Newsletter of the Ohio Odonata Society

Ohio Dragon Flyer

Newsletter of the Ohio Odonata Society

Ohio Dragon Flyer

In This Issue

Cover Photo

Swamp Darner *Epiaeschna heros*
Hamilton County, Ohio, May 23 2023
Canon 7DII, 420mm, 1/640, f8.0, ISO 1250

An early season flyer, this individual was observed in the small, surprisingly productive swamp hidden in the woods on the north end of Armleder Park.

Jim Lundberg

The next newsletter is July. Skipping May and June issues, we can all spend more time outside.

2023 Ohio Odonata Society Conference

June 17, 2023 Lowe-Volk Park Nature Center, 2401 OH-598, Crestline, OH

9:00-9:30	Arrive/social time
9:30-10:00	OOS business meeting
10:00-10:40	Damsels & Dragons: A Close Look at Habitat ~ Jim McCormac
10:45-11:25	Ohio's Bluets: Examining Our Most Numerous Odonate Genus ~ Jim Lemon
11:30-12:00	Netting & photography demonstration @ Lowe-Volk Pond
or 10:00-12:00	Optional morning field trip @ Lowe-Volk Park (explore the park on your own or with a guide)
12:00-1:00	Lunch (on your own)
1:00	Meet at first field trip site

Field Trip Options

#1 Lowe-Volk Park & Sandusky Headwaters Preserve

LVP features a pond, wetland, small streams, and the start of the Sandusky River.
SHP has several newly constructed wetlands, a vernal pool, and the Sandusky River.
Interesting/rare dragons & damsels: Comet Darner, Aurora Damsel, Turquoise Bluet

#2 Galion Bog & Heckert Nature Preserve

GB is a small degraded bog that has been relatively unexplored, meaning a high potential for discovering new county records.
HNP has constructed wetlands by the parking lot and large vernal pools in the woods, which is bordered by the Olentangy River. Botanical bonus: tubercled-rein orchid should be blooming!
Interesting/rare dragons & damsels: Great Blue Skimmer, Spatterdock Darner, Emerald Spreadwing, Southern Spreadwing

#3 Clear Fork Reservoir & Ohio Bird Sanctuary

CFR is a large lake on the Clear Fork River featuring 14 miles of shoreline.
OBS features wetlands and the Clear Fork River.
Interesting/rare dragons & damsels: Springtime Darner, Rainbow Bluet, Tule Bluet

#4 Garlo Heritage Nature Preserve & Collier State Nature Preserve

GHNP features a small lake and several wetlands.
Collier has a large riverine wooded corridor, much of which falls in the Sandusky River floodplain.
Interesting/rare dragons & damsels: Royal River Cruiser, Azure Bluet, Orange Bluet **Seneca County has a high potential for new county records due to consistently low observations. **

#5 Unger Park & Sandusky Wildlife Area

UP features a “wild” pond, seasonal wetland, and the Sandusky River.
SWA has the Sandusky River; Turquoise Bluets are consistently seen here, and the state-endangered Slender Baskettail has been found here and at UP. Interesting/rare dragons & damsels: Blue Corporal, Painted Skimmer, Dusky Clubtail, Turquoise Bluet, Lyre-tipped Spreadwing, Emerald Spreadwing, Sweetflag Spreadwing, Sedge Sprite

#6 Daughmer Savanna State Nature Preserve & Sears Woods State Nature Preserve

DS is the best intact bur oak savanna in the Midwest featuring a small recently restored wetland.
SW is an old-growth forest bordered by the Sandusky River.
Interesting/rare dragons & damsels: Arrowhead Spiketail, Emerald Spreadwing, Swamp Darner

Each field trip will be led by one or more experts knowledgeable in Odonata identification. Please bring your own lunch, snacks, and beverages. There are also several restaurants within ten minutes of the Nature Center as lunch options. Odonates are best discovered and photographed by getting in the water, so aquatic sandals, rain boots, or hip boots are highly recommended.

Attendance is free, but please email Jim Lemon at jlem@woh.rr.com **to register and let him know your top two field trip choices.** Registration will be limited to 75 participants. Expect event updates on Facebook, the iNat Ohio Dragonfly Survey project journal and through the OOS e-mailing list.





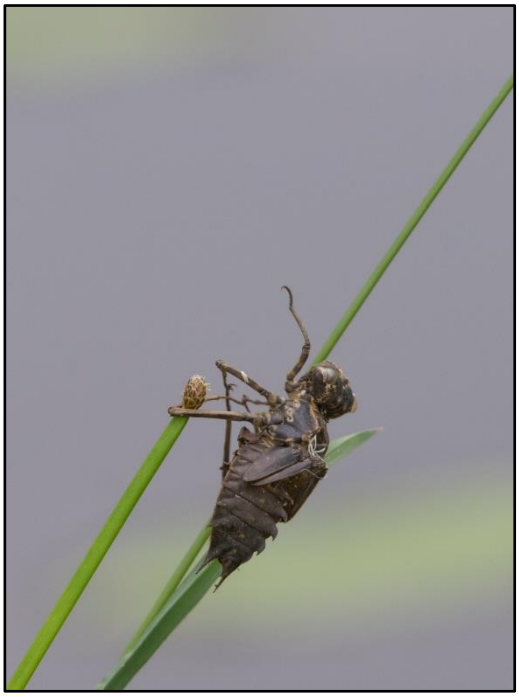
Any Ode Answer – Capturing Nymphs Robert Restifo

Q. What are the considerations for capturing nymphs, including ethics, techniques, and tools?

A. This is an excellent question, but somewhat incomplete. What is the purpose for collecting nymphs? Do you want to merely observe them? Maybe rear them to adults? Take photographs? Release them or kill them? I've stayed away from collecting nymphs because identifying them, rearing them, or photographing them is very difficult. Early instar nymphs do not have all the characters needed for identification to species; late instar nymphs are recognized by large wing pads on the dorsum and adult genital opening developing on the ventral side. Rearing is very difficult and requires copying their aquatic habitat (pond/lake or stream), suitable substrate (mud, gravel, plants) and, of course, a suitable food source (all difficult to create and maintain). Photographing is complicated because of the need to see small structures and setal patterns, usually on the labium. Killing and preserving requires 70% to 80% ethyl alcohol (long term preservation in isopropyl alcohol (rubbing alcohol) will make specimens brittle and easily damaged), vials with leak proof stoppers and adequate storage facilities. I don't have access to laboratory grade alcohol but found 70% ethyl rubbing alcohol at CVS.

The tools needed are available commercially, as the millennials say – "Google it". Various dip nets made of strong materials like a brass D-shaped frame and sturdy netting with small enough openings to retain aquatic insects. Seines of various sizes, two to three feet long (small enough for one person to handle to several feet that need two or more

people) are available. I have even used strainers (tea strainers, colanders and my collapsible landing net for fishing with limited success. Here is the tricky part. It requires you to disrupt the habitat to dislodge the nymphs and force them into the collection device. This could be kicking over rocks and shuffling feet up-stream from a seine to "digging" a dip net through vegetation.



The ethical question you must answer is "How much habitat disruption/destruction do you want or are permitted to do?" Given our current culture of preserving habitats, getting permission to collect nymphs might be difficult. In the past few years, I have leaned towards looking for and collecting exuviae (the empty nymphal skin left after the adult emerges). I look on reeds, branches, even boat dock pilings for them. This may be the best sampling method for cryptic species, especially riverine species like clubtails and river cruisers that are difficult to find, see and photograph. It can be difficult and time consuming but has advantages. You are not killing a living organism, nor disrupting a habitat. You are collecting a fully grown nymph that has all the characters needed to identify it to species. You still must store exuviae in ethyl alcohol and some kind of vial. Old film canisters work but are hard to find in this digital age. I have been using empty medicine bottles (as I get older, I have more and more available). They are easy to get, come in many sizes and usually leak proof.

My long-time favorite entomological supply house (BioQuip) went out of business in 2022, so I do not have a supplier to recommend. In 2019, Dr. Ken Tennessen published a manual for identifying nymphs. It is expensive and technical but the best resource available.

Michigan Odonata Society has nymphal keys on-line at Odonata (Dragon- and Damselflies) of Michigan - Identification - Aquatic Insects of Michigan

The Dragonfly Society of the Americas (DSA) has an excellent web site with a lot of information; Look at the "Nymph Cove" section in the publication *Argia.*

Tick Season

Any margin of unused white space on the newsletter is sufficient to hold a quick reminder that those blood-sucking, disease-carrying parasites are back in season.

Any Ode Question – Nymph Diet Anonymous

What do we know about the dragonfly nymph diet, specialization, and climate change? It is widely known that nymphs are predators, but it's also said that the Dragonhunter has a small head to get at Caddisfly larvae. Is that accurate? Are there others that specialize or are dependent on specific prey? if so, what does climate change mean for them? As an example, are we seeing more Slaty Skimmers because they can now survive here (warmer), and/or is it also connected to their prey?

Whether one line or pages long, all answers will be published. Please note if your submission is to remain anonymous. Send your questions or answers to: lundbergj@hotmail.com

Article Submissions Jim Lundberg

Ohio has over three times as many iNaturalist Odonata observations as the five bordering states *combined;* in terms of observations, Ohio remains *the* most active state within the United States, but the Ohio Odonata Society is much more than iNaturalist metrics; it connects our members across the state. The Ohio Dragon Flyer newsletter cannot exist without OOS member article submissions – all things Odonate, including but not limited to: Field trips whether an afternoon in your backyard or a week-long road trip. Surveys and studies of any scope. Habitat restoration. Habitat loss. Any Ode Question. Any Ode Answer. Odonata book reviews. Photos. Favorite destinations and hotspots. Member profiles with a photo of you in your element. Submissions in draft form are welcomed!

To submit an article or for more information: lundbergj@hotmail.com

Dragonflies and Damselflies of Ohio – Book Update and a Request Dave McShaffrey

There is still work to do on a few parts and a few species images to track down, but the book is mostly written, and we hope to start layout in a few months. I am not going to jinx it by even hinting at a date! Currently, I am writing a section on "Odonata Hot Spots" and thought it might be a good subject to crowdsource, so what are your favorite hotspots? Please limit submissions to areas accessible to the general public. If you have one that is in a sensitive area like a nature preserve not normally open to the public, you might want to pass it along to me via messenger and I'll check with the appropriate agencies before putting them in the book. mcshaffd@marietta.edu

Shadowdragon Exuviae Jim Lundberg

Thanks to Bob Restifo for tackling the difficult Any Ode Question - Capturing Nymphs. Bob discussed four advantages of collecting exuviae as an alternative to capturing nymphs. Listed in brief, the advantages are: 1) Minimizes habitat disruption. 2) Does not kill a living organism. 3) The fully grown nymph (instar 0) is best for ID. 4) May be the best sampling method for cryptic species

No group of Odonates is more cryptic than those twilight flyers in the genus *Neurocordulia* (shadowdragons). In 2022, the Ohio Department of Natural Resources (ODNR) placed Ohio's two shadowdragons (Smoky Shadowdragon *Neurocordulia molesta* and Stygian Shadowdragon *Neurocordulia yamaskanensis*) on the state endangered list, so netting, adult or nymph, is not legal without a permit from the ODNR. Collecting exuviae, however, *is* a legal alternative and has been a method used to provide data on these elusive species in other states. Although not restricted to these habitats, both species can be found in quick-flowing streams and rivers with a rocky substrate where the nymphs cling to the bottom of rocks or sticks. Bridges are often built where waterways narrow, and narrowing can accelerate flow, creating riffles which may be preferred habitat. One search strategy used successfully has been to look for exuviae on bridge abutments and piers in the months of June – August. Your search might not result in a shadowdragon exuviae find, but other species are just as interesting and provide species information that cannot be learned from observing a flying dragonfly – emergence location. Take closeup photos from top, side, front and rear. Light permitting, use a narrow camera aperture in order to gain the greatest depth of field. With closeup detail, Ohio's shadowdragons (and many other species) can be identified from exuviae. Do not worry that the date of emergence is unknown and likely different than the date of observation; submit your observation into iNaturalist, and add it the Ohio Dragonfly Survey with the location and date of observation as you would an image of a living organism.

Most importantly, be safe. Analyze water level, flow, turbulence and footing before wading.

March Observations – Zilch

Common Green Darners were observed flying Apr 3 in Montgomery and Lucas Counties, making these the first Ohio dragonflies reported for 2023. This is a month later than the March 4, 2022 sighting (our Ohio record early flight date). 2023 is the first year without March Dragonflies since 2015.

Map of April Observations Jim Lemon

Odonata numbers begin to build in April. Not in the numbers we will see in May, but worth watching for. Here is a map of Counties with observations in April. Darker where observations are in the last 5 years. Franklin and Montgomery are the clear leaders in number of April observations. Many counties (22) have only one or two observations. Notice counties that are white – no April observations. If your county is not pink, here's your chance to make your mark.

Ohio Odonata Data Jim Lemon

It has come to my attention that some Ohio Odonata observations in iNaturalist were not in the Ohio Dragonfly Survey project. After some sleuthing and further follow-up there are several instances where observations are not picked up, as follows.

1) When observers are not adding their observations to the project - this happens, and while not optimal, we generally pick things up by using the iNat Curator tool "Find Suitable Observations." But! It seems that there are some exceptions to our processing.

2) Initial wrong ID - an observation gets submitted and the observer isn't sure on the ID or makes the wrong ID. Example, they type in something like "Azure Bluet" and iNat cheerfully plugs in the first Azure Bluet on its list, *Houstonia caerulea* - which is a flower, rather than a bug *Enallagma aspersum*. This observation is located in Ohio, but isn't eligible for the survey because it's not identified as Odonata. Most of these subsequently get the correct ID, but they fall through a crack and don't make it into the survey.

3) "Private" location - it is understood that some locations need to not be made available to the wide world. But, in marking an observation as "private", it can also escape attention to the project Curators. Some may be marked Ohio, some the even more generic United States. Another crack, another fall...

4) iNat user limiting the use of their observations. Some observers prefer a measure of control over their information. Not a problem, other than unless they join the project and add their observations, the data can be locked out of inclusion in the survey. We try to get people to play along, but not always successfully. It's interesting that some of the locked observations are for people that joined the project.

5) We generally want IDs to species for inclusion in the OOS database, but there are both historical records and recent observations that are only at the generic level. This can impact observation counts. A similar situation exists on location data - not everything is located to a county. Better observations make for better data.

6) Along these same lines - we occasionally have iNat users leave the system - and their observations disappear. For better or worse, while we have captured the data and imported to the OOS database, we no longer have an original source to go back to. We treat this similar to historical data that was reported by individuals without a voucher.

What to do? Please add your observations to the project as they are entered into iNaturalist. If you have entered private location observations, please check a couple to see if they're in the project. If you have a photo of an Ode from Ohio and you can't get it to add to the project, check your ID and location - may be there's a discrepancy in your ID of the observation or where it got dropped on the map.

Eighty Years of Odonata at Mud Lake Bog Robert C. Glotzhober, Jim Lemon, and MaLisa Spring

With permission from and thanks to the Dragonfly Society of the Americas (DSA) and the authors, this article is republished from the DSA news journal, Argia. Table 2, from the original article, a summary of species documented from Mud Lake Bog, is not included in this reprint but can be found in the original Argia, March 2023 article.

Mud Lake Bog Nature Preserve is in Northwest Township of Williams County, Ohio. It is less than two miles east of Indiana and just over three miles south of Michigan. It has been an important habitat for Odonata research and information since Homer Price made his first single collection there in 1940, with major work at the site beginning in 1947. Measurements from Google Earth show the “open lake” to be only about 4.3 acres, with perhaps another third of an acre in fen/bog perimeter. Additional wetland areas, successional fields, shrubby areas, and small woodland buffer areas combine for a total preserve area of about 74 acres. The lake is a spring-fed, alkaline kettle lake. On the east side it is surrounded by an alkaline sedge fen, but on the west side accumulation of decaying vegetation has created more acidic bog mat complete with Tamarack (Larix laricina) and Sphagnum mosses. Combined, these areas contain an extremely rich botanical environment (Brodberg 1976; McCormac & Meszaros 2009). Brodberg collected 234 vascular plant species from nine mapped vegetational zones, reflecting the diversity of the area. While well known for its flora, it should be equally known for its dragonflies and damselflies.

Homer Price was a farmer in northwestern Ohio, but also a skilled naturalist and collector. He is best known for his work with Lepidoptera and Odonata, but he also made contributions to our knowledge of both snails and birds in Ohio. He collected at least 4,250 Odonata in Ohio, and the database of the Ohio Dragonfly Society records 287 of those records from Mud Lake Bog. Price collected many more Odonata at Mud Lake, with specimens that are not recorded in our

database going to Purdue, University of Michigan, the Smithsonian, and perhaps other collections as well. As example, our database shows Price collected four specimens of Canada Darner (Aeshna canadensis) on 13 September 1957, and the envelope of one of them notes, "total of 37 males collected today," the rest of which are in collections currently unknown to the Ohio Odonata Survey (OOS) database. Price's work at Mud Lake Bog spans the time between his first efforts in 1940 through 1961.

Over the years, work on Odonata at Mud Lake has been sporadic. We have no records for the 31 years between 1961 and 1992. This author, Dwight Moody, and several other workers in the first "Ohio Odonata Survey" visited Mud Lake Bog in 1992, 1994, 1996, and 1997 (121 records). Judy Semroc visited Mud Lake Bog in 2005 and documented 12 species via photos which were later submitted to iNaturalist. Eighty Years of Odonata at Mud Lake Bog A gap of another 14 years passed before 2019 when Jim Lemon documented eight species with photos in June, then Kim Smith and Ryan Jacobs documented another five species with photos in July. Next, in September 2021 through September 2022 the three authors plus Robert A. Restifo visited a total of eight times in this two-year study. The limited number of total visits and the sporadic nature of visits reflects the fact that Mud Lake is in one of the most remote corners of the state (typically 3.5-hour drive from Columbus), no nearby universities to sponsor professors or student researchers, and little in the way of nearby facilities for overnight stays. Furthermore, poor access to the bog mat, the open water areas, and the general nature of the site makes field work a challenge, even though the rewards can be very worthwhile. Access to the preserve is currently by permit only, so any visits require several weeks or months advance notice and paperwork with the Ohio Division of Natural Areas and Preserves.

The 287 records for Mud Lake Bog in the Ohio Dragonfly Society's database reflect 64 different species—an impressive diversity. That represents 37% of the 173 species recorded for Ohio from a relatively small preserve. Two new Ohio records originated from Mud Lake Bog: The Variable Darner (Aeshna interrupta), collected by Homer Price on 21 September 1951, and the Lilypad Forktail (Ischnura kellicotti), collected by Dwight Moody on 3 July 1992. Of the 64 total species, eight are Ohio endangered (one also Federally endangered), three are Ohio species of concern, and one is listed as extirpated from Ohio (Table 1). It is possible that one or more others may now be gone from the site, and/or from the state.

The 2021 and 2022 Field Work

We visited Mud Lake Bog Nature Preserve in 2021 on September 2, 3, and 15. In 2022 we visited on May 17, June 28, July 28, August 25, and September 29. Our permit in 2022 allowed only one visit per month starting in May, except for two visits in September. Weather and other circumstances limited us to the single visit in September of 2022 also.

In May 2022, despite good weather, we observed only three species of Odonates at Mud Lake. The same day we visited Lake La Su An Wildlife Area, just six miles to the northeast of Mud Lake. At Lake La Su An we observed a huge "hatch" of Common Baskettails (Epitheca cynosura), plus three additional species. Upon returning to Mud Lake an hour later, almost no Odonata activity was observed. We had expected much greater activity upon return to Mud Lake Bog after seeing the flurry of activity at La Su An, but were quite disappointed. The visits in July and August were also in reasonably fair weather, with only six and five species respectively observed. The September visit promised good weather, until we were

within a few miles of the site, when solid cloud cover took over and only late in the afternoon when we got a few breaks of sunlight did we finally observe five species (two of which were undeterminable). The only visit that held "true" to the promise of what one might expect from the habitat of Mud Lake Bog and its history was the one of 28 June 2022, when we documented 20 species, including the Lilypad Forktail (Ischnura kellicotti), which is an Ohio Species of Concern, and the Cherry-faced Meadowhawk (Sympetrum internum) (collected), and the Northern Spreadwing (Lestes disjunctus) (iNaturalist photo), which were both new species for Mud Lake. However, outside these three noted, all species observed were common, widespread species.

One of our goals was to produce an updated publication of known species for this significant Ohio habitat. In addition to making aerial net collections (kept to a very conservative limit—only 10 specimens in 2022), we made photo documentations that we posted to iNaturalist with obscured location information, and noted species observed but with neither confirmation via collection nor photos.

In the eight visits during 2021 and 2022, only 26 species were documented at Mud Lake Bog. Each visit was typically made by two or three experienced workers, once by four. This was a total of 61 person/hours of actual field work. That relates to 2.65 hours for each species discovered, for a site known to have harbored 64 species over the years—an extremely poor showing. Our joint impression was also that overall numbers of even the common species were low. The senior author collected at the preserve several times during the 1990s as part of the first Ohio Odonata Survey. His memory was of abundant individuals of numerous species. In 25 trips by various survey workers at that time, 36 species were recorded and ten of those species have not been documented at Mud Lake Bog since. In reality, however, those 25 visits reflect specimens collected ranging from one to 14 individuals with an average of 4.8 species per visit and a median of 3.5 per visit. So even in the 1990s, numerous trips were required to fully reflect the diversity of the site.

Somewhat exasperating is that of the 25 species documented in this current work, only four would be considered "rare." The Marsh Bluet (Enallagma ebrium), documented by photo in 2021, is Ohio Endangered. The Lilypad Forktail (down-listed in 2022 from Ohio Endangered to an Ohio Species of Concern) was observed on two visits in 2022, and during 2021 the OOS database recorded 102 observations in only eight counties. We had one observation each of the Cherry-faced Meadowhawk and the Northern Spreadwing (neither are State-Listed) in 2022, and these were the only OOS records in 2022. However, the other 21 species documented during the two years, all were documented in the OOS database during 2021 in more than 17 counties, with 12 of them in over 60 counties, and six of them in all 88 counties. Hence, of the few records we were able to document at Mud Lake Bog, almost all of them are common, well-distributed species. None of the seven other species currently or previously State-Listed and known from Mud Lake Bog were documented, nor were several other uncommon but unlisted species. This data suggests that there is a problem. Either our survey work was ineffective, or we just needed many more visits, or perhaps there is a problem with the aquatic habitat at Mud Lake Bog Nature Preserve.

Table 1. Of the 64 total species, eight are Ohio endangered (one also Federally endangered), three are Ohio species of concern, and one is listed as extirpated from Ohio. These are the years each species was last seen at Mud Lake.

Endangered		
Canada Darner	*Aeshna canadensis*	1997
Mottled Darner	Aeshna clepsydra	1996
Hine's Emerald Skimmer	Somatochlora hineana *E (Federal E)	1949
Chalk-fronted Corporal	Ladona julia	2021
Boreal Bluet	Enallagma boreale	1953
Hagen's Bluet	Enallagma hageni	2019
Marsh Bluet	Enallagma ebrium	2021
Northern Bluet	Enallagma annexum	1953
Species of Concern		
Dusky Clubtail	Phanogomphus spicatus	1994
Lilypad Forktail	Ischnura kellicotti	2022
Sphagnum Sprite	Nehalennia gracilis	1951
Extirpated		
Plains Emerald	Somatochlora ensigera	1949

Reflections

With a history of such a great diversity of Odonata at Mud Lake Bog, and such sparse results from our work, clearly additional survey work needs to be encouraged. While many hours were put into this current study, not all of them were in ideal weather, which is always hard to predict despite forecasts when you are traveling halfway across the state to do field work. However, enough effort was made to strongly suggest that populations of Odonata at Mud Lake Bog are not what they used to be, nor are they what they should be given the apparent habitat. Side trips made on the same dates to other habitats within ten to thirty miles produced significant numbers and diversity of Odonata when very few were seen at Mud Lake Bog. I sometimes wonder if Homer Price's experience at Mud Lake Bog reflected an abundance that pre-dated decline from post-WWII production and use of agricultural herbicides. Preserve manager Ryan Schroeder informed me that the agricultural fields to the east of the lake were added to the preserve and taken out of agriculture in 1993. Might that not be long enough ago to remove any impact from the use of herbicides between the 1950s to 1961 and early 90s? Or might there still be remnant herbicides, pesticides, or trace elements leaching into the waters that are having an impact on aquatic macroinvertebrates? The site's neighbor, Jeff Mills, told us that some of the nearby fields are treated by aerial spraying and that he had witnessed visible drift onto his property. While these fields may be a quarter mile or more from the lake itself, could there be additional drift or accidental release closer to the lake that is impacting the site? It might be enlightening and important to have the water from several locations at the site tested by a qualified lab to see if there are any chemical impacts on the aquatic habitats at Mud Lake Bog Nature Preserve.

Specimen Collections

Most records for 2022 were documented with photographs that were submitted to iNaturalist, with the location obscured. Ten specimens were vouchered, labeled, and stored in odonate envelopes, and reside with the permanent natural history collections of the Ohio History Connection in Columbus. Table 2 lists all species noted, with an annotation regarding their relative abundance throughout Ohio.

Acknowledgements

Work at Mud Lake Bog State Nature Preserve was made possible by a permit from the Ohio Division of Natural Areas and Preserves, and the Ohio Division of Wildlife granted a permit for limited collection of any State Endangered species we might document, other than via photographs. Our thanks to both agencies. Also, thanks to Robert A. Restifo who assisted us in our work on several trips.

Citations

Brodberg RK. 1976. Vascular Macrophytes of Mud Lake, Williams County, Ohio. Master of Science Thesis. Bowling Green State University. 74 pages.

McCormac J, Meszaros G. 2009. Mud Lake Bog State Nature Preserve. IN: Wild Ohio: The Best of Our Natural Heritage. Kent State University Press. Kent, Ohio. 140 pp.

Ohio Odonata Society Database. Maintained by Jim Lemon. e-Mail: jlem@woh.rr.com

Bob is curator emeritus of natural history for the Ohio History Connection. He was senior, co-editor of the 2002 Dragonflies and Damselflies of Ohio published by the Ohio Biological Survey. Bob can be reached at rglotz@twc.com.

Jim is a volunteer Naturalist in Southwest Ohio and the admin for the on-going state-wide Ohio Dragonfly Survey. Jim can be reached at jlem@woh.rr.com.

MaLisa Spring is the State Coordinator for the Ohio Bee Survey and was previously the State Coordinator for the Ohio Dragonfly Survey. She can be reached at malisa.spring@gmail.com.

Editor's note: Mud Lake Bog is not open to the public except by Ohio State Nature Preserves Access Permit.