



# Minnesota Dragonfly Society

Newsletter Issue #5  
December 2015

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

## Talk About Coming Out of the Gate Fast!

By Ron Lawrenz, MDS President

What a great year it has been for MDS! We started with a great showing for our first Annual Meeting at the Warner Nature Center on January 3rd, and we hit the ground running with our participation in more than twenty events and field outings through August. During some of the prime summer weekends we were represented at two, and even three, events on the same day, and it's continued right into fall. We had a significant presence at the Monarch Festival on the shores of Lake Nokomis and the Mississippi Riverfest and Heritage Day at the Carl Kroening Interpretive Center both on September 12th, and we sponsored a two day Dragonfly Nymph Identification Workshop at the Eastman Nature Center on September 19th and 20th.

On top of that, MDS members were also actively engaged in a wide variety of surveys and independent studies. It started in June with the Warner Nature Center Dragonfly Bioblitz and the continuation of field surveys in the Red Lake Wildlife Management Area, and the MDS annual field outing doing a survey of the Dragonflies and Damselflies of Tettegouche State Park along the North Shore of Lake Superior in early August.

All of these appearances at events caught the attention of the media. It started with some notices about MDS appearances at events, mostly local newspapers, and it culminated in a wonderfully eye catching two page article about dragonflies and MDS in the Outdoors

section of the July 25th Minneapolis Star Tribune newspaper.

And yet, these are not the top story of the year. All the educational events, surveys, bioblitzes, outings, and publicity are but the results of a knowledgeable and energetic membership who sought out opportunities to share their interest and passion for dragonflies and damselflies with a broader audience. The real story is about the incredible commitment to volunteerism and teamwork that MDS members displayed throughout the year, and about the thousands of lives that they touch along the way. I can only imagine how many folks learned for the first time that dragonflies start out as aquatic larvae and that they live most of their lives in the water.

We've set the bar high, and we continue to take on new challenges like a \$50,000 research grant, but it's working because of you. I'll have to admit that I thought that we were taking on more than we could chew, but the more that I witness the energy and dedication of our Board and membership the more I'm convinced that we are up to the challenges. In the true sense of a society writ large, we are a group of people with a common bond and passion. Thank you for all that you do for MDS. Keep up the great work!

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Jeff Fischer  
Angela Isackson  
Rachel MaKarrall  
Kurt Mead  
Vanessa Strong

## Newsletter Editor:

Rachel MaKarrall

## Membership:

The Minnesota Dragonfly Society welcomes everyone!  
Annual Memberships are \$25 for individuals and \$30 for families. Contact: [info@mndragonfly.org](mailto:info@mndragonfly.org)

## Who We Are:

The Minnesota Dragonfly Society is a 501(c)(3) organization that 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](http://www.mndragonfly.org).

## Our New Mailing Address:

Minnesota Dragonfly Society  
P.O. Box 46192  
Plymouth, MN 55446

## Upcoming MDS Events

**December 20, 2:00-6:00 p.m. Minnesota Dragonfly Society Board Meeting.** Como Park Grill, St. Paul, free. Help us prepare for the exciting new grant we will be utilizing for work up north as well planning the upcoming 2nd Annual Membership Meeting that is taking place in January.

Elections will be taking place this year and if you have been looking for an opportunity to get more involved, make more connections, or just get out to more uncharted territory to explore catching Odonates, this is the time! MDS had a successful busy 2015 and we are only expanding as word spreads but we need your help to keep this excitement going.

Come join us to learn more, offer feedback, join a committee, or just to even socialize grab some grub and a tasty beverage at Como Park Grill!

**January 30, Annual Members Meeting.** Warner Nature Center, Marine on St. Croix. Details pending, but save the date!

## Welcome and Thanks to Our New Members!

Robert Beck  
Thomas Casey  
David Doyle  
Lauren Estling  
Gretchen, Jeff, Johanna and Joshua  
Mehmel and Birchem  
Liv Mostad-Jensen  
Richard Reinke

**Save the Date!**  
**Our Second Annual**  
**MDS Members**  
**Meeting**  
**January 30, 2016**  
details coming soon!

# Dragonfly Nymph Basics

By Curt Oien

## *Why would I want to catch and raise a dragonfly nymph?*

Answer 1: It's way cool to watch an adult dragonfly emerge from a nymph. There are not a whole lot of things better in life than sharing a moment like this with someone who has never seen it.

Answer 2: You can have a better idea of which dragonflies are successfully breeding in a particular habitat. Just because an adult dragonfly is hanging around some water, it does not mean they are successfully breeding there.

Dragonflies can live as nymphs, in their aquatic habitat, from a few months up to seven years but might only be around for a couple of weeks as an adult. If your timing is off, the adults might not be around when you are surveying an area.

Nymph identification can be difficult at times and existing keys are often not accurate. If you raise the nymph, you can identify it as an adult and keep the exuvia for future reference.



photo by Vanessa Strong



photo by Angela Isackson

## *How do I catch a nymph?*

There are many traps for macro-invertebrates that can be used, but the best way I have found to sample most of the microhabitats in a wetland is to get a net that has openings about 1/8 of an inch and start "swooping" your favorite pond, lake, stream, river or bog.

Sample next to the shore and out in deeper water. Sample in a variety of vegetation. Scoop up the top inch or so of mud or fine sand and swish your net around to let the mud wash out. Kick around under a log and swoop your net all along it. Put your net downstream in a fast current to catch things as you kick under large rocks. Sample the roots of an overhanging stream bank by positioning your net downstream and kicking water up under the bank.

## *How do I get the nymphs home alive?*

The easiest way is to keep them in a bucket with some of water that they were living in. Make sure you do not let the water get hot or the nymphs can die. Keep your bucket in the shade and don't leave it in a hot car.

If you have a long walk and do not want to carry a bucket, you can put nymphs in a vial with a small amount of moss or other vegetation that has been wetted. If you put a bunch of water in the vial, they will get slammed around by the water and they will get

cooked in the water. You will want to transfer them into something better when you get back to your canoe, car, or whatever.

If you are sampling multiple locations and want to keep the nymphs separate, so you do not mess up your data, you can keep them in solo cups with data labels on them. The cups can all be kept in a shallow tray in your car. (Do not let them get hot) You want to have about an inch of water in the bottom of the cup, a small stick so they have something to hold on to and to climb out on, and a mesh material over the top held in place with a rubber band.

### ***What do the nymphs need once I get them home?***

They need clean water, oxygen, a light & dark cycle, structure to hold on to or hide in, food, and something to climb out on when it's time to emerge.

An aquarium makes a nice home for nymphs. Take water from your tap and let it sit overnight to get rid of any chlorine that might be in it and let it come to room temperature. Fine sand in the bottom will give benthic species like Clubtails a place to live and a few plants will make nice habitat for others. Some species prefer to crawl out on a stick when it's time to emerge and others like climbing up on a screen. I have a piece of screen bent into the shape of a tent in mine.

A bubbler will make sure there is plenty of oxygen in the water. You will have to change out some of the water every few days to keep it clean or you can run a filter. If you run a filter, you can turn it off for a few minutes when feeding so everything does not get sucked into the filter before settling. The filters that sit directly in the tank work well. You can put it in the corner of the tank up on a rock or something so it does not suck up the sand from the bottom of the tank.

(Note: Darners do not play well with others and will kill everything else if they are not kept separate.)

If you want to keep all your nymphs separate for data purposes, you can keep them in the solo cups as mentioned earlier. A small slit in the mesh will allow you to feed the nymphs without removing the mesh. You can give them a couple of Blackworms at a time and feed them more when those are gone. Waste can

be removed with an eyedropper or pipette. You should change out some of the water if it starts to look nasty. Another method is to cut a hole in the side of the cups, tape a screen over the hole and keep all the cups in a shallow tray with an inch or so of water that has a bubbler and filter in it.

### ***What do I feed them?***

Dragonfly nymphs need live food. For short term, you can feed the nymphs some of the macro invertebrates from the habitat you found them in. You do not want to put in any minnows or other predators. The nymphs will also eat small earthworms that have been cut up.

The food that works best for me is live black worms (*Lumbriculus variegatus*). You can get them at some pet-fish/aquarium stores or online. I normally get an ounce or two at a time.

### ***How do I care for blackworms (Lumbriculus variegatus)?***

They must be kept cold until you can take care of them. The people who sell the worms will tell you to keep them in your refrigerator long term. The worms will eventually die if you try to follow their instructions and you will have to buy more worms sooner than you would like to.

If there are any dead worms or leeches in what you have received, remove them. If there's a bad smell or if the worms look nasty, rinse the worms. You can do this in a bowl of cool, clean, degassed water.

If your nymph aquarium has fine sand in the bottom, turn off your filter and dump in your good worms. They will briefly swim around and bury themselves halfway into the sand. You can crumble just a very small amount of fish food into the tank for the worms to eat. Do not use too much fish food or the water will get nasty. Stir the food in so it sinks and turn your filter back on. You can feed the worms a very small amount every few days.

If you are raising nymphs in cups or would like to grow your own supply of Blackworms, you can raise the worms in their own tank. Blackworms mostly re-

produce asexually through self-fragmentation and occasionally sexually. Some people raise multiple tanks so if one tank dies out, they have a backup population.

Put an inch of gravel in the bottom of the tank and add a couple inches of clean water, making sure it has time to degas and reach room temperature before adding your worms. The tank should have a bubbler to keep the water oxygenated. If you have a filter, you have to make sure it does not suck up your worms. If you do not have a filter system you will have to change out some of the water every few days with clean, room temperature, degassed water.

Feed the worms a small amount of fish food every few days. If you over feed them, the water will get nasty. You can also cut up strips of brown paper bags or brow paper towels and put that in the tank for the worms to feed on as it degrades. No bleached paper. If you put the paper under some of the gravel, it will not get sucked into your filter. The paper will need to be cleaned out occasionally.

### *How can I learn more about dragonfly nymphs?*

Look for opportunities through MDS! This September the Minnesota Dragonfly Society hosted an Odonata Nymph Identification Workshop taught by Robert DuBois, a Wisconsin DNR Aquatic Ecologist and author of both *Damselflies of the North Woods* and *Dragonflies & Damselflies of the Rocky Mountains*. This two-day advanced workshop was held at Eastman Nature Center in the Elm Creek Park Reserve. Participants used microscopes in the lab, collected nymphs in the field, and learned nymph identification, aquatic habitats, rearing techniques and preservation methods.

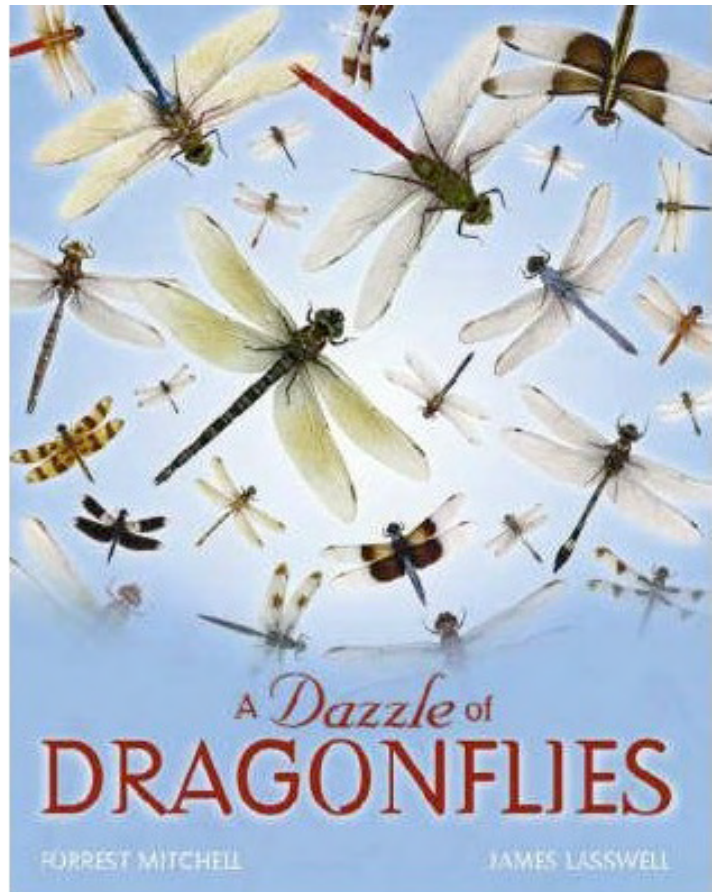
at the bottom of the pond,  
suddenly one size bigger—  
the dragonfly nymph

*Scott King*

## Dragonfly Book Recommendations

By John Arthur

After writing a book review for the last issue of our newsletter, I was asked to do another. (What were they thinking?) This time, a suggestion was made to review a book or books that would be suitable reading in the “off-season.” Field guides are great, but to sit down and read one (seriously?)? The book that I settled on and settled down to read is one called, “A Dazzle of Dragonflies” by Forrest L. Mitchell and James L. Lasswell, published in 2005 by Texas A & M Press. The hardcover edition has the look and feel of a coffee table book in that its larger than most other books, and it has a colorful cover to complete the effect. Of course the Kindle and other electronic versions would lack the substance, but the purpose of a coffee table book is to sit in the living room on a table and spark conversations.



The chapters in this book do just that. The chapter on dragonfly lore alone has more colloquial names than I ever knew existed. I had heard the name “mosquito hawk” before and a few others such as “caballito” (little horse in Spanish), “snake doctor”, “darning needle”, and “snake fly.” BUT, I didn’t know that caballito was short for “caballito del diablo” (which trans-

lates to devil's little horse). The authors list all of the names they could find in an appendix that runs three and one half pages in two columns per page. They also include where the names came from and extend into other countries, such as China and Japan. My favorite and most intriguing is "*Pitingaul dracului*" from Romania. If that name does NOT start a conversation...

Another chapter talks about gardening for dragonflies. Most people, when they hear that phrase, if they know anything about dragonfly habits, chuckle and smile stating that there is no such thing. However, there is! Homeowners that have water features often have odonates inhabiting the bottom of their ponds. I was talking with a birder recently who reported that he has a water feature with plants that need to be brought in over winter. He frequently gets dragonflies hatching in his basement where he stores the pots and water for the winter. Even though I have been joking about "gardening for dragonflies" for years, it is possible, and I have this book to thank for it.

The chapter about photographing dragonflies is a little dated as they talk about 35mm film (the book was published in 2005), but the principles involved are still valid. They also discussing "scanning" dragonflies. This is a process where they use a flatbed scanner and some soft backing to get a very detailed image of a dragonfly. Also implied here is the use of a net to capture the specimen to be scanned. While extremely detailed, the scanned images look flat compared to photographs taken in the field.

Netting dragonflies for the scanner also leads to the chapter about collecting them. Like birding of the nineteenth century when John J. Audubon shot most of the birds he painted, identifying dragonflies still involves a lot of netting and collecting. Collecting would not be necessary, if detailed enough photographs could be taken of the necessary parts (such as abdominal segment 10). But when telling two species apart requires something as fine as counting rows of wing cells, or comparing hamules from a straight on view, or even finer detail, catching and examining will be here for a long time.

Overall, this book matches my initial premise that a coffee table book should sit in the living room and spark conversation; in fact that premise is more than exceeded as it also is a good read.

## Review: Dragonfly ID App from BirdsEye Nature Apps

By Dan Tallman

The folks at Birdseye Apps have produced a dragonfly identification app for the iOS platform (iPhone, iPad). (<http://www.birdseyebirding.com>) iOS platform (<https://itunes.apple.com/us/app/id1011910922>).

They promise an Android version in the near future. Because of financial support from various groups and individuals, the app can be downloaded for free.

This app is a fascinating tool for the dragonfly enthusiast. It will be stupendous as it evolves, but is now a great beginning. The app draws data from Odonata Central (OC), the repository of many records from entomologists around the world. Basically six components comprise the program:

1. NEARBY. Click here to see nearby dragonflies. You can filter from 1 to 100 miles from your current location and pick among recent weeks, the current month, or multiple months. You can view the list taxonomically, by common name, last name, or group. For each species the result is a small photograph accompanied with a calendar bar graph showing seasonal observation. Click on the photo and you get up to a dozen large photos of the species. Click on the bar graph and you have three options for links to external information: Birdseye photos (where you can donate your own dragonfly photos), Flickr photos, and Wikipedia. Finally you can access a map showing the distribution of the species. Red dots represent the last 300 records contained in OC, which, in reality, is about all the records. Although not yet present in all maps, some have an overlay of the range of the species. Finally you can click to read a text with a species description, comparison with similar species, habitat and a short account of its natural history. Many of these species accounts remain to be written, and app owners are requested to contribute accounts. The unfinished aspect of the app makes it quite different from a published book, which would not include opportunities for reader participation.

2. SEARCH BY NAME. You can look up the data on any of the North American odonates by means of a



photo by BirdsEye Nature Apps

search engine. The first two letters of each word in the name (common or scientific) will bring up the species. Clicking the name brings up a distribution map with the same options described in the NEARBY section.

3. SMART SEARCH. You can pick three out of eight colors, relative size, and habitat, and the app will bring up dragonflies with those attributes. This aspect of the app is relatively weak, as dragonfly identification is much more complex than simple color patterns. Perhaps, however, this section provides some help.

4. FAVORITE LOCATIONS. Pick your favorite location, filter by month and search area size, and discover what dragonflies to expect upon your arrival.

5. LOCATIONS. Search for any location, filter by month and search area size, and see what dragonflies to expect. All maps come in standard and satellite modes.

6. LIFE LIST. Once you register with OC, the app produces your life list. You can produce lists for countries and regions, lifetime or year lists. A few disadvantages

to the way OC is currently set up is that your rejected submissions appear on your life lists. Also the OC vetting process can take a long time to be completed, and unvetted records do not appear in the app. Currently OC is reorganizing their database, which may solve these problems.

There are settings and help options, including a brief tutorial. Future plans for the app include the ability to submit records directly to OC.

One problem is that many sites are labeled as “Unnamed OC Location.” Hopefully, the app will be able to provide a name for each location as OC reorganizes their database. Now, at least, you know the precise location, if not the name, for these sites.

The bottom line here is that this app is great. It is most useful in informing you of dragonfly distribution and locations. It is less useful for dragonfly identification, which often requires microscopic investigation of specimens. Identification of dragonflies from a limited number of photographs is probably impractical due to the variability within many odonate species.

## Get Involved With MDS!

### Join our Board of Directors

Are you a potential Minnesota Dragonfly Society Board Member? Our new non-profit is growing rapidly and we are looking to welcome new members onto our board and committees.

- Do you want to be part of a passionate and active group of people working towards the conservation of Minnesota's dragonflies and damselflies through research and education?
- Are you good at rolling up your sleeves and getting work done?
- Do you have leadership experience working with nonprofits or leading new endeavors during periods of growth?
- Do you have successful program development and/or grant writing experience?
- Are you good at developing efficient processes and at identifying and clarifying roles?
- Do you have experience with marketing, branding, and or promotions?

**If so, we need you! Please considering running for the board or joining a committee.**

*Board elections will be held at the Annual Members Meeting on January 30, 2016. If you are interested or would like more information, please contact our Board Development Committee by emailing [Curt.Oien@mndragonfly.org](mailto:Curt.Oien@mndragonfly.org).*



*Photo by Ami Thompson*

### Be a Grant Project Manager

In preparation for the Enbridge Ecofootprint Grant Project (see p. 9), MDS seeks to enter into a contract with an individual who will provide management support for all aspects of this two-year grant funded project to conduct dragonfly surveys and educational workshops on dragonflies in the northern half of Minnesota.

Primary responsibilities include:

- 1) Managing all contracts and contractors.
- 2) Tracking all work progress and budgets.
- 3) Managing all communications for the project, including required reports and presentations.
- 4) Managing research permits and the permit process.
- 5) Developing and implementing project assessments.

An ideal candidate has the following qualities:

- 1) Sufficient knowledge of the dragonfly and damselfly fauna to understand if the survey and educational goals are being satisfied.
- 2) Sufficient knowledge of educational paradigms and field research to evaluate project progress.
- 3) Good written and oral communication skills.
- 4) Proven ability to develop and maintain well organized records.
- 5) The ability to travel to work sites and meeting locations.
- 6) The ability to work effectively within a team to accomplish common goals.
- 7) The ability to effectively supervise the work of others.

The total contract amount is \$7,500 for the full two years of the project.

Interested candidates should contact MDS at [info@mndragonfly.org](mailto:info@mndragonfly.org) to obtain a copy of the full Request for Proposals (RFP) and a map of the work area. The deadline for submission of the complete RFP is 4:30pm Friday, December 11, 2015. Please enclose a current resume along with the completed RFP. Completed RFPs should be sent to [info@mndragonfly.org](mailto:info@mndragonfly.org) or mailed to:

Minnesota Dragonfly Society  
P.O. Box 46192  
Plymouth, MN 55446

## Enbridge Awards \$50,000 Ecofootprint Grant to MDS

By Ami Thomson

The Minnesota Dragonfly Society is excited to announce that we have been awarded one of the first ever Enbridge Ecofootprint Grants! This \$50,000 grant will enable MDS to survey for adult and nymph dragonflies and damselflies in both the St. Louis and Red Lake watersheds over the next two years.

Survey activities include collecting and recording adult and nymph species from a variety of habitats within each watershed. Surveys will occur repeatedly throughout the field seasons in order to account for varying species emergence periods. Because it is nearly impossible to access some of the more remote bog sites on foot, particularly those in the Red Lake SNA, funding was granted for helicopter transport into these areas.

MDS will also host eight full-day free public workshops on dragonfly biology and identification at State Parks with habitats likely to harbor rare species. The public workshops will bring participants into the field, assisting researchers in collecting data. Dragonfly workshop volunteers have been the source of many new records in Minnesota.

Survey data will contribute to natural resource management decisions with the goal of ensuring more sustainable community development and Odonata conservation. Workshop participants will not only make a personal connection with Minnesota dragonfly biodiversity but will also become part of a network of citizen scientists finding and monitoring species of conservation concern.

Enbridge received 29 proposals for the 2015 round, and MDS was one of twelve organizations selected to receive a share of nearly \$1 million in funding for projects to improve, protect, and restore the environment in North Dakota, Minnesota, and Wisconsin. For more information on the Ecofootprint Program, go to: [www.enbridge.com/ecofootprintgrant](http://www.enbridge.com/ecofootprintgrant)



## Summer Adventures!

*Retellings of some of our favorite moments from this past field season. Please share your favorite story or photo by emailing it to [Newsletter@mndragonfly.org](mailto:Newsletter@mndragonfly.org)!*

### **Mike Sweet writes:**

With deftness and speed, Shelly swung her mighty weapon and engulfed the prey with her bug net, dooming it to five agonizing minutes of intense bodily examination for species identification--a cherry-faced meadowhawk dragonfly. This was merely an example of the numerous times that six Rovers and three members of the Minnesota Dragonfly Society (MDS) subdued dragonflies and damselflies last weekend in order to develop a list of those creatures occurring within Glacial Lakes State Park.



*photo by Norm Smythe*

All but one of our band of net swingers arrived by Friday afternoon at the Park and camped overnight before beginning our quest. Our last member arrived shortly before we were presented with our weapons and given instructions. Onward we tramped through woods, prairie and shoreline, capturing and tormenting our quarry until evening, when Suresh set up his telescope for a search of more heavenly bodies. Little did we know that the Odes (aka Odonata, the dragonflies and damselflies) had made a mutual-defense agreement with the *Anopheles* (mosquitoes) which attacked us mercilessly. Each of us made our own special bodily movements to appease or kill the attackers to no avail. Kim and Shelly danced and swirled while Norm and John swung their appendages wildly. I...I just laughed, groaned, and flapped my Rovers bandana as if a member of the signal corps, attempting to request a cease fire.

*(continued on p.10)*

Sunday morning, only five of us remained. You see, in the middle of the night, Suresh had departed. Apparently, a large contingent of the *Anopheles* tribe stealthily (or not) entered his vehicle (where he planned to sleep) and hid until he was horizontal. The attack must have been brutal.

The totality of our success is not yet known. A couple captives have yet to be identified, but one MDS member believes we may have reached our goal of 19 species. About three of them had never been recorded in Pope county prior to our efforts. Proud are we, we wild and reckless swingers!

***Rachel MaKarrall writes:***

Near the end of June I drove straight northwest from Duluth to Norris Camp, where Mitch Haag, Jason Haag, and Curt Oien were continuing their three-year survey of the Red Lake Wildlife Management Area. I stayed four days, joining an ever-shifting crew of odeners in survey work over multiple awesome sites. Of many highlights, one is particularly memorable:

We spent the day hiking a mile straight in to and out of a calcareous fen patch. Six of us had plodded along in slow single-file, waist-high stepping through thick, scratchy branches and stopping every few minutes to pull one another out of boot-sucking muck holes. Curt led us in and out with his GPS, and by the time we got out we were still smiling but exhausted. As Mitch drove us back to camp, we realized Curt had drifted off in the passenger seat. Soon we heard his voice, softly: “Nine hundred and thirty-six miles to go.” Jason and I shared a giggle, and he leaned over and whispered, “are you still in the bog, Curt?” Curt didn’t wake up, but he answered Jason with a nod. I feel better knowing that sometimes even the energizer bunny needs a nap.

***Angela Isackson writes:***

On my usual weekly walk of serenity through Murphy Hanrehan Park Reserve to check on blue bird boxes, the only life I encounter is that of the plants and wildlife. With the prairie still holding on to last signs of spring, wild lupine offers a colorful perch to an even more vibrant creature, my favorite, the Calico Pennant.



*photo by Angela Isackson*

**Do you have a great dragonfly photo or an awesome story from the field?**

We’d be happy to include it in the next MDS newsletter! The deadline to submit content for the April newsletter is March 15. Please email original articles, photos, artwork, news and events to Newsletter@[mndragonfly.org](mailto:mndragonfly.org).

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**Remember  
to renew your  
MDS membership  
for 2016!**