DRAGONFLY SOCIETY OF THE AMERICAS

ARGIA

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DRAGONFLY SOCIETY OF THE AMERICAS
VIRTUAL LECTURE SERIES

18 June 2021 at 4:00 pm EDT
Odonata Central and Odolympics
John Abbott

Want to contribute to the science of dragonflies & damselflies? Consider using Odonata Central (OdonataCentral.org), one of the longest running entomological citizen science web platforms. Odonata Central was launched in 2004 and has become a popular and robust tool for serious odonate enthusiasts and professionals alike to contribute their records and observations. This talk will cover a history of the site, how it differs from other citizen scientist platforms, an overview of how to use it and introduce the first ever Odolympics (odonatacentral.org/odolympics) sponsored by the Dragonfly Society of the Americas.

16 July 2021 at 4:00 pm EDT
Community science-based Odonata surveys: cost-effective, long-term site monitoring that yields new data even in a heavily urbanized area
Celeste Searles Mazzacano
CASM Environmental, LLC

The 2021 field season marks the 6th year of odonate surveys done at three sites in the Johnson Creek watershed in Portland, Oregon. Volunteers are trained by a professional entomologist and supported by staff of a local watershed council; data are reported on an iNaturalist project page. Most records are of common cosmopolitan species, but regular monitoring has allowed community changes following restoration to be tracked as well as effects of natural disasters (wildfires), and new species were added to the county list. This talk will discuss project design, lessons learned for volunteer training and retention, data usage by local natural resource agencies, and exciting dragonfly encounters.

Encuestas para libélulas basadas en la ciencia comunitaria: un método rentable para monitoreo del sitio a largo plazo que produce nuevos datos aun en un area densamente urbana

La temporada de campo de 2021 marca el sexto año de estudios de odonatos en tres sitios en la cuenca hidrográfica de Johnson Creek en Portland, Oregón. Los voluntarios están entrenados por un entomólogo profesional y soportados por personal de un consejo local de cuencas hidrográficas; los datos se registrado en una página de proyecto de iNaturalist. La mayoría de los registros son de especies cosmopolitas comunes, pero el monitoreo regular ha permitido rastrear los cambios en la comunidad luego de la restauración y los efectos de desastres naturales (incendios forestales), y se agregaron nuevas especies a la lista del condado. Esta presentación discutirá el diseño del proyecto, las lecciones aprendidas para la capacitación y retención de voluntarios, el uso de datos por parte de las agencias locales de recursos naturales y encuentros emocionantes con libélulas

President's Report

The Start of a New Beginning

By Melissa Sanchez-Herrera

Today, while I was attempting to write this piece, I went over past issues of *ARGIA* to remember what our former president, Bryan Pfeiffer wrote in them. I discovered it is always a pleasant read, full of wonderful field experiences with some embedded news about the DSA. So, following that theme, please read on to hear a little bit of what has happened in the DSA over the last year and about some of the new and exciting happenings you can expect over the next one.

During the past two years I have been very grateful to be part of our Executive Committee. Bryan's presidency gave us the opportunity to dream big about the future of the DSA via avenues like membership growth, inclusiveness, diversity, drifting our "center of gravity" to the south, and fostering research on our beloved odes. But we were also challenged during the past year, as everyone dealt with the difficult and historic COVID-19 pandemic, and some of the dreams that we planned for 2020 just vanished due to all the contingencies.

At some points we seemed defeated, but these uncomfortable moments made us rethink how we wanted our society to grow and adapt to this massive pandemic across the world. Despite the burdens of 2020, we created our first Diversity, Inclusion, and Equity Committee and partnered with the collective Entomologist of Color (entopoc.org) to provide at least 50 free two-year memberships to Black, Indigenous, People of Color students or enthusiasts of dragons and damsels. Proudly, I can say that we have recruited 14 new members (as of today, 4 June) as a result of this partnership — you may have spotted some of these new members featured under our DSA EntoPOC Instar Profiles section in the last two issues of *ARGIA*. Just as biodiversity provides us with a resilient planet, increasing the diversity of our membership ensures a strong future for our society.

By the end of last year, knowing that an annual meeting for 2021 was not going to be an option, we came up with two unprecedented events that DSA is promoting this year: the Odolympics / Odolímpiadas / Odolympiques and the DSA Virtual Lecture Series. For our Odolympics we are using citizen science platforms like Odonata Central and iNaturalist to survey all odonates across the Americas. We will have two nine-day events (i.e., weekend to weekend), matching the summer seasons of the northern and southern hemispheres. Our first ever Odolympics starts 19 June and runs until 27 June! So, please get your net, phones, and cameras ready and tune into our social media, because that nine-day period will be full of surprises and perhaps even a few prizes! Also, if you are not located in the north, or near the equator you can also scoop and swipe your D-net for nymphs; the adult season will be coming in December!

On 14 May we launched the DSA Virtual Lecture Series and our first speaker was our very own member, Dennis Paulson. Dennis gave an incredible and inspiring talk about the patterns of dragonfly diversity across the Americas, and the 86 attendants from all over the world (e.g., Peru, Guatemala, Nigeria, France, Mexico, Colombia, Ecuador, and more) had the opportunity to socialize with him and other peer members. These lectures are also an incredible opportunity for membership growth, and we welcomed eight new members just to Dennis' lecture alone, Whoozaah! We have now posted his 45-min talk onto our YouTube Channel and it includes proofread subtitles in both English and Spanish, along with an auto translate option available for many other languages. So, if you missed this fabulous lecture, please check it out.

For this month's lecture we have invited John Abbott, the mastermind behind Odonata Central. He will tell us all about how this project came to be and show us how we can use it in our Odolympics event. For this lecture we are pleased to announce that we will be able to provide live captions in the four most common languages in the Americas: English, Spanish, Portuguese, and French. And, as with Dennis' talk, we will post it on our YouTube Channel in the DSA Virtual Lecture Series playlist. Please stay tuned to our website and social media about the lineup of speakers for the whole year! Some of them come from LATAM countries as well, and we will provide captions in English and Spanish.

Finally, I just want to give a warm welcome to our newest members of the EC, Christopher Beatty as our president elect and Steve Collins as our Regular member for 2021–2027. You guys are great assets to our team. Moreover, I am happy to announce that we have a new social media team headed by these two new EC members, our Editor-in-Chief Amanda Whispell, naturalist Cindy Crosby, and two of our very own EntoPOC Instars, Juliana Sandoval and Emmy Fiorella Medina. Keep your eyes open for our new blog, "Species of the Month," and more social media content.

Lastly, we are planning to revamp our website for 2022, so we will ask for your support in different ways. For starters, if

you are fluent in French or Portuguese we need you, please contact me!

That is all for now, I just wanted to say how happy I am to help make this society a better place to enjoy dragons and damsels across the Americas and beyond. And in the spirit of the start of a new beginning: Happy Pride Month y'all, we hope you enjoyed our commemorative logo!

Melissa Sánchez Herrera, the DSA president, is an associate researcher in the biology program at El Rosario University in Bogotá, Colombia. She is currently writing manuscripts related to her work among the Neotropical banner damselflies (Polythoridae), and going out to the field to perform eDNA protocols for Neotropical odonates. She can be reached at melsanc@gmail.com or on Twitter at @melsanc. For more information about Melissa's research, please visit www.polythore.com.

Informe del Presidente

El Inicio de un nuevo comienzo

By Melissa Sanchez-Herrera

Hoy, mientras intentaba escribir este artículo, repasé los números anteriores de ARGIA para recordar lo que nuestro ex presidente, Bryan Pfeiffer, escribió en ellos. Y descubrí que siempre era una lectura agradable llena de maravillosas experiencias de campo con algunas noticias incrustadas sobre la DSA. Entonces siguiendo con ese tema, por favor lean algo de lo que ha pasado en la DSA durante este último año y acerca de algunas cosas nuevas y emocionantes que pueden esperar en el siguiente año que viene.

Durante los últimos dos años he estado muy agradecida de formar parte de nuestro Comité Ejecutivo. La presidencia de Bryan nos brindó la oportunidad de soñar en grande acerca de las futuras avenidas para nuestra sociedad, como por ejemplo; el aumento de membresías, inclusión, diversidad, la migración de nuestro "centro de gravedad" hacia el sur y el fomento de la investigación sobre nuestros queridos odonatos. Pero también tuvimos desafíos durante el año pasado, ya que como todos lidiamos con la difícil e histórica pandemia de COVID-19, y algunos de los sueños que planeamos para 2020 simplemente se desvanecieron gracias a todas las contingencias que trajo esta enfermedad.

En algún momento parecíamos derrotados, pero estos momentos incómodos nos hicieron repensar cómo queríamos que nuestra sociedad creciera y se adaptara a esta pandemia masiva que ocurre en todo el mundo. A pesar de los obstáculos del 2020, creamos nuestro primer Comité de Diversidad, Inclusión y Equidad, y nos asociamos con el colectivo Entomologist of Color (entopoc.org) para proporcionar al menos 50 membresías gratuitas de dos años a estudiantes o entusiastas de libélulas pertenecientes a comunidades poco representadas en nuestra sociedad (Negritudes, Indígenas, Latinxs, Personas de Color). Con orgullo, puedo decir que hemos reclutado a 14 nuevos miembros (a partir de hoy, 4 de junio) como resultado de esta asociación; es posible que haya visto algunos de estos nuevos miembros incluidos en nuestra sección DSA EntoPOC Instar Profiles en los dos últimos números de ARGIA. Así como la biodiversidad nos brinda un planeta resiliente, aumentar la diversidad de nuestros miembros asegura un futuro sólido para nuestra sociedad.

A fines del año pasado, sabiendo que una Reunión Anual para 2021 no iba a ser una opción, se nos ocurrieron dos eventos inéditos que DSA está impulsando este año: Las "Odolímpiadas", "Odolympics" u "Odolympiques", y la serie de conferencias virtuales de DSA. Para nuestros Odolímpiadas, estamos utilizando plataformas de ciencia ciudadana como iNaturalista y Odonata Central para documentar la diversidad de odonatos en las Américas. Para esto, tendremos dos eventos de 10 días (es decir, de fin de semana a fin de semana), coincidiendo con la temporada de verano del hemisferio norte y sur. ¡Nuestro primer evento comienza el próximo 19 hasta el 27 de junio! Por lo tanto, prepare su red, teléfonos y cámaras y sintonice nuestras redes sociales, porque ese período de 10 días estará lleno de sorpresas y tal vez incluso algunos premios. Además, si no se encuentra en el norte o cerca del ecuador, también puede recoger y deslizar su red acuática en busca de ninfas; ¡la temporada de adultos llegará en diciembre!

El 14 de mayo pasado lanzamos la Serie de Conferencias Virtuales DSA, nuestro primer invitado fue nuestro propio miembro, Dennis Paulson. Quien dio una charla increíble e inspiradora sobre los patrones de las libélulas en las Américas, y los 86 asistentes de todo el mundo (e.j., Perú, Guatemala, Nigeria, Francia, México, Colombia, Ecuador y más) tuvieron la

Informe del Presidente

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tenemos oportunidad de socializar con él y otros miembros. Estas conferencias también son una oportunidad increíble para 8 nuevos miembros solo de la conferencia de Dennis, Whoozaah! ¡Hemos publicado su charla de 45 minutos en nuestro canal de YouTube con subtítulos corregidos en inglés y español, además de tener la opción de traducción automática disponible para cualquier otro idioma! Entonces, si te lo perdiste, ¡Échale un vistazo!

Para este mes hemos invitado a John Abbott, el cerebro detrás de Odonata Central. Nos contará todo sobre cómo surgió este proyecto y nos mostrará cómo podemos usarlo durante nuestras Odolímpiadas. Para esta conferencia, nos complace anunciar que podremos ofrecer subtítulos en vivo en los cuatro idiomas más comunes en las Américas: inglés, español, portugués y francés. Y como charla de Dennis, está será publicada en nuestro canal de YouTube en la lista de reproducción de la Serie de conferencias virtuales de DSA. ¡Así que mantente atento a nuestro sitio web y redes sociales sobre la lista de invitados para todo el año! Algunos de ellos también provienen de países de LATAM, y proporcionaremos subtítulos en inglés.

Finalmente, solo quiero dar una cálida bienvenida a nuestros miembros más nuevos del CE, Christopher Beatty como nuestro presidente electo y Steve Collins como nuestro miembro regular para 2021-2027. ¡Ustedes son una gran adición para nuestro equipo! Además, me complace anunciar que tenemos un nuevo equipo de redes sociales encabezado por nuestros dos nuevos miembros de EC, la editora en jefe Amanda Whispell, la naturalista Cindy Crosby y dos de nuestras propias Instars de EntoPOC, Juliana Sandoval y Emmy Fiorella Medina. ¡Mantén los ojos abiertos para nuestro nuevo blog "Especies del mes" y más contenido de redes sociales!

Por último, estamos planeando renovar nuestro sitio web para 2022, por lo que solicitaremos su apoyo de diferentes maneras. Para empezar, si hablas francés o portugués con fluidez, te necesitamos, ¡así que comunícate conmigo!

Eso es todo por ahora, solo quería decir lo feliz que estoy de ayudar a hacer de esta sociedad un lugar mejor para disfrutar de las libélulas en las Américas y más allá. Y en el espíritu del inicio de un nuevo comienzo: Feliz mes del orgullo LGBTQA+, esperamos que hayan disfrutado de nuestro logo conmemorativo.

Melissa Sánchez Herrera, presidente de la DSA, es una investigadora asociada al programa de Biología de la Universidad del Rosario en Bogotá, Colombia. Actualmente, se encuentra escribiendo manuscritos acerca de sus líbelulas favoritas Polythoridae, además de salir a campo a realizar protocolos de ADN ambiental de odonatos Neotropicales. La puedes contactar en el correo electrónico melsanc@gmail.com o en Twitter en @melsanc. Para más información acerca de las investigaciones de Melissa visita su página web www.polythore.com.

Note from the Editor

The Odolympics and *ARGIA*

By Amanda Whispell

Hello all of you wonderful *ARGIA* readers. This is a special issue of *ARGIA* – not only are we debuting a temporary version of our DSA logo to celebrate Pride Month but also because we are getting ready for the Odolympics!

There are several articles in this issue that discuss the Odolympics – what they are, when they are, how they came to be, and how to use citizen science platforms to partake. We have also been posting quite a bit on our social media to make sure you are all signed up to use the platform of your choosing and we have mentioned that we will be having some daily activities and competitions each day during the Odolympics, so make sure to keep an eye on us that week. We have arranged to have John Abbot give this month's virtual lecture talk to go over using Odonata Central. We also want to encourage you to post all of your images and videos on social media throughout the entire period and to tag all with the #odolympics hashtag so we can see them.

In addition to all of this I want to talk about the role that *ARGIA* will be playing in the Odolympics, or more specifically, the role the Odolympics will play in the next issue of *ARGIA*. The front cover, back cover, the much-extended Parting Shots, and all other photographs—save those within articles—in the September 2021 issue will be selected from those taken and submitted during our June Odolympics. There are several categories (see the green box on the right) and you have until 1 August to email me your submissions; the only requirement is for the images to be taken between 19 June and 27 June. If you would like to submit your photograph, please see the details in the blue box below.

I will also be including a section on Odolympics stories where I will be publishing your stories and artwork about the Odolympics. Was this your first time catching odes? What got you outside to start catching them? What was the most surprising thing you saw? Did you get to meet some new people or make some new friends? Did you find out your children love catching odes? Did one of your friends fall spectacularly into the water? I want to hear all of these stories! Submissions for this section will be due at the same time as all other submissions for the September issue – on 20 August.

I'm really looking forward to reading about all of your Odolympics antics and seeing all of your photographs. I hope that you all catch lots of odes this summer.

Amanda Whispell, the editor-in-chief of ARGIA, *is busy writing manuscripts related to her work on color change in* Argia apicalis *(Blue-fronted Dancer), doing science outreach, and creating scientific art. She can be reached at editor@dragonflysocietyamericas.org or on Twitter at @AmandaWhispell. For more information about Amanda's research visit www.amandawhispell.com.*

Photograph Categories

Best overall (will be the next cover)
Best macro
Best nymph
Best teneral
Best eclosion
Best damsel
Best dragon
Best underwater
Best copulation
Best group
Best action shot
Most interesting*
Sharpest in-flight
Depicting the oddest behavior*
Photographer under 15
Best non-ode shot
Best non-photograph graphic

*Requires a short statement or description to explain

Details

Photographs due date: 1 August

Email photographs to: editor@dragonflysocietyamericas.org

Subject line: *ARGIA* Odolympics Photograph Submission

Include the following information:

- The category
- The scientific name of the species (you can ask for help by posting your photograph on iNaturalist if you're unsure)
- The common name of the species (if one exists – consult this guide)
- The location where the photograph was taken
- The date the photograph was taken
- The name of the photographer

The Odolympics

The first dragonfly survey of the entire western hemisphere

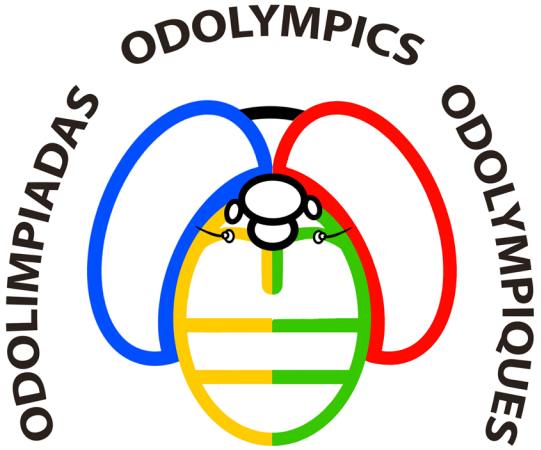
19 June – 27 June 2021

By Michael C Moore

The Dragonfly Society of the Americas, Sociedad de Odonatología Latinoamericana, and Odonata Central are partnering to hold the first ever Odolympics, and it starts in just a few days.

The pandemic has been hard on everyone and we have all missed having the opportunity to hold meetings and share camaraderie and our enthusiasm for odonates. As an alternate activity, the DSA and SOL have conceived of a hemisphere-wide odonate survey – and everyone and anyone can participate.

The idea for the Odolympics was inspired by the Global Big Day conducted by eBird, which is run on one day in May and encourages participants to try to record every species of bird on earth in one day. Because of weather and seasonal effects on odonate activity, holding the Odolympics as a single day event would not work for the entire hemisphere. So, we conceived of a longer-lasting event set over the course of two time windows that roughly align with the June and December Solstices. The two time periods we selected are 19–27 June 2021 and 11–19 December 2021. These dates each span two weekends, which will hopefully allow all participants the opportunity to experience at least one sunny, warm day on which they can find as many species as possible. You can, of course, go out for as many days during the window as you wish, and you can even plan to collect nymphs during your winter!



Highlights

- Odonata survey of the entire Western Hemisphere
- June and December survey dates to accommodate participants in the entire Western Hemisphere.
- The goal is to record as many species from as many places as possible.
- Everyone can participate by entering observations into Odonata Central or iNaturalist
- You can have fun and contribute to citizen science by helping to create a single year snapshot of Odonate distribution.
- There will be fun challenges for each day.
- We want to encourage you to share your photographs and videos on social media using the #odolympics hashtag — that way we can still "get together" this year.

Details

- **Everyone can participate.** The goal is to try to record as many species from as many places in the Western Hemisphere as possible in the two census periods to generate a snapshot of odonate distribution.
- **Dates:** 19–27 June 2021 and 11–19 December 2021.
- **The final repository for the data will be** Odonata Central. These data will be critical in filling gaps in the Odonata Central data set. All data on Odonata Central are freely available to everyone to explore or download
- How can you help make this project a success? Plan to participate.

How to Contribute

Submit your odonate observations to Odonata Central by selecting **Odolympics** as the project for each checklist or to iNaturalist by joining the Odolympics June 2021 and/or Odolympics December 2021 projects. Enter observations on as many days during the Odolympics as you wish. All Odolympics participants must be registered users of Odonata Central, even if you plan to join the iNaturalist projects. Registration is free and takes only a few minutes.

Odonata Central has just released a new mobile phone application which makes entering checklists into Odonata Central even easier. The app supports IOS and Android and is available in four languages. Search for "Odonata Central" in your app store.

If you are planning to join the iNaturalist projects, you only have to register on Odonata Central once. However, you must add your iNaturalist ID to your account. This ensures your iNat observations will be added to an Odonata Central Odolympics project when the iNaturalist project spreadsheet is imported. If you do not do this, your iNaturalist observations cannot be counted toward the Odolympics total.

To add your iNatualist username to an Odonata Central account: After registering and/or logging in to the Odonata Central website, click the blue **My Account** button in the top menu. Add your iNaturalist username where indicated. Remember to hit **Save Profile**.

There are three ways you can enter observations for the Odolympics.

Options 1 and 2 are for Odonata Central users.

1. **Add your observations directly into Odonata Central**
   We encourage participants to enter data directly into Odonata Central. Odonata Central accepts complete checklists of photographed, collected, and observed-only records for any location and tracks abundance data.
2. **Add your observations by importing them into Odonata Central from iNaturalist**
   This is the preferred way to get iNaturalist observations into Odonata Central. You can enter observations into iNaturalist and then import them into your Odonata Central account by cutting and pasting the URL of the iNaturalist record. This copies location, date, species, and photographs into Odonata Central, so they don't need to be entered again. See this video tutorial.

Option 3 is for people who only use iNaturalist.

3. **Add your observations by joining the iNaturalist Projects**
   If you prefer to use iNaturalist, you can join one or both of the projects called Odolympics June 2021 and Odolympics December 2021. Observations reported to iNaturalist by project members during the Odolympics will be automatically collected into these projects. To avoid duplication, do not import these records yourself into Odonata Central. Note that iNaturalist does not track abundance data, does not encourage observed-only records, does not accept complete checklists, and does not allow records of exuviae. It also often obscures coordinates in reports, so it is important that you give us permission to access accurate coordinates when you register, so these can be recorded in Odonata Central.

How to make sure your observations are counted in the Odolympics totals:

If using Method 1 or 2 above:

Go to the **Add Records** screen in Odonata Central. Enter in the date of observation. Select **Odolympics** from the **Projects** drop-down list — you must do this for each checklist you enter. Note that the Odolympics project is only available in the drop-down list *after* you enter a date of observation that falls during the Odolympics.

If using Method 3:

Be sure you are a registered user of Odonata Central and have provided your iNaturalist username in your Odonata Central account (see directions above).

Results

A summary of results and participation will be published in *ARGIA* (the newsletter of the Dragonfly Society of the Americas) in 2022. At any time, users can view the Odolympics records, species lists, or map data in Odonata Central. Open the **Filters** and set the **Project filter** to **Odolympics**. Records contributed to iNaturalist can be viewed by visiting the Odolympics iNaturalist Project. After the iNaturalist data are imported into Odonata Central, the aggregate data can be viewed there.

All of us at the DSA are very excited about the Odolympics and we are looking forward to seeing all of your social media posts, videos, and photographs. You don't want to miss the chance to participate in the first dragonfly survey of the entire Western Hemisphere.

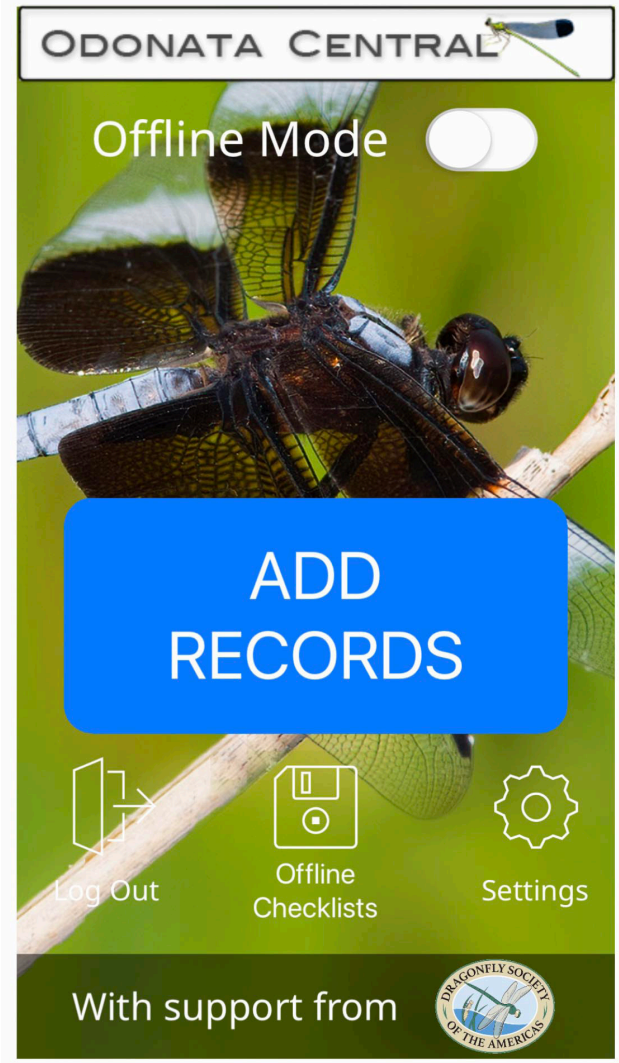
Michael is a retired biology professor who now splits his time between chasing and photographing birds and odes. He serves as the Vice President of the Dragonfly Society of the Americas for the United States and can be reached at mcmoore32@gmail.com.

Check out the Odolymipcs Swag for sale on our online Zazzle store! Available for a limited time only!
https://www.zazzle.com/store/dragonfly_society

New Odonata Central Phone Application is Available

By Michael C Moore

Easily keep track of your Odonata sightings and contribute to citizen science directly from your phone. Odonata Central is a citizen science project that collects user observations of odonates, primarily from the western hemisphere, to contribute to understanding their distribution, biogeography, biodiversity, and identification. Now, in addition to the website, Odonata Central has released a new mobile phone application. This free app allows you to create complete checklists of all your Odonata sightings right on your phone and then upload them to the Odonata Central website with the species seen, abundance, date, and location information. Later, you can view these observations on the Odonata Central website—along with those submitted by thousands of other users—in several different formats, including: maps, observation lists, and species lists. Perfect and just in time for the upcoming Odolympics — just add your checklist to the **Odolympics** project on your phone.



Features of the Odonata Central phone application:

- Presents a checklist of possible species based on your location.
- Supports four languages (English, Spanish, Portuguese, and French) and is primarily intended for use in the Western Hemisphere.
- Easily toggle between display of English and Scientific names.
- Easily assign a location by using the favorite locations you have stored on Odonata Central, using your current phone location, or by choosing a location from a map.
- Convenient offline mode that allows you to enter your observations when you do not have a cell phone signal.
- You create and store your checklists on your phone and add your location later when you have a signal.

Note that the app does not accept photos but you can still add all the photographs you take to your checklist. Photographs can be added later by editing your checklist on the Odonata Central website. Also note that this app is for users who are able to identify most of the odonates in their region. If you need help identifying odonates, you should download our companion app, **Dragonfly ID**.

This is a helper app for the Odonata Central website. You must have an Odonata Central account and you can register for one from the app directly or by visiting the website. To download this free app to your phone just search for "Odonata Central" in your app store.

Michael is a retired biology professor who now splits his time between chasing and photographing birds and odes. He serves as the Vice President of the Dragonfly Society of the Americas for the United States and can be reached at mcmoore32@gmail.com.

By Marla C Garrison and Ken J Tennessen

In the last installment of Nymph Cove we asked readers to submit nymph stories and questions. Below are several submissions along with a few of the authors' own field experiences looking for nymphs. Cheers!

Doug Mills of Champaign County, Illinois, has been observing a local ephemeral wetland for several years and blogging his sightings and data. (The link to his blog: https://hlwetland.blogspot.com).

He states that it generally dries up in late summer through fall. This year he has seen *Ischnura posita* (Fragile Forktail) adults as early as the second week of April and has found some rather large damselfly nymphs in the spring waters (Fig. 1). He believes the *I. posita* may be coming from a nearby lake. He asks the following questions:

"My first question is whether or not these damselfly nymphs somehow survive the dry season or do their eggs survive the dry spell and winter to hatch when there is water and the temperatures are acceptable? I find *Sympetrum* (Meadowhawk) nymphs there as well."

Doug, the damselfly nymphs you are finding are lestids – spreadwings. The species of *Lestes* inhabiting ephemeral pools overwinter as eggs inside the stems of emergents. They hatch in early spring dropping down from the hole in the stem made during oviposition (Fig. 2). Upon falling into spring meltwaters and/or rainwater pools they quickly grow and molt, emerging as adults before the pond dries up in late summer.

Sympetrum nymphs are common in those types of habitats. *Sympetrum* species can drop their eggs into dry vegetation in late fall where they may overwinter under snowpack and then hatch and grow in a manner similar to lestids come spring. Eggs refrigerated for months after autumnal oviposition and taken out in early spring usually hatch within a day to a week depending on the degree of development that took place before cooling them down (personal observations). If, however, the eggs do, in fact, hatch before winter temperatures place them in diapause, then the early instar nymphs are likely digging down into the moist mud and remaining there through winter until surface waters reappear in spring.

Figure 1. *Lestes* (Spreadwing) nymph collected and photographed by Doug Mills at ephemeral pond in Homer Lake Forest Preserve, Champaign County, Illinois.

Figure 2. Left - *Lestes forcipatus* oviposition holes in Carex; Right - *Lestes unguiculatus* eggs in longitudinal section of Water Plantain. (Collected by KJ Tennessen, Photographed by MC Garrison)

"My other question regards the migrant *Anax junius* (Green Darner) adults, which appeared on site on 22 March of this year and which I observed in wheel and oviposition on 6 April. Is that early enough to account for emergences in early July, such as I observed last year after the wetland was dry during the fall of 2019?"

To answer this question, we consulted our resident *Anax* expert, Dr. Ami Thompson, Assistant Professor of Biology, North Carolina Wesleyan College, Rocky Mount, North Carolina. Here is her response:

"If their phenology is similar to Minnesota *Anax*, then the eggs of the earliest migrants (in April) almost certainly do emerge in June and July. The eggs deposited later (by residents or migrants) in the summer (end of June, early July, and later) will hatch but the nymphs may overwinter depending on how many degree days (the number of days during which the average ambient temperature falls within the temperature range necessary for development) they are exposed to before fall and perhaps by some other unknown factor that sets the nymph on a predetermined winter or summer growth pathway.

Anax junius spring migrators are masters at colonizing new locations after winter kills — particularly because those locations are also often not home to fish that eat their nymphs. I have no idea what conditions the eggs can survive! That would be an interesting question to test — but I suspect they are not very hardy. *A. junius* seems to have retained a lot of its tropical-origin temperature growth requirements so, maybe the eggs have too. The nymphs have no sense to stay away when it comes to fish; and the adults do not appear to discriminate between laying eggs in ponds with or without fish - they just deposit eggs everywhere. I think their life history strategy is to just be stupid-abundant and put eggs everywhere and leave their survival fate to luck. It seems to be working for them! Ha! There is no evidence that the summer and winter populations are genetically different, just that the nymph growth within the species as a whole is variable based on environmental conditions."

Now for some electrifying nymphing experiences…

A Near-Jolting Experience

by Ken Tennessen

With the anticipation of finding something new, and with a short-handled dipnet in hand, I stepped into the Rio Chipiriri. This mid-sized, shallow river flows northward in central Bolivia, winding its way and eventually emptying into ever larger tributaries of the Amazon River. It lies in a biodiversity hotspot, north of Villa Tunari in Chapare Province. Even though 18 November 1999, was a sunny day, I had odonate nymph collecting in mind.

My first few dips along the edge were rewarding, as I brought up a few nymphs of *Archaeogomphus*, *Phyllogomphoides*, *Progomphus*, *Elasmothemis*, *Hetaerina*, *Argia*, and some unknowns. Enough to keep digging. I next spotted a would-be perfect habitat, a mix of sand, silt and small rocks near the bank with overhanging vegetation. On my first dip here, I brought up another unknown. An unwelcome one. A writhing two-foot brown eel!

Instant thought: electric eel! A shot of adrenaline made me feel panic was imminent — I'm in the water and my hands and the handle of my net are wet! I don't know how I calmed myself a bit to think rationally, but it was enough to enable me to slowly lower my net down to the water and allow the eel to swim out. It disappeared downward, near my

feet. Then I nearly panicked again. How was I to get out of the water without further displeasing this agitated eel?! A sudden movement like jumping up and onto the bank could be disastrous, especially if I lost my balance and fell backward. So, I decided, very slowly lift one foot up and onto the bank, then the other. It worked; I was out. I looked back down into the water, still not seeing my shocking visitor. I turned and picked up my aerial net.

"X" Marks the Spot

by Marla Garrison

Many years ago now, in the Salt Creek Wilderness of New Mexico, Steve Valley and I were oding along the Pecos River on one of the hottest, driest days of the year. We stepped into the shallow stream bed to cool our feet. Under the blistering sun, we turned our backs and bowed our heads to avoid the intense glare off the water. There beneath the surface was a complex traffic pattern I had seen many times before in sandy midwestern rivers… long, convoluted, crisscrossing lines traveling through the clean coarse bottom of sandbars and shoals, occasionally interrupted by the foot imprints of some wading bird. What mysterious creature created such chaotic scroll work, I asked? Steve conspiratorially replied "Well, follow one of those tunnels to its end and pick up the sand and see if you don't have a *Progomphus* nymph in your hand". Incredulous, I started to dig with my dip net. He quickly said "You don't need that thing, here, give it to me. Just scoop with your hand at the end of a trail". And, that is EXACTLY what I did and, *Progomphus* is EXACTLY what I pulled up – my first ever *P. obscurus* nymph! It was a beauty! Indeed, I still think it is the most beautiful nymph in all of North America (Fig. 3).

Virtually no other North American odonate genus inhabits such clean, unsilted, sandy areas. And, virtually no other odonate genus has the adaptations for tunneling through loose grainy substrate for such long distances. Most gomphids are burrowers and, as such, are equipped with short, stiff legs held close to their bodies. Their first two pair of legs have just 2, rather than 3, tarsomeres and their pro- and meso-tibiae are modified with burrowing hooks that appear like spurs (Fig. 4). Their leg anatomy is well adapted for digging but limits the extent of their locomotion. *Progomphus* nymphs, however, have additional modifications to assist in digging through loose, coarse sand with both power and speed. Their forelegs are thickly keeled and they have close-set, long curved setae on the tibiae and tarsi, supposedly to aid in sweeping away sand. Their flat head is significantly wedge-shaped, and their body is long, cylindrical and tapered with divergent wing pads.

This past September, along the Embarrass River in central Illinois, I videoed myself digging out *P. obscurus* nymphs with my hand and watching them quickly re-burrow upon release. They dive vertically, headfirst into the sand. I am including a link to a video (https://www.youtube.com/watch?v=goSrwE1Vj80) that shows the hunt, capture and release followed by a close-up of a *P. obscurus* nymph digging like mad through sand in a plastic vial.

Since that day on the Pecos, I've never been able to resist the allure of those gritty hieroglyphs leading me on beneath clear waters. Whenever they appear, I must toss my net up on the bank, plunge my hand in and start digging for buried treasure.

Figure 3. *Progomphus obscurus* final instar. Note the short, thick and setose forelegs.

Slip, sliding away...

by Linda 'Stick' LaPan

In June, 2018 Marla Garrison and I traveled together to Costa Rica on a dragonfly tour arranged by Sunrise Birding, LLC and led by Dennis Paulson. We were lucky enough to have Bill Haber, Costa Rica's resident dragonfly expert with us as well. He has lived there for almost fifty years. While at Heredia, Selva Verde Lodge, Sarapiqui, Marla and I got into the pond at the far bungalows to dredge for nymphs. We worked the edge of the pond in opposite directions and met back up at the other side where Bill was sitting on the bank waiting to see what species we had collected. I started to head out of the water and up onto the bank. Marla was behind me and we both had sneakers on. As I headed out of the water and up the slick clay bank, I fell on my knees and slipped backwards, covering my field pants in mud. I tried to back down into the water to clean off my pants but Marla, believing I was sliding down onto her, kept trying to push me up onto the bank. I managed to get deep enough in the water to clean off and started up the bank again. But with Marla right behind me, the same antics happened again and again. By this time we were hysterically laughing, which wasn't helping our situation. She had no clue why I needed to get back into deeper water to clean off and just kept 'assisting' me up the bank. By my third or fourth attempt, Bill let out the deepest belly laugh I think I've ever heard. Hearing Bill laugh like this for the first time brought tears rolling down our faces, collapsed our knees, and caused us to slide back down yet again. By now, Marla was giving me a very wet, slimy pant wedgie to 'help' me get up the bank. I love her for trying, but her kind of help, I didn't need! On a good day my coordination is iffy. Add a fanny pack, binoculars, camera, dredgers, tropical heat and humidity in the Rainy, or should I say Green season, and you've got grounds for vaudeville mishaps for sure! Somehow, we finally managed to make it up that slick incline to Bill, nymphs in tow. We had collected final instars of *Tauriphila argo* (Arch-tipped Gliders), *Orthemis discolor* (Carmine Skimmers), and *Miathyria marcella* (Hyacinth Gliders) along with earlier instars of what we believed to be *Dythemis sterilis* (Brown Setwings), *Erythrodiplax* (Dragonlet) species, and *Idiataphe cubensis/amazonia* (Metalic or Amazon Pennants).

Marla Garrison is a faculty member in the Department of Biology at McHenry County College, Crystal Lake, Illinois. She is author of Damselflies of Chicagoland *published online by Chicago's Field Museum https://fieldguides.fieldmuseum.org/guides/guide/388. She may be contacted via email at mgarrison@mchenry.edu or by phone (815)479-7627.*

Ken Tennessen has published over 80 technical papers on Odonata. His recent book, Dragonflies Nymphs of North America, *was published by Springer in 2019.*

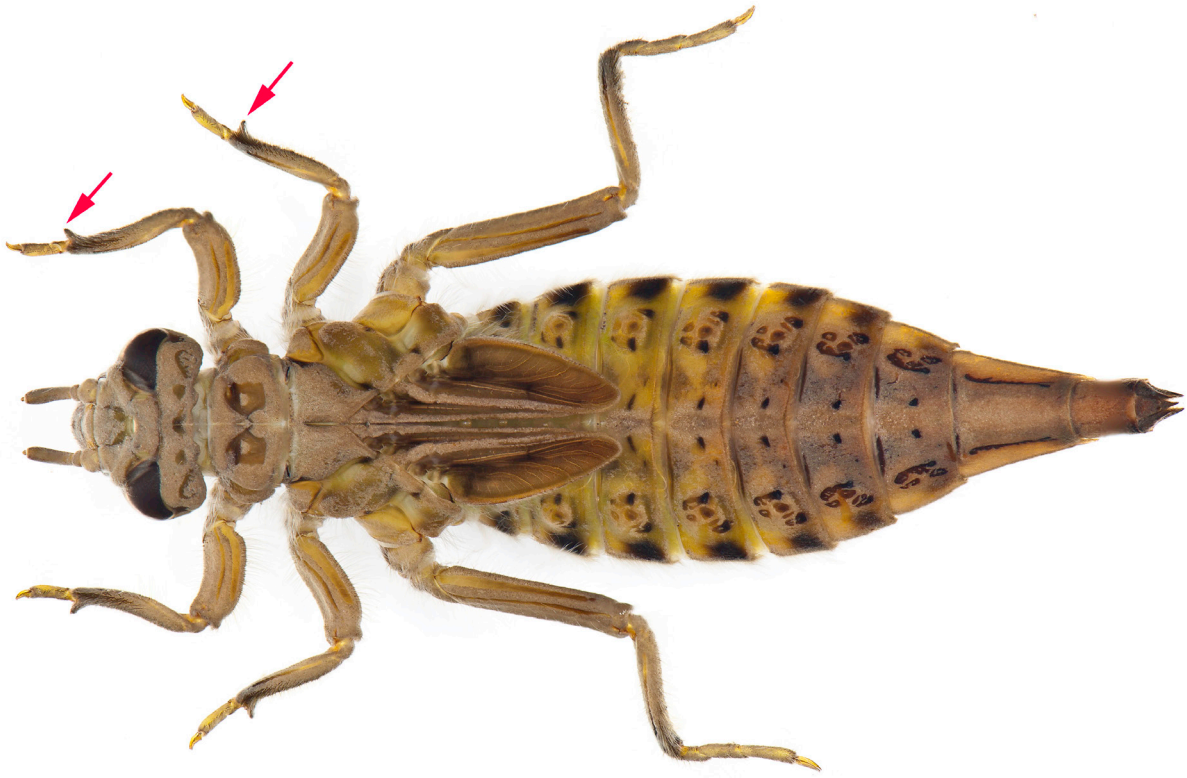


Figure 4. *Arigomphus villosipes* final instar. Arrows indicate burrowing hooks at distal ends of pro- and meso-tibiae.

Gynacantha rosenbergi trapped in a *Nephila pilipes* web; Kingfisher Park Lodge, Queensland, Australia; photographs by Dennis Paulson.

33(2) Caption Contest

In each issue, *ARGIA* features one photograph in need of a caption. You, the reader, can submit your caption, and the winning entry will be published in the next issue. Submit your caption(s) for the two photos above by 15 August 2021 for a chance to win fame and bragging rights!

This caption contest image is a little bit different than in our previous issues. In this issue, it is not a single image for which you must create a caption, but rather a set of images – so you will need a caption(s) to address both images.

Email your captions to:
editor@dragonflysocietyamericas.org.

Also consider submitting one of your more interesting or unusual odonate photographs for use in subsequent caption contests.

33(1) Caption Winner

The winning caption:

"Stream cruisers double up for the 2021 Odolympics, pole vault event."

Caption submitted by:
Mike Averill

Photograph by:
Larry R Lynch