

Minnesota Dragonfly Society

Newsletter #6

January 2017

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

MDS or Bust

By Angela

Isackson

MDS President



A decade ago there was a large Minnesota-shaped hole in the map of American Odonata data. There was no group dedicated solely to the study of dragonflies and damselflies in our state. In the years since we have formed our own non-profit, harnessed the passion of dozens of volunteers and citizen scientists, gathered members from every corner of the state, captured the interest of many new Odonata fans young and old, and even flown in a helicopter in search of Minnesota's rare dragonflies.

The journey has certainly been a long and winding path, full of dips and dives, quick turns and many, many changes. Not unlike the path taken by a dragonfly in flight. No matter the obstacles presented to us, we have persevered and thanks to your dedication and hard work we have made 2016 the most productive year yet in the short history on the Minnesota Dragonfly Society.

Even as a young non-profit we aimed high in applying for our first grant and to our surprise, we got it! A two-year project titled "Finding Minnesota's Rare Dragonflies" funded through Enbridge's Ecofootprint Grant will supply us with \$50,000. So far through these funds we have provided workshops and surveys reaching over 60 people generating 14 new memberships and over 700 hours of volunteer service. The surveys documented at least 30 species of Odonata with 7 county records and 5 species of Greatest Conservation Need.

If taking on a large grant was not enough, we also greatly increased our outreach with a total of 39 events supported by MDS. These ranged from hosting informational tables to visiting local schools which allowed us to reach at least 12,000 people with our mission and cause.

The Board and Committee members who help us to shape and direct these achievements also grew. Forming new committees and appointing chairs allowed some amazing new feats such as an improved website, coordinating volunteers, grant management and

database development.

Our accomplishments in 2016 have provided us a substantial platform to continue our growth moving forward. The achievements we've made this year are a testament to the hard work put in **by all of you** over the years. MDS or Bust, you are either crazy with us growing our success, swinging a net, snapping a picture through the grass, raising nymphs or leading a group of kids through a prairie chasing a darned OR you are simply missing out. **Thank you all for everything you do for MDS and cheers to another successful year!**



CONTENTS

1—MDS or Bust by Angela Isackson

2—Save The Date

3—Dragonflies Pretty as a Monarch by Perk, Common Green Darners: Winter Survival and Climate Change by Ami Thompson

4—In The Air by Mitch Haag (report on Red Lake Peatland SNA fly-in)

5—Calendar of Events, Officers, Board of Directors, Membership, Who We Are and Contact Information

6—Dragonflies of the North Woods—3rd Edition Coming! By Kurt Mead, Welcome New Members, Get Involved with MDS, Give to the Max Day and How to Submit Stories and Photos to the Newsletter-cutoff 3/15/2017

Sadness flies away on the wings of time

By Jean de La Fountaine



Minnesota Dragonfly Society

3rd Annual Membership Meeting



SAVE



THE

JANUARY

28

2 0 1 7

12 PM - 4 PM



DATE



Lee & Rose Warner
Nature Center

15375 Norell Ave N
Marine on St. Croix MN 55047



www.mndragonfly.org

DRAGONFLIES PRETTY AS A MONARCH by Perk

It was a beautiful day Saturday, Sept. 10th for the 8th annual Minneapolis Monarch Festival. The festival celebrates the Monarch butterfly migration from Minnesota to Mexico, over 2300 miles.

Several of us gathered at 9am near the Lake Nokomis Community Center to put up our MDS tent and tables. The festival draws over

eight thousand butterfly, music and art lovers from all over the metro area.



We had huge crowds surrounding our booth, most times 2 and 3 deep waiting to see our displays



and learn about the dragonflies. I must admit I was scared to answer questions being a novice. However, everyone made me feel so welcomed and allowed me to stand back and see how it is done prior to taking a place at the table. An hour or so in I was beginning to feel I had the hang of it. I had listened intently to the crowd's questions and our experts answers so I made my way to the table feeling the worst of those jitters were behind me. Whenever I was stumped, our booth's veterans were there to lend a hand. I gained confidence and next year won't hesitate to work the festival again.

It was pure joy talking to the youngsters. They were quisitive and eager to extend their hands to hold a nymph once assured by Curt or Kiah they would not be bitten or stung. Certainly, they were more brave than many of the parents. That isn't to say a couple of nymphs did not escape to the park grass, but most were returned unscathed to the waters of Lake Nokomis at the festival's end.

Another great highlight was getting a dragonfly tattoo. Mitch, Ron and Jacki are truly skilled at applying temporary tattoos. A pail of water, sponge and an extensive supply of tattoo cards put smiles on many faces. The long line formed with each youngster eagerly awaiting their turn along with a few not-too-shy adults.



Ami was a great dragonfly story-teller with the little ones encircling her anxious for their opportunity to hold an adult dragonfly. So listen my children and you shall hear...the mystery of science and watch a dragonfly appear!



Common Green Darners: Winter Survival and Climate Change

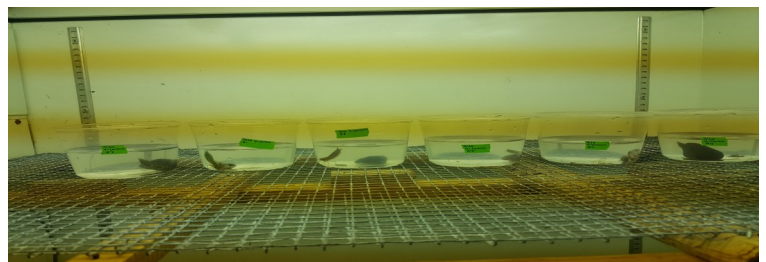
Ami Thompson is a Conservation Biology PhD Candidate studying common green darners at the University of Minnesota. Below is an edited excerpt from her research proposal explaining a portion of her research. Attend the MDS Annual Meeting in January to learn more about Ami's research and all the other amazing research projects supported by MDS.

Dragonflies are widely used by scientists for ecological research and monitoring. At small scales, they can be used to evaluate the success of wetland restorations, the damage from pollution, or the impacts of invasive species. At large scales, dragonflies can be used to explore ecological theories, highlight changes in aquatic community health, and identify priority areas for conservation, as done with the Dragonfly Biology Index in South Africa.

In North America, common green darners (*Anax junius*) are found nearly everywhere and therefore may be a good candidate species for monitoring large-scale ecosystem changes. Particularly changes happening in response to climate warming. Since 1955, climate researchers have recorded increasingly earlier ice-out in spring and later first freeze dates in fall across the northern hemisphere. This expansion of the growing season is likely to alter temperate common green darter phenology, overwintering strategy selection, and size-class structure of the aquatic nymphs. To better understand these impacts, Ami Thompson is studying the phenology, overwintering strategies, and growth of common green darners.

Temperate common green darter populations contain individuals with two different overwintering strategies. Some darners overwinter as aquatic nymphs (residents), while others emerge and migrate as adults in fall. Interestingly, resident and migrating individuals do not appear to be genetically distinct, suggesting that abiotic environmental cues, like temperature and photoperiod, determine winter survival strategy.

Large darners are top predators, particularly in fishless ponds. They will eat anything they can catch and subdue. Therefore, the number of large nymphs in a pond impacts all the other aquatic creatures. Resident darter nymphs are largest in spring and migrating nymphs are largest in fall. Researching how a nymph selects its overwintering method will help us understand what sizes of nymphs are in ponds at different times of year and how that impacts other pond life.



A nymph needs to cross a maturity threshold in fall for metamorphosis and migration to be an option. Therefore, understanding how climatic and geographic factors influence nymph growth rate and darter phenology is essential to predicting overwintering strategies. Many variables may impact common green darter growth rate: temperature, photoperiod, food availability, population density of other darters, and the absence or presence of fish. Of these, temperature has the largest known impact on aquatic ectotherm growth rate and physiology.

As one part of Ami's dissertation research, she is rearing nymphs in special growth chambers held at five different temperatures: 16, 20, 24, 28, and 32°C. The photoperiod is being held constant at 16 hours of light in all of the chambers. Nymphs for the experiment were collected in early fall from fishless ponds in Crow Hassan Park Reserve and Warner Nature Center. At least 20 nymphs were placed into each chamber and are fed, cleaned, and checked daily for growth. After all the nymphs metamorphose into adults she will be able to compare how fast the nymphs grew at each temperature and begin to predict how their growth may change as our climate warms. This will help her figure out how nymphs select an overwintering strategy.

She is also observing common green darter phenology and collecting nymphs from six different ponds within Crow Hassan Park Reserve over a span of two years. Additionally, she plans to execute an experiment evaluating how photoperiod affects common green darter growth beginning this spring. Combined together the data from this observational and experimental research will shed light on how dragonflies and freshwater ecosystems will respond to climate change.



IN THE AIR by Mitch Haag

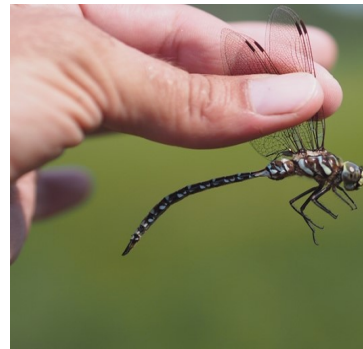
I will never forget the first time flying over the Red Lake Peatland SNA. Soaring in a helicopter, I watched the tamaracks and black spruce forest turn into large expansive peatlands and internal water tracks. The Western water track was sprinkled with wooded islands that seemed to go on forever; bog creeks appeared out of nowhere. All the while I was wondering about everything left to be discovered in the unexplored world below us.

From August 1st – 4th Ami Thompson, Curt Oien, my son Jason Haag,

and myself went on an adventure of a lifetime. We hitched a ride on a helicopter surveying for rare and endangered dragonflies/damselflies in Red Lake Peatland SNA. The project was funded by an Enbridge Ecofootprint grant.

The Red Lake Peatland (RLP) is approximately 500 square miles of inaccessible forest and peatland. We had a total of 12 flight hours, 20 survey sites, five days and more rain than we knew what to do with to survey as much of Red Lake Peatland as possible. Some of our high priority areas, based on looking at Google Earth, included internal water tracks, the bomb craters, and the Western water track.

An internal water track is a narrow constriction of flowing water at the base of a raised bog (pictured right).



The internal water tracks we surveyed held Zig-zag (*Aeshna sitchensis*) and Subarctic Darters (*A. subarctica*) (pictured left) found in low numbers throughout the RLP.

Both darters

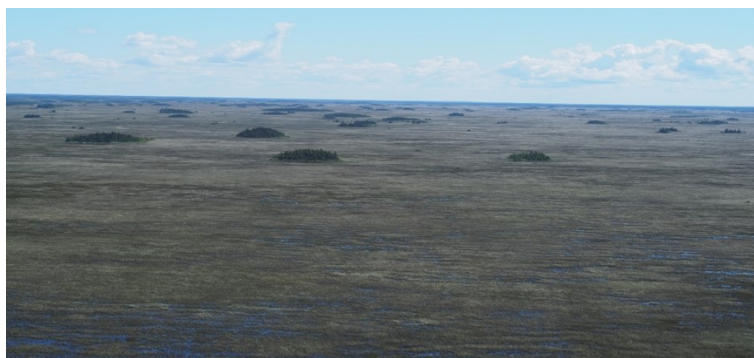
are uncommon, bog obligate specialists that are Species of Greatest Conservation Need (SGCN) as listed in the Minnesota Department of Natural Resource's Wildlife Action Plan. We found these darters consistently within the internal water tracks and patterned peatlands, their preferred habitats. Nymphs and exuvia were found, and in some cases collected, for species confirmation.

The bomb craters (below) were some of the most interesting and



diverse areas we surveyed. In the Easternmost bomb crater, we were surprised to find dozens of Blue-spotted Salamander

(*Ambystoma laterale*) larvae. We had a difficult time finding species within the family Corduliidae, the emeralds, but we did find Forcipate Emeralds (*Somatochlora forcipata*) in Lake of the Woods County. This species was found at two sites, as a nymph, in the spring fen channels near the bomb craters. Forcipate Emeralds (*S. forcipata*) are extremely rare because of their specific and limited habitat type. Also, within the easternmost bomb crater we collected six nymphs of an unknown *Somatochlora* (striped emeralds). They were early stadium nymphs (young) when we collected them but I am now suspecting the nymphs to be Williamson's Emerald (*Somatochlora williamsoni*). Rearing them to emergence will confirm. The lack of diversity in this family indicates that the species within the genus *Somatochlora* are more rare than we first thought. The specialized habitat and lack of numerous individuals found within favored breeding habitat further complicates their whereabouts. I am still rearing nymphs from these locations that may reveal additional species.



The Western water track (pictured above) is one place where water rules. When I first saw the Western water track, I couldn't stop thinking about the swarms of dragonflies we were about to encounter as the helicopter descended. That wasn't necessarily the case. This place was amazing with miles of sedge, flowing water, and ovoid islands. But after netting the umpteenth Canada Darner (*Aeshna canadensis*) and *Leucorrhinia* (whitefaces) nymph, I couldn't help but wonder where everything else was. Was it timing? Had too much rain fallen the night before? Water chemistry? Lack of food for the adults such as mosquitoes and flies? The mountain of speculation was teetering to the point of major collapse and was giving me fits.

Going to these remote places always teaches us valuable information about the populations and diversity of the odonates that inhabit them. I have become a bit obsessed with this area of the state over the last three years; trying to figure out what lives there and why. But that's what keeps me coming back. I go into these surveys with so many questions that rarely get answered... I just come back with more questions.



MDS – Calendar of Events – 2017

More events and details to follow!

JANUARY 2017

MDS 3rd Annual Membership Meeting January 28

MAY 2017

Citizen Science Association Conference May 17-20

Gathering Partners of Natural Resources Conference May 19-21

JUNE 2017

Ecofootprint Workshops Kanabec & Aitkin County June 24-25

JULY 2017

Minnesota Dragonfly Gathering Tettagouche State Park July 7-9

Ecofootprint Workshops Mahnomon & Red Lake County July 22-23

MINNESOTA DRAGONFLY SOCIETY

Board Members:

President: Angela Isackson

Vice President: Ami Thompson

Treasurer: Jenn Gillen Ashling

Secretary: Kiah Brasch

Kurt Mead—Curt Oien—Ron Lawrenz—John Arthur

Jeff Fischer—Crystal Boyd—Mitch Haag—Jacki Morrison

Arne Myrabo—Mike Sweet

Newsletter Editor:

Cathy Perkins

Membership:

The Minnesota Dragonfly Society welcomes everyone!

Annual Memberships are \$25 for individuals and \$30 for

families. Contact: 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.

Our Mailing Address:

Minnesota Dragonfly Society

P.O. Box 46192

Plymouth, MN 55446

Remember to renew your

MDS membership for

2017

DRAGONFLIES OF THE NORTH WOODS

3RD EDITION IN PROGRESS by Kurt Mead

Although the exact release date is unclear (due mostly to my procrastination, I think), we are working on the Third Edition of my little dragonfly field guide. Originally published in 2003 with a Second Edition in 2009, the inventory, I am told is getting low. As always, there are improvements that can be made and I think you'll be impressed.

Sparky Stensaas (Kollath-Stensaas Publishing, Duluth) has been working hard on a new layout and has added scads of his new photos. Rick Kollath is providing many more illustrations to help identify some of the trickier species and every species is getting a double-page spread so many species are getting a bunch more text. We have learned a lot more about the ranges of our North Woods dragonflies and the new range maps will bear those out.

I would love to hear from folks about anything that you would like to see added or changed. Now is your chance! Email suggestions to me at mixedboreal@gmail.com or message me through Facebook.
- Kurt Mead



MDS WELCOMES THE FOLLOWING NEW MEMBERS

Eastman Nature Center of Three Rivers Park District
Judy Novak
DeAnn Caddy
Kiah Brasch
Dean Kleinhaus
Troy Howard
Tina Morey
Kathleen Reidell
Elizabeth Beck
Mike Moen
Terri Seiler
Jerry & Vicky Wotczak
Dave Doyle
Boulder Lake Environmental Learning Center
Katherina Anderson
Deb Lewis
Cathy Perkins
Shawn Goodchild & Heather Hundt
Jeanne & Jeff Reed
Ashley Smith
Central Lakes College—Natural Resources Club
Lynee & Howard Markus
Randy Eishens
Mark Citsay

Get Involved With MDS!

Join our Board of Directors or volunteer for a committee

Our 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 28, 2017. If you are interested or would like more information, please contact us by emailing info@mndragonfly.org.

GIVE TO THE MAX DAY 2016

GiveMN began in 2009 as several Minnesota foundations pulled together to make our state a better place by encouraging donations. They decided on a concentrated fundraising effort and called it Give to the Max Day. This year the one day fund raising extravaganza was held on 11/17/2016 and raised \$20, 120,336. MDS had our best day ever raising \$715. We wish to thank our contributors for their generosity: Gretchen Mehmel, James Lind, Vera M Wong & W Earl Morren, Ellen Hostetler, Shawn Goodchild, Heather Hundt, Catherine Perkins, Nigel Llewellyn-Smith and Mark Wheeler.

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: cathy.perkins@ymail.com

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