98 after four passes. A strong negative relationship existed between detectability and the amount of prior precipitation. Bank vegetation type did not affect detection probability. Smaller exuviae had an 8% lower probability of detection than larger exuviae. If four sampling passes are cost-prohibitive for some exuviae studies, making just two passes may provide an adequate estimate of sampling efficiency. The assumption that exhaustive collecting efforts will find all or most of the exuviae along vegetated natural banks is unfounded.

Cuevas-Yáñez K., Rivas M., Muñoz J. and A. Córdoba-Aguilar. 2015. Conservation status assessment of *Paraphlebia* damselflies in Mexico. *Insect Conservation and Diversity* 8(6): 517–524. We assessed the conservation status of the three Mexican *Paraphlebia* damselflies based on the criterion B of the Red List of the International Union for Conservation of Nature's (IUCN): *P. hyalina*, *P. quinta*, and *P. zoe*. According to this List, *P. hyalina* has not been evaluated, *P. quinta* appears as least concern, and *P. zoe* appears as Vulnerable. Geographical records were taken from literature, enquiries to specialists and field visits. We also projected the future potential geographical range area. We generated species distribution models (SDM) for *P. quinta* and *P. zoe* (as there were not enough records for *P. hyalina*) as a surrogate of the extension of occurrence (EOO) and also calculated the area of occupancy. Future distributions were projected for years 2020, 2050, and 2080, based on predicted changes in climatic conditions. Species distribution models predicted current EOO areas for *P. quinta* and *P. zoe* as 18,860 and 16,440 km², respectively, and around 50% of their distribution coincides with agricultural, pasture or urban sites. Our SDM results indicate that IUCN-based conservation status of the three species should be changed as follows: *P. quinta* and *P. zoe* moved to endangered category, and *P. hyalina* to

data-deficient category based on the reduced EOO areas and the historical loss of habitat. For *P. quinta*, future climatic projections suggest an initial reduction (2020) followed by an expansion (2050 and 2080) in suitable areas, whereas for *P. zoe* there will be a decrease in predicted area for the three time periods. Preserving areas that provide shade, high humidity and perching sites seems to be a key for *Paraphlebia* species survival.

Barbosa de Oliveira-Junior, J.M., Y. Shimano, T.A. Gardner, R.M. Hughes, P. de Marco Jr., and L. Juen. 2015. Neotropical dragonflies (Insecta: Odonata) as indicators of ecological condition of small streams in the eastern Amazon. *Austral Ecology* 40(6): 733–744. Sensitive and cost-effective indicators of aquatic ecosystem condition in Amazon streams are necessary to assess the effects of anthropogenic disturbances on those systems in a viable and ecologically meaningful manner. We conducted the present study in the municipality of Paragominas, state of Pará, northern Brazil, where we sampled adult dragonflies in fifty 100 m long wadeable stream sites in 2011. We collected 1769 specimens represented by 11 families, 41 genera and 97 species. The suborder Zygoptera contributed 961 individuals and Anisoptera 808. Among the 97 recorded species, nine were classified as useful indicators of ecological condition, with four species being associated with more degraded streams (three Anisoptera, one Zygoptera) and five with more preserved streams (all were Zygoptera). Anisoptera (dragonflies) tend to provide more useful indicators of more degraded environments because they have more efficient homeostatic mechanisms and are more mobile, enabling them to tolerate a wider range of environmental conditions. By contrast, Zygoptera (damselflies) tend to provide a more useful role as indicators of more preserved environments and high levels of environmental heterogeneity because of their smaller body sizes and home ranges and greater ecophysiological restrictions. We conclude from our assessment of this low-order Amazonian stream system that (i) the occurrence of specific odonate species is strongly associated with the configuration of riparian vegetation, (ii) agricultural activities appear to be the main factor determining changes in the composition of odonate assemblages and (iii) these insects can act as useful indicators of the ecological consequences of riparian habitat loss and disturbance. Because generalist species invade moderately degraded areas, those areas may have high species richness but host few species of Zygoptera. Therefore, preserving dense riparian vegetation is necessary to maintain aquatic ecological condition, and that condition can be rehabilitated by planting new trees. Both require enforcing existing environmental regulations, various types of incentives and educating local communities.

Tichanek, F. and R. Tropek. 2015. Conservation value of post-mining headwaters: drainage channels at a lignite spoil heap harbour threatened stream dragonflies. *Journal of Insect Conservation* 19(5): 975–985. Headwaters and small streams are crucial components of riverine systems, harbouring many highly specialized and unique invertebrate species. Unfortunately, the overwhelming majority of the Central European lowland headwaters are channelized, eutrophicated and/or polluted, and many related species have become critically endangered. Artificial streams established to drain some post-mining sites supplement a network of headwaters and generally do not suffer from agricultural pollution. Nevertheless, the biodiversity and conservation potential of the streams at post-mining sites has never been evaluated. We studied the biodiversity of dragonflies and damselflies (Odonata) at 53 sections (30 m) of an extraordinarily dense system of drainage ditches at a large lignite spoil heap in the Czech Republic. We recorded 22 dragonfly species, of which eight are threatened according to the national Red List. Moreover, four of them are closely associated with the endangered environment of small streams. Overall diversity was generally low at very tiny and/or narrowed streams and was also strongly reduced by high water velocity, high bankside inclination and dominance of expansive common reeds. Sufficient cover of rather shallow sediment layers strongly supports the studied diversity indicators. We thus conclude that post-mining streams in drainage ditches could have a strong potential to offer secondary habitats for threatened headwater biodiversity. However, intermittent reed suppression and the establishment of gently sloping banks and a structured stream bottom are necessary measures for maximizing post-mining stream conservation.


Bried, J.T., N.E. McIntyre, A.R. Dzialowski, and C.A. Davis. 2015. Resident-immigrant dichotomy matters for classifying wetland site groups and metacommunities. *Freshwater Biology* 60(11): 2248–2260. The fact that species have resident (autochthonous) or immigrant (allochthonous) status at any given locality may have strong implications for ecological analysis. We used wetlands and adult odonates as a model system to evaluate the resident-immigrant dichotomy for two modes of community analysis: (1) grouping sites based on species compositional variation and (2) identifying metacommunity structure. We tested a hypothesis of gradient-structured (non-random) resident occurrence versus unstructured (random) immigrant occurrence in the metacommunity context and predicted the resident occurrence would more effectively partition community variation and produce stronger site groupings than total (resident + immigrant) occurrence. Site group classification after fractioning out resident occurrence consistently and in some cases dramatically outperformed total occurrence. Resident dam-

selfies produced the strongest classifications, which we attribute to greater dispersal limitation, environmental sorting or both. As predicted only the resident occurrence led to identifiable metacommunity structures, primarily Clementsian-style turnover. This suggests the resident occurrence is gradient-driven with species responding similarly to abiotic filters, whereas immigrant occurrence is more opportunistic and random. The resident-immigrant dichotomy appears to have strong influence on quantitative classification of sites and metacommunities, and species composition of resident adult damselflies is potentially useful for differentiating and indicating site groups of non-forested freshwater wetlands.

Šigutová H., M. Šigut, and A. Dolný 2015. Intensive fish ponds as ecological traps for dragonflies: an imminent threat to the endangered species *Sympetrum depressiusculum* (Odonata: Libellulidae). *Journal of Insect Conservation* 19(5): 961-974. The concept of ecological traps, in which animals settle in low-quality habitats, is well-established. Dragonflies are a good model for investigating the effects of ecological traps because their habitat selection process can be directly observed. Unfortunately, most such studies focus on oviposition on artificial materials, such as car surfaces, gravestones, and plastic foils, which results in complete mortality of the clutch. It remains unclear to what extent intensive fish ponds, ubiquitous in the European agricultural landscape, act as ecological traps for some dragonfly species and how they influence their vulnerability. We investigated the effects of putative ecological traps on the threatened dragonfly *Sympetrum depressiusculum* and the common closely related species *S. sanguineum* in a Central European agricultural landscape. Observations of adult behavior were used to parameterize GLMs examining the attractiveness of five fish ponds (three fish breeding and two intensive) to each species. We also counted exuviae at each pond as a measure of each species' survival. We used GLMMs to determine which factors affected selection of oviposition sites and the environmental factors resulting in ecological traps for each species. All five ponds were attractive to ovipositing pairs of both species, although they were largely unsuitable for subsequent development (four for *S. depressiusculum* and two for *S. sanguineum*). Our results provide evidence that intensive fish ponds act as ecological traps for both species. We believe that cutting of the vegetation surrounding trap habitats could be an effective way to decrease their attractiveness to a wide range of dragonfly species.

Dijkstra K.-D.B., J. Kipping, and N. Mézière. 2015. Sixty new dragonfly and damselfly species from Africa (Odonata). *Odonatologica* 44(4): 447-678. Just one fifth of the nine million species of animal, plant, fungus and protist thought to inhabit our planet are known. Drag-

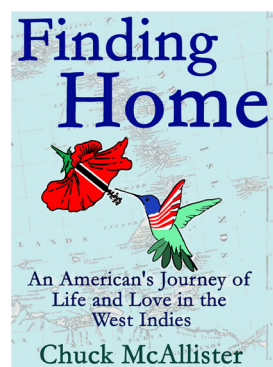
onflies and damselflies are regarded as well-known, however. Nevertheless we describe 60 new species, the most to be named at once in 130 years, adding one to every 12 species known in Africa. Each species is colourful and can often be recognised even from a photograph, showing that not all unknown life is indistinct and concealed. The species' beauty and sensitivity can raise awareness for the densest and most threatened biodiversity: freshwater covers less than 1% of Earth's surface, but harbours 10% of

animal species, of which a third may be at risk of extinction. Most of them, like dragonflies, are insects. They are popular indicators of habitat value and quality, but without a name cannot be added to the IUCN Red List. As habitats are rapidly disappearing, more exploratory and descriptive research is needed, support for which has waned. Nature, natural historians and the archives of life they build together are all under threat: our 60 new species are thus as much an act of desperation as urgency. 

New E-Book Announcements: *Finding Home*, by Chuck McAllister; and *The Naming of Australian Dragonflies*, by Ian Endersby and Heinrich Fliedner

Finding Home: An American's Journey of Life and Love in the West Indies, by Chuck McAllister. ASIN: B017ZLEP6Q. 303 pp / 2327 KB e-book. \$2.99 at all e-book outlets.

Join entomologist Chuck McAllister (author of *Paradise: Solo Across New Guinea*)




in his latest e-book, *Finding Home: a Tale of Life and Love in the West Indies*, wherein he tells the tale of his quest for a new life, a little adventure, and even some dragonflies, as a transplanted American boy amidst the colorful chaos of Trinidad in the 1980s.

The Naming of Australian Dragonflies, by Ian Endersby and Heinrich Fliedner, 293 pp. This new publication comprises the etymology of each of the genus-group and species-group names of the Australian Odonata, includ-

ing homonyms and synonyms, 544 taxa in all. It also includes short biographies of each of the 40 authors who named an Australian taxon. It will not be distributed commercially but is available from Ian Endersby in hard copy or PDF. The PDF has also been posted on ResearchGate. Contact Ian at <endersby@mira.net> with a mail-



ing address for a hard copy or an email address for the PDF (about 3MB). There is no charge for either medium. 

Odonates Are All Over Facebook!

The number of odonate-specific Facebook Groups continues to grow. In addition to the DSA Facebook page, you can connect with fellow ode enthusiasts via multiple Facebook groups with varying regional coverages. Pages for groups in US regions include Western Odonata, Northeast Odonata, Southeastern Odes, Minnesota Dragonfly Society, Odonata Ohio, Odonata of the Eastern United States, and Wisconsin Dragonfly Society, while the Migratory Dragonfly Partnership Facebook page addresses species that are migrants throughout North America. Venturing further afield, *Dragonflies and Damselflies of the Neotropics* covers species from from Mexico through Central and South America and the Antilles, and the British Dragonfly Society deals, of course, with species of the United Kingdom. Another Facebook group simply called *Dragonflies* has world-wide coverage, and *Dragonflies & Damselflies* is also open to anyone, anywhere, who is interested in odes. To find these groups, just type the name into the search bar at the top of your Facebook page. The photos are lovely and the discussions are lively!

How I Fell Into the Clutches of the Odonata

This feature presents essays from DSA members describing how, when, where, and why they first became interested in Odonata. It also doubles as a fun way for members to find out a little more about each other. If you would like to contribute, write a short essay describing your first forays into the world of Odonata and how it has affected your life since, including your most interesting ode-hunting tale, and send it to the Editor at <cmazzacano@gmail.com>. Accompanying pictures to illustrate the tale are encouraged. Whether you just discovered odonates this spring or have pursued them for decades, I know there are plenty of interesting, entertaining, and inspiring stories out there to be told!

In this installment, Steven Daniel describes how, with a little help from Nick Donnelly and a whole lot of net swinging, he finally fell prey to ode fever during his own personal Big Year.

The Ode Bug: Really Caught in 2015, by Steven Daniel <natdisc@gmail.com>

Although I've been casually watching and photographing odes over the years (I even went on a 2002 DSA trip to Tug Hill in upstate New York), I was never too serious about it. That is, until this year, when I fell into the clutches of the Odonata!

This past April I decided to make a concerted effort to learn what odes were flying around me. The time was right. I had a little-used net, a decent camera, and a few field guides. We had recently built a cabin in the western Adirondack foothills, and were spending good chunks of time there. The North Country of New York had already captivated me with its fabulous diversity of habitats, plants and leps. But the odes were now calling.

In the first week of May, we were on a gravel road near Grass Lake, near the border of St. Lawrence and Jefferson Counties. The odes were swarming, but not landing, and it was clear that I was not going to get pictures without catching them. And so began the comedy routine of learning to swing a net successfully. I managed to catch a few and get pics, which I sent to Nick Donnelly for confirmation. Nick confirmed teneral American Emeralds (*Cordulia shurtleffii*) and Beaverpond Baskettail (*Epithecacanis*). I was pumped: the season had begun.

More and more odes were flying as May progressed, and I'd send pics to Nick whenever I was uncertain. Nick was so generous with info, and very encouraging. Sometimes when the photo wasn't definitive, he would gently sug-



Arigomphus cornutus (Horned Clubtail), 21 May 2015. Photo by Steven Daniel.

gest that I collect. Having worked with botany collections (herbaria) I knew how important physical collections are, and how sight records and even photos can sometimes be suspect. I was aware that mis-identifications are rampant, even in collections. By the end of the month I decided I would collect vouchers, and create a reference collection.

It became immediately clear how valuable the actual specimens were for learning. Being able to really study the hamules under a dissecting scope, for example, was extremely helpful. Each of the main field guides I was using (Paulson's Dragonflies and Damselflies of the East, Lam's Damselflies of the Northeast, and Jones et. al. Dragonflies and Damselflies of Algonquin Park) illustrated fine details that were much better suited to leisurely study under a scope than simply observing in hand and releasing, even with a closeup photo.

May and June were great months, and new species were appearing nearly daily. The number of Chalk-fronted Corporals (*Ladona julia*) on gravel roads by beaver ponds was boggling. One day amongst the corporals I noticed a clubtail perched on the ground. Its cerci were so distinct—it appeared to be a Horned Clubtail (*Arigomphus cornutus*). Paulson's range map showed a midwestern population and a disjunct one to the east, in Canada but just north of the St. Lawrence, right where I was. I remembered I had a digital copy of the report of the New York Dragonfly and Damselfly Survey, which indicated that *A. cornutus* had been found in New York for the first time during the recent survey (2005–2009), which was a new state record. The dot was in northern St. Lawrence County, not far from where I found my specimen! I was more than psyched.

At the end of May I was at the Allegheny Nature Pilgrimage, a fun weekend for nature enthusiasts of all ages in Allegheny State Park on the Pennsylvania border. Willie D'Anna, Dean DiTomasso, and I spent a fabulous day before the weekend exploring a variety of habitats in the park. We caught some charismatic ones like Delta-spotted Spiketail (*Cordulegaster diastatops*) as well as some lifers for me: Rapids Clubtail (*Gomphus quadricolor*), Uhler's Sundragon (*Helocordulia uhleri*) and Stream Cruiser (*Didymops transversa*). Over the weekend, Wayne Gall and I led an outing to Allenberg Bog. Although it was described as a general nature outing, odes took top billing, with stunning views of Comet Darners (*Anax longipes*) circling the perimeter of the small bog pond. Other highlights included regionally rare Carolina Saddlebags (*Tramea carolina*), Frosted and Crimson-ringed Whiteface (*Leucorrhinia frigida* and *L. glacialis*) and Painted Skimmers (*Libellula semifasciata*). Odes became highlights for all, certainly equal to the carnivorous, plants, snakes, and butterflies we observed. For many people the excitement of seeing a dragonfly in the hand, at close range, is palpable.

Back at our camp in Edwards, New York, the nearby Oswegatchie River produced daily surprises through the month of June. River Jewelwings (*Calopteryx aequabilis*) and several species of *Gomphus* were flying, including Mustached Clubtail (*G. adelphus*). I was surprised to find so many clubtails feeding amongst the low vegetation grasses on a path near the river. And my heart raced when I saw, but couldn't net, what I think was an impressive Illinois River Cruiser (*Macromia illinoensis*).

It slowly dawned on me that you don't have to be standing hip-deep in the river to see and net these elusive bugs! Another realization was that the prudent move was to shoot first with the camera—better than missing with the



Gomphus adelphus (Mustached Clubtail) shows how it got its common name, 23 May 2015. Photo by Steven Daniel.

net, and never seeing the dragonfly again. That had already happened too many times.

I really wanted to find snaketails (*Ophiogomphus*). One day I was wading along the river rapids in the village of Edwards, and thought I saw some. They were so skittish that I was having no luck with my net. What I first thought (hoped!) in the field was *Ophiogomphus*, I immediately saw in my pic was Eastern least clubtail (*Stylogomphus albistylis*). Still a very cool ode, but next year—*Ophiogomphus*!

In mid-June I was with my botanist friend Anne Johnson, who had gotten permission from the landowner to see if we could turn up a fern, slender cliff brake, along the shoreline of the Grasse River. It hadn't been seen in the area since a collection of it 80 years ago. (We were successful, by the way.) As we were walking through a meadow towards the river, I noticed some gomphids with impressive clubs landing along our path. I easily caught one, and it turned out to be a skillet clubtail (*Gomphus ventricosus*) which, like *A. cornutus*, is also ranked as S1 ("Critically imperiled because of extreme rarity or because it is somehow especially vulnerable to extinction or extirpation, typically with 5 or fewer occurrences"). Until the recent New York State Dragonfly Survey, when it was found on the nearby Racquette River, there were only a few historic (pre-1926) records from New York. It began to occur to me how undersurveyed this part of New York is.

The summer continued with one exciting surprise after another: the little bog where a population of Elfin Skimmer (*Nannothemis bella*) was flying amongst *Arethusa* orchids; the realization that the impressive Dragonhunter (*Hagenius brevistylus*) was not all that uncommon; the excitement of seeing stunning Vesper Bluets (*Enallagma vesperum*) while canoeing late in the day. Even those perplexing blue bluets began to seem somewhat workable. It all became great fun and a challenge, as each new surprise fed the motivation for more! At the last minute, I managed to squeeze in a couple of days before the DSA annual meeting in State College and got to spend time in the field with Hal White and others, which provided another shot of adrenaline.

By early August I began to fear that the season was winding down, but, in fact, more surprises awaited. Near the Racquette River (while searching unsuccessfully for a possibly extirpated fern based on a single collection from the 1930's), David Werier and I ate lunch at a rapid forest stream where an impressive Zebra Clubtail (*Stylurus scudderii*) teased us by frequently landing on the rocks... just far enough away. The following week I photographed an Arrow Clubtail (*S. spiniceps*) as it perched on a tree leaf along the Oswegatchie River after an afternoon downpour.

And the following day I unexpectedly came on a small swarm of *Somatochlora* emeralds, though I had thought it was too late in the season for them. The one I managed to catch was a Brush-tipped Emerald (*S. walshii*). I wonder if they all were that species. I don't think I'll ever get tired of seeing those emerald eyes!


By now it was darner time, and some of the *Aeshna* swarms took my breath away. For a period of a couple of weeks I'd go out in the late afternoon onto state forest roads, hoping to encounter *Aeshna*. Standing on an untraveled road with my net, trying to time the swing properly just as the dragonfly was passing by, brought me back to my high school baseball days. "Keep your eye on the...darner!" Those mixed species swarms were incredible. Earlier in the summer I would see the occasional darners and typically miss, if I even got a chance to swing a net. In the midst of those low-feeding swarms of dozens of *Aeshna*, I learned it was not only possible, but even likely to catch them. Over the course of a few weeks, I caught all eight of the species known from St. Lawrence County; all but Mottled (*A. clepsydra*) and Lake Darner (*A. eremita*) were taken in swarms. *A. eremita* was the latest and most elusive, caught in early October. One unexpected encounter occurred at the firetower on the top of Azure Mountain. Many darners were flying there, some distance from the nearest body of water. I was able to capture some, and all were Variable Darner (*A. interrupta*). The close-up looks at these proved to be of interest to many hikers climbing the mountain on that beautiful September day.



Gomphus ventricosus (Skillet Clubtail), 10 June 2015. Photo by Steven Daniel.

Fawn Darner (*Boyeria vinosa*) and Ocellated Darner (*B. grafiana*) were fairly common as well, once I got to know their haunts and when to find them.

I wasn't ready to call it a season, despite the lone Autumn Meadowhawk (*Sympetrum vicinum*) perched in the sun on our deck when we were closing up camp at the end of October. The following week we took a trip to the lower Rio Grande, where I knew there would be more to see. And were there ever! The most memorable was the Bar-sided Darner (*Gynacantha mexicana*) that flew continuously back and forth at dusk, in and out of the open driver door of our car.

What a fabulous year for odes—and I have lots on my list for next year. The ode bug has bitten, and it is not about to let go anytime soon. 

Would You Like to See Anything New or Different in ARGIA?

ARGIA is of, for, and by the membership of the DSA, so at the end of each year, I like to ask people to share their ideas for new features or provide feedback about existing features in the journal. I am also requesting feedback on an idea recently proposed for a new feature that would be a sort of arts corner for dragonflies, focusing on dragonfly-related painting, poetry, sculpture, etc. This would definitely be something different for ARGIA and I would very much like to hear people's opinions. Please send ideas and/or feedback to me at <cmazzacano@gmail.com>, ideally prior to the 25 February 2016 deadline for submitting items for the next issue of ARGIA. Thanks!

A Long Time Ago...in a Meeting Far, Far Away...

The recent hoopla surrounding the release of a new Star Wars movie, *The Force Awakens*, has reminded Dennis Paulson of a historic factoid: the release of the first Star Wars movie in 1977 (Episode IV: *A New Hope*, for you purists out there) happened to coincide with the timing of an SIO meeting in Gainesville, Florida (before the DSA was formed). Dennis recalls that a bunch of the meeting attendees went to see the movie together, but can't quite remember everyone who was in that group. For the sake of nostalgia, Dennis asks that if you remember seeing that movie with the SIO crew, send him an e-mail at <dennispaulson@comcast.net> and let him know.

Parting Shots

Parting Shots pays tribute to the endless diversity and interest of odonate behaviors and to the many skilled photographers among us, with an additional nod to the many unexpected (and sometimes downright silly) ways in which odonates can creep into daily life.

If you have photos that showcase an odd, bizarre, unusual, unexpected, or amusing aspect of odonate life (or of life with odonates), please e-mail them to the Editor at <cmazzacano@gmail.com>, along with a short note describing the photo, location, and event.

Extinguished Flame

Jerry Hatfield <l.hatfiejk7@yahoo.com>

On 9 September 2015, Jerry paused to watch an unfortunate Flame Skimmer (*Libellula saturata*) being taken down with ruthless efficiency by a Carolina Mantis (*Stagmomantis carolina*) in Ransom Canyon, Lubbock County, Texas.



A Few Uncommon Sightings

Once again from Ransom Canyon in Lubbock County, Texas, Jerry Hatfield sends this image of a Thornbush Dasher (*Micrathyria hageni*) he spent September 2015 photographing weekly. A new record for Lubbock Co., when last seen on 23 September it was vying for territory against a host of Blue Dashers (*Pachydiplax longipennis*). As you may remember from articles in the previous issue of ARGIA (ARGIA 27(3): 19 and 27(3): 25), this was a banner year for *M. hageni* sightings in new places, including northeastern Oklahoma and Tennessee.



Micrathyria hageni (Thornbush Dasher), a new record for Lubbock County. Ransom Canyon, Texas, 9 September 2015, by Jerry Hatfield.

And from the east, Walter Sanford <wsanford@wsanford.com> sent this very uncommon sighting of a lovely Roseate Skimmer (*Orthemis ferruginea*) spotted in the northern Virginia suburbs of Washington, D.C.



Orthemis ferruginea (Roseate Skimmer), Huntley Meadows, Fairfax County, Virginia, 23 September 2015, by Walter Sanford.

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 should be sent to Celeste Searles Mazzacano, CASM Environmental LLC, Portland, Oregon, USA 97206, <cmazzacano@gmail.com>. Material for BAO must be sent to Steve Hummel, Lake View, Iowa, USA 51450, <mshummel@iowatelecom.net>.

Articles

All articles and notes should be submitted in Word or Rich Text Format, without any figures or tables or their captions, embedded. Please submit all photos and figures as separate files along (see Figures below). 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 Word or Text 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 give both the scientific name of a species as well as its official common name in parentheses.

Figures

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

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

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

Tables

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

The Dragonfly Society Of The Americas

Business address: Celeste Searles Mazzacano, CASM Environmental LLC, 5914 SE Knight St., Portland, Oregon, USA 97206

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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 digital 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 digital subscription to ARGIA. Dues for individuals in the US, Canada, or Latin America are \$15 us for regular memberships (including non-North Americans), institutions, or contributing memberships, payable annually on or before 1 March of membership year. 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>.

Mission of the Dragonfly Society of the Americas

The Dragonfly Society of the Americas advances the discovery, conservation and knowledge of Odonata through observation, collection, research, publication, and education.

Back cover: (upper) Yellow-legged Ringtail (*Erpetogomphus crotalinus*), Rattlesnake Springs, Carlsbad National Park, Eddy County, New Mexico. Photo by Jerry Hatfield. **(lower)** Dragonhunter (*Hagenius brevistylus*), Westchester County, New York, 12 June 2013. Photo by Walter Chadwick.

