

Minnesota Dragonfly Society

Newsletter Issue #1
May 2014

Ensuring conservation of
Minnesota's dragonflies and
damselflies through
research and education.

The Emergence of the Minnesota Dragonfly Society

By Kurt Mead

Forgive me if you've heard this all before, but looking back at this history is fitting as the Minnesota Dragonfly Society takes its first steps.

The Minnesota Odonata Survey Project (MOSP) was started in 2006 when the Minnesota DNR Non-game division took a chance on me and gave me a grant to do research on the ranges and the distributions of the Odonata of Minnesota. No organized effort toward this goal had ever been previously attempted. Had they known how little qualified I was for this task they would have passed me by.

Even though the grant could not be used for education, specifically, I was able to work around this problem by holding "survey workshops" in which volunteers would need a little intro before joining me in the field to survey the Odonata of an area. I got to teach people and they become, collectively, a massive group of citizen scientists, assisting the state in its collection of data.

Another aspect of this effort was to catalog all of the dragonflies and damselflies in the large insect collections around the state. Of course we need to know which species are currently living where in Minnesota, but as important is to know what lived here in the past. Pressures such as land development, agriculture, water usage, water quality, invasive species, and climate change could impact dragonfly populations but without an

historical record no comparisons can be made. Apparently, the DNR was pleased with our efforts as we kept getting new grants after the old grants expired. Between the beginning of the MOSP in 2006 and its official end in 2012 untold numbers of new county records were reported throughout Minnesota. Two dozen species of dragonflies and damselflies were added to the official list of the Odonata in Minnesota. Hundreds of people interacted with dragonflies and damselflies in ways they never had done, before. A core group of folks became passionate about this work.

This core of dedicated folks is why, even after the official end of the MOSP, there is still momentum to continue studying these amazing insects. The Minnesota Dragonfly Society (MDS) is a continuation of what was started with the MOSP. The MDS has applied for 501c3 status (currently awaiting for the official IRS word on this), written by-laws, established a board of directors, and is planning for the future. We even have a Mission Statement: To ensure conservation of Minnesota's dragonflies and damselflies through research and education.

This coming field season will be a sort of experiment, when we will try out different approaches of educating and involving the public while, at the same time, doing real Odonata research. You can help out by becoming an MDS member, donating money to the MDS, attending a survey workshop, submitting new records, and by inviting others to get involved. We are always looking for new sites at which to hold workshops and for new partner groups. We have a lot to offer. Are you in?

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Board Members:

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Treasurer: John Arthur
Secretary: Ami Thompson
Vanessa Strong
Rachel MaKarrall
Jeff Fisher
Angela Isackson

Membership:

The Minnesota Dragonfly Society welcomes everyone! Annual Memberships are \$25 for individuals and \$30 for families.
Contact: mndragonflies@gmail.com

Who We Are:

The Minnesota Dragonfly Society facilitates Odonata (dragonfly and damselfly) research, surveys, and education.

Public events include survey outings, identification and citizen science trainings, family education events, and board meetings.

Other events include professional development workshops for educators and research outings for trained members.

Currently the best way to reach us is to request to join our Minnesota Dragonfly Society Facebook Page or through our website: www.mndragonfly.org

Member Photos:



Calendar of Events:

June 7, 8am-Noon, Warner Nature Center, Marine-on-St-Croix, free, **Training for Dragonfly Workshop Instructors.**

Resources, strategies, and empowerment for teaching groups about dragonflies and damselflies. Led by Kurt Mead, Ami Thompson, Ron Lawrenz, Jeff Fisher, and others.

June 7, 7pm-8:30pm at Warner Nature Center. Ron Lawrenz, John Caddy, and Scott King will present **dragonfly poetry and photography.**

June 8, 9-4pm, **survey workshop**, Northland Arboretum, Brainerd, \$75 fee includes lunch. Register by emailing arboretum@brainerd.net or calling (218) 829-8770. Kurt Mead

June 21, 8-10am, **dragonfly program**, Soudan Underground State Mine/Vermillion State Parks, Soudan, MN, contact soudanmine.statepark@state.mn.us for questions, no registration required. Kurt Mead

June 23, 8:30am-12:30pm, **Educator Dragonfly Workshop** at the Minnesota Zoo, \$50. Register here: <http://mnzoo.org/education/schools-teachers/teacher-programs>. Ami Thompson

June 28, 9am-5pm, **survey workshop**, Clair Nelson Intermodal Transportation Center (aka Finland Rec Hall), Finland, \$15 (\$10 for MDS members), no registration required. Kurt Mead

June 28, 10am-12pm, **Drop in Dragonflies** at Tamarack Nature Center. "A two hour event where folks can drop in to learn about dragonflies and damselfies" FREE Contact Tamarack for more info tamarack@co.ramsey.mn.us.

June 28, 12:30pm-4:30pm **Dragonfly Workshop** at Tamarack Nature Center. Free or \$5 (TBD) Register online <http://www.vlawmo.org/events/dragonfly-workshop/> or Strong@vlawmo. Vanessa Strong

July 12, 10:00am-5:00pm, **survey workshop**, Hartley Nature Center, Duluth, \$15 (\$10 for MDS members), no registration required. Kurt Mead

July 19, 9am-5pm, **Workshop and survey**, Buffalo River State Park, Glyndon, MN. Contact the park naturalist andrea.wakely@state.mn.us with questions. No registration required. Scott King

July 19, 9am-5pm, **survey workshop**, North House Folk School, Grand Marais, \$85. Registration info at <http://www.northhouse.org/courses/courses/course.cfm/cid/220>. Kurt Mead

July 22: 9:30am – Noon **Dragonfly Monitoring with the Backyard BioBlitz** campers (3rd/4th grades) Contact Tamarack for more info: tamarack@co.ramsey.mn.us

July 24, Noon-4:00pm **Educator Dragonfly Workshop** at the Whitewater State Park \$55 Registration and Info here: <http://www.amithompson.com/calendar/>. Ami Thompson

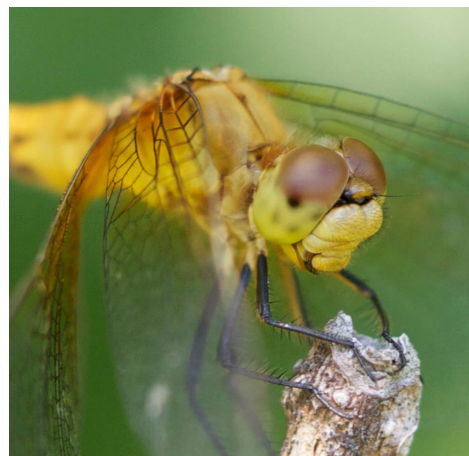
July 24, 1:30pm-3:30pm, **family program**, Hormel Nature Center, Austin, MN, free, registration is required, info@hormelnaturecenter.org or call them at 507-437-7519. Kurt Mead

July 24 - 27, **Annual Minneota Dragonfly Gathering**, Red Lake Management Area, \$20, registration is required. <http://mdsgathering.blogspot.com/2014/05/link-to-registration-for-mds.html>. Mitch Haag and Curt Oien

July 26, 7pm-9pm, **dragonfly program**, Lake Elmo Park Reserve, Lake Elmo, free, but Washington County Parks permit may be required. Kurt Mead

August 5, 10:30am-11:30am, **Dragonfly Program with Bug's Life campers** (1st/2nd grades) Contact Tamarack for more info: tamarack@co.ramsey.mn.us

August 8, 9:30am-12:30pm, **Educator Dragonfly Workshop** at Maplewood Nature Center, 9:30 am to 12:30 pm \$77 Registration and Info here: <http://www.amithompson.com/calendar/> Ami Thompson



Young female *Sympetrum rubicundulum*, Ruby Meadowhawk. Photo by Scott King.

Expect the Unexpected! Discovering the Spatterdock Darner

By Ron Lawrenz

Dianne Rowse called me during the winter of 2008-2009 and asked if it would be possible to hold a Minnesota Odonata Survey Project (MOSP) volunteer training workshop at the Lee and Rose Warner Nature Center (WNC). Dianne and I compared our calendars and eventually decided to hold the workshop on June 6th. I had already recorded over 50 species of dragonflies on the WNC property during the previous two years, and I knew that the date that we had selected would hit the peak emergence period for the greatest number of species for the flight season at Warner.

As the date of the workshop approached it was clear that, with a forecasted high of 49° F, it was quite probable that we wouldn't see a single dragonfly during the workshop. As I sat enjoying dinner in the warm, sun soaked calm of the evening of June 5th, I thought about how it was too bad that the workshop wasn't happening a day earlier. That's when I made the now fateful decision to drive up to the nature center and catch as many dragonflies as I could before dark and hold them overnight in the refrigerator.



After an hour of frenzied netting, I captured 35 individuals representing about 12 species. Among them was a single “blue” type darner that I netted while it patrolled Bernie’s Bog right below our main building. With the sunset fast approaching, I quickly stuck the dragonflies in envelopes and put them in the refrigerator.

The next day I set up my table-top flight pen and released the previous evening’s captives to warm up before the workshop attendees arrived. Once again, time was short so I didn’t stop to ID the specimens, thinking that it would be great to have the workshop participants do their own IDs. After an hour or so of field work we confirmed that nothing was flying, settling for a few damselflies captured with net sweeps of the vegetation around some of the wetlands.

As the participants worked their way through all the previous day’s specimens, I was occasionally asked about the darner. Without looking, I simply said that it must be a Springtime Darner (*Basiaeschna janata*) since that’s the only species of “blue” type darner that I knew to be flying this early in the year. They all believed me, although I think that Dianne had her doubts.

When I was cleaning up and releasing the captive dragonflies, I grabbed the darner last. As I held

it in my hand my first impression was that it was awfully big for a Springtime Darner, and that its eyes were extremely blue. It didn't have the telltale brown spots at the base of each wing either. It was a male and as I turned it sideways to look at the terminal appendages the first thing to come out of my mouth was what the H--- is this? I had never seen anything like the beak-shaped terminal appendages of this specimen.



I quickly ran up and grabbed several local field guides and found that it wasn't among the darners listed there. I figured that I needed something with a little broader coverage so I grabbed "Dragonflies through Binoculars: A Field Guide to Dragonflies of North America." Bingo, two North American darners had males with forked cerci, the Blue-eye Darner (*Rhionaeschna multicolor*) found primarily west of Minnesota, and the Spatterdock Darner (*Rhionaeschna mutata*) found primarily east of Minnesota. The field guide maps also indicated that neither species had been found in Minnesota, and that their geographical distributions didn't overlapped.

Over the next two weeks I did some networking with a number of other odonatologists and confirmed that it was a Spatterdock Darner. I reviewed the literature to identify typical characteristics of *R. mutata* breeding sites (forested, fishless, low alkalinity ponds with yellow water lily).

That fall, Bill Smith (Wisconsin Department of Natural Resources) and I captured several larvae in the first pond that we visited. I subsequently captured larvae in a second pond, confirming that they were breeding at Warner. Bill said that he knew of only a couple of *R. mutata* breeding sites in south central Wisconsin, over 200 miles to the southeast. The Warner location remains the only known *R. mutata* breeding site in Minnesota, and the farthest north and west that the species has ever been found. My lingering regret is that the workshop participants didn't get to share in the discovery. The take-away: don't assume, and expect the unexpected!

How to (or one way to) Survey a County for Odonates

By Arne Myrabo

1. Find out what habitats are available.

Many counties have “shoreland” maps, from various sources. One example: [Wright County Shoreland](#).

Look for: streams, rivers, lakes, wetlands, and ditches (really!).

2. Look up what species might be there and when. Create a phenology chart for your area, including adjacent areas.

Sources:

a. Field guides (*Dragonflies of the North Woods/Mead*, *Damselflies of the North Woods/DuBois*, *Dragonflies and Damselflies of the East/Paulson*)

b. www.odonatacentral.org (county/state checklists)



3. Determine possible survey areas (in order of preference, based on my experience):

- a. Your backyard!
- b. County parks
- c. City parks
- d. Wildlife Management Areas
- e. State Parks
- f. Scientific and Natural Areas
- g. National Parks
- h. Waterfowl Production Areas

4. Get your permits! (Particularly important if you are collecting specimens.)

a. City Parks — contact the municipality (parks superintendent).

b. County Parks — Some may require permits to collect (Hennepin) and some will require a release to go “off trail” (Sherburne). Just go to the county website www.co.countyname.mn.us and look for parks and contact info.

c. State Parks, Forests and Trails — Go to http://www.dnr.state.mn.us/parks_trails/research.html (application link is near the bottom).

d. Wildlife Management Areas — no permit required, but a courtesy call to the WMA manager is recommended. Contact info found at http://files.dnr.state.mn.us/contact/wildlife_managers.pdf.

e. Waterfowl Production Areas (WPA) (U.S. Fish and Wildlife Service) — locate the administrative office from <http://www.fws.gov/Refuges/refugeLocatorMaps/Minnesota.html> and request a special use permit to collect dragonflies and damselflies using procedures described at <http://www.mndragonfly.org/>. The request may be made either by telephone or email.

Provide the following information: Your name, county for all WPAs or specific WPA, species you will collect (dragonflies and damselflies), collection procedures (mention the web site), time period of sampling (e.g., April through October 2012).

f. Scientific and Natural Areas — Go to <http://www.dnr.state.mn.us/eco/sna/education.html>. Note that if the SNA is owned by The Nature Conservancy, a separate or joint permit may be required. Either one will accept the other's though.

g. National Wildlife Refuges (U.S. Fish and Wildlife Service) — Request a special use permit to collect dragonflies and damselflies listing procedures described at <http://www.mndragonfly.org/>.

The request may be made either by telephone or email; numbers and addresses for refuges may be obtained from <http://www.fws.gov/refuges/profiles/ByState.cfm?state=MN> or <http://www.fws.gov/Refuges/refugeLocatorMaps/Minnesota.html>.

Provide the following information: Your name, refuge name(s), species you will collect (dragonflies and damselflies), collection procedures (mention the website), time period of sampling (e.g., April through October 2012). Request information about any restrictions on access to Refuge lands/waters.

h. Federal Parks (there are five in MN) — Go to <https://science.nature.nps.gov/research/ac/apps/apply/AppInstructions>.

- Grand Portage National Monument — The 9-mile portage
- Mississippi National River & Recreation Area — For 72 miles, from Dayton to Hastings
- North Country National Scenic Trail
- Pipestone National Monument
- Saint Croix National Scenic Riverway — The 252-mile stretch of the Saint Croix and Namekagon rivers
- Voyageurs National Park

Good hunting!



Dragonflies in the Classroom

By Juliane Chapman

My class at the Transition Program, part of the Northeast Metro 916 Intermediate School District in White Bear Lake, has been using dragonflies to learn about science, language, and much more.

In the summer of 2013, I attended a University of Minnesota professional development class called Citizen Science Research for Teachers where I met Kurt Mead and Ami Thompson and received *Dragonflies of the Northwoods* and the *Dragonfly Curriculum Guide*. This inspired me to bring dragonflies and citizen science into my classroom!

My students started learning about dragonflies in January of 2014. Waiting through the long winter to be able to go out and try our hand at catching dragonflies ourselves was difficult. So in March we decided to raise nymphs in the classroom. I went out and attempted to collect nymphs from a few frozen ponds, but having no luck, I contacted Ami who allowed us to raise two of her nymphs.



Excited about their new classmates, the students named the nymphs Sheldon and Penny.

The students learned how to fill out observation forms, the anatomy of a nymph, nymph behaviors, and how to tell the difference between dragonfly and damselfly nymphs. The aquarium store where

I purchase nymph food (black worms) generously gave me another nymph, an unexpected hitchhiker on one of their fish orders from Florida.

The students named it Leonard and we used it as an opportunity to talk about invasive species and how you do not want to release a dragonfly if you do not know where it came from. The school board toured our school and when they were in our classroom my students did a very nice job of telling all about our project.

Everything was going well for a while but then the students discovered that Penny died. I told them I would let Ami know about it at an upcoming Minnesota Dragonfly Society meeting at Warner Nature Center. The students were very worried that Ami would be upset about Penny's death, which was a great conversation starter about building social skills. When I arrived at school on Monday with a few dozen more nymphs that were caught in the pond at Warner Nature Center they were

very excited. I told them that I had been part of a group of people looking for a certain type of dragonfly nymph (the Spatterdock Darner) and that everyone there was happy to help collect more nymphs for our classroom.

We have had them in the classroom for over a month and the students have learned how to collect data from observation. A section on the data form allows for comments and one funny comment was "Canadian Darners poop too much!"

On Monday, May 12th, we arrived at school to find a fully metamorphosed adult dragonfly! It was in a basket we used to cover the jars containing nymphs we thought would emerge soon. We also discovered a damselfly had emerged but that jar

was uncovered and we never found the damselfly; so we decided we should cover all the jars even if we do not notice any signs of them being ready to emerge. Excitingly, we had another damselfly emerge that day!

We worked together to identify the dragonfly: they decided it was a Dot-tailed Whiteface, and then invited other classrooms to come with to the pond to release it.



On Tuesday, May 13th, we were checking the jars and saw a nymph climbing up to the stick around 9:00 a.m. We decided to assign a person to watch it at all times to let us know of any changes. Unfortunately, the dragonfly did most of its emerging while the class was at Phy Ed but we were able to capture pictures.

We documented changes as they occurred and found that it took 3 ½ hours for it to fully emerge from climbing out of the water on a stick to wings spreading out. One thing Ashley enjoyed was “how they turn from nymphs to dragonflies and watching them.”



When we checked a few hours later the dragonfly had flown away. I asked a student, Ashley, what she learned about dragonflies and she stated “How to take care of them, feed them, track their behaviors, and how to hold adult ones.”

We look forward to releasing more dragonflies soon and the students have already asked if we can do this again next year!



Meadowhawk Meditations

By Scott King

April 12, 2011: On the way to work I stopped at Lake Byllesby County Park in Dakota County to look for meadowhawks. Immediately after setting foot on the trail, I met a Common Green Darner. The large dragonfly flew past, but hung up in a small tree a short distance off the trail, allowing a closer look and a couple photos. I saw no other dragonflies until I reached the farthest pond.

This pond, the last in a series of linked ponds leading away from Lake Byllesby, is bordered at one end by restored tallgrass prairie. As I circled the pond, I found close to a dozen Variegated Meadowhawks, all male, all perched on the flattened grasses at the water's edge. If a dragonfly flew too close, whether a darner or another male meadowhawk, the perched dragonfly glanced out and confronted the intruder, aggressively defending his chosen place. After successfully chasing away an unwelcome guest and before returning to his shoreline perch, the dragonfly hovered over the water for a few seconds as if savoring the victory. Sometimes, I noticed, these steadfast males left their posts not to chase away intruders but to capture food. Several tandem pairs arrived at the pond and began depositing eggs. With so much going on, I decided to stay and watch for a while. Work could wait.

A fallen fence post, repositioned at the edge of the pond, provided a dry place to sit. Not long after I sat down, a dragonfly landed and took up a perch beside me, three feet to my left. What vastly different beings we are—insect and man. And yet, here we sat, sharing the same edge, the same interface of seasons, both facing the pond, both deliberate.

Some time went by before the next tandem pair arrived and began touching eggs into the pond. The sequence of actions performed by this pair was interesting and mostly invariable, repeated over and over: they hovered...then dipped and touched the water several times...then moved to a



new location and started the sequence over again. Before I lost sight of the two dragonflies in tandem, they had touched the water one hundred and three times. If even one or two eggs were washed free from the female's abdomen at each touch, a substantial number of eggs were being deposited in the pond.

I noticed, after a while, that the water in front of me held a slight current; the few grass blades on the surface all aligned, pointing in the direction of the larger part of the pond. What's truly curious about this pond, something I'd noted on previous visits, is that there is no visible outlet, no exiting stream. The water flows in but doesn't leave. And yet the pond doesn't overflow, so the water must go somewhere. Perhaps there's a hidden drain or buried culvert that I've failed to locate. Or perhaps the water seeps into the ground like the water in Irish Turloughs, a kind of temporary pond occurring in karst topography where the outlet is often a "swallow hole" or "swollet" in the bottom of the pond.

It occurred to me, as I sat at the pond's edge next to my friend the dragonfly, that the simple act of using our eyes to learn a landscape may be among

the most important of accomplishments— more important than a college degree, more important than writing a book, more important than being successful at business. Our eyes were not evolved for iPads (though the opposite is surely true). Nor were they evolved for the task of steering a car through traffic. Nor (though it pains me to suggest this) were they evolved to scan rows of printed letters and words. They were, it seems to me, fitted into our heads for pattern recognition in nature, that and for registering the subtle expressions that play upon the faces of our own species (an echo of the pattern recognition in nature).

Today, instead of Hugh MacDiarmid's drunk man looking at a thistle, I was the sober man looking at a dragonfly. Whether fully awake or creatively drunk, attentiveness can be viewed as a poetical act, slightly rebellious even, especially in a world where such attentiveness is too often cut short. For the duration of my sit, not another person happened by. In such a populated area, with so few people outdoors, I wondered to what use everyone else was putting their eyes? A look at the dragonfly perched beside me and I was reminded of my place. If the dragonfly could speak, I imagined he would say, "What do you know about eyes or how to use them? Don't you have work to do?"

Of course, if this dragonfly really could speak and carry on a conversation, I'd ask, after some small talk about the weather, where he came from and why. It seems generally accepted that Variegated Meadowhawks fly great distances to arrive in Minnesota in the spring, showing up weeks before the local dragonflies begin to emerge. But the exact distance and origin remains unknown. They've been observed throughout the winter months in the southern tier states of Texas, New Mexico, and California, so a good first guess would be that they come from that part of the continent. This year's migration coincided with and was possibly aided by the powerful winds of a recent low-pressure system which had gathered strength over northern Mexico before surging north across west Texas, New Mexico, Colorado and Oklahoma, making its way to the northern states a day or two later.

Did the dragonflies leave en masse one clear morning? Or did they travel alone, site selection bringing them back together in the end? What "strange commotion...in his brain" caused him to cast "his eye against the moon" and fly this far north (to borrow a line from Shakespeare). Might they have flown through the night like the shorebirds, guided by constellations, these typically sun-propelled creatures darting off after stars in the dark as though the stars were midges?

That the meadowhawks should have chosen this particular pond raised yet another question. Variegated Meadowhawks are known to breed in temporary ponds, even foul, stagnant puddles filled with fermenting and corrupt water. It was for this habit (and habitat) that Hermann Hagen assigned the Latin descriptor *corruptum* as the species name (being one of the more beautiful North American species, this designation carries a certain irony as well).

The water in this pond was crystal clear, its source, so far as I could tell, being mostly groundwater, making their choice to breed and oviposit here a bit of a character breach. However, due to last fall's flood and subsequent receding of the water that flattened all the surrounding vegetation, the pond had the look of a temporary pond. And perhaps that was the answer: site selection is fine-tuned to the appearance around the edge of the pond and not the quality of the water in the pond. And maybe that was why I was here as well?

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