As 2012 began, the Lunar New Year was ushered in as the Year of the Dragon, but for us here at MDP, it was definitely the year of the dragonfly! We celebrated an amazing number of firsts, from field guides to short courses and Facebook pages. Our newest “first” of 2013 is this publication of our first annual newsletter, Taking Flight, to share our accomplishments and plans for the future with you, the volunteers who make it all possible.

In this issue you’ll find out more about who your fellow volunteers are and where they come from, and what you’ve all told us you need from MDP to help you to help us learn more about dragonfly migration. You’ll also get a preview of our plans for 2013, including a monthly e-newsletter to keep everyone informed and up-to-date, a new field guide to identify nymphs and exuviae of migratory species, and updates to the MDP website to facilitate data entry, increase ease of navigation, and help foster communication among volunteers on the site. Albert Einstein once wrote “The most beautiful thing we can experience is the mysterious. It is the source of all true art and science.” We hope you’ll continue with us on our journey as we unravel the mysteries of dragonfly migration!

In the Year Ahead

Building on our 2012 accomplishments, in the year ahead the MDP will move forward with lessons learned, update MDP tools and resource materials, and work to create a welcoming online community for citizen scientists to communicate with each other. In 2013, the MDP will host additional Migratory Dragonfly Short Courses throughout North America to train project participants. Plans are underway to update the website to a more user-friendly platform.

It is our hope that participants continue to be involved in MDP projects and we learn from each other in this second year to cultivate lasting partnerships and foster communication between and with participants. To the year ahead, and future discoveries into the phenomenon of dragonfly migration!
MDP developed new Migratory Dragonfly Short Courses in 2012, which were held at five different locations in Canada and the U.S. from August to September. These day-long courses educated participants about dragonflies and their migration and trained them to become active in Migration Monitoring, Pond Watch, and collecting for the Stable Isotope Project. The courses were extremely successful and well-received, and most filled to capacity within hours of being advertised. We were thrilled with the participants’ level of excitement and enthusiasm, which made the day fun for students and instructors alike.

The results of post-course surveys indicate that most participants were new to the world of dragonflies. Attendees included city and state natural resource agency staff, college and K-12 teachers, Master Gardeners, Master Naturalists, wetland and stream scientists, photographers, people with backyard ponds who see odonates and want to learn more, birders, and staff and volunteers from parks and nature centers. Feedback from surveys demonstrated a high level of enjoyment, interest, and learning among participants.

More short courses will be held in 2013, beginning in Minnesota (Sherburne Wildlife Refuge, April 27 & Northland Arboretum, April 28) followed by a course at the Peggy Notebaert Nature Museum in Chicago, Illinois on May 4. Through these trainings and other resources, we will continue to expand and support a widespread network of volunteers making and recording regular observations to generate a dataset that will improve our understanding of dragonfly migration in North America. To increase our reach, MDP will also begin conducting “Train the Trainer” workshops, to train educators who are knowledgeable about dragonflies to lead short courses and train new volunteers to collect data at dedicated sites, from nature centers to parks and wildlife refuges, and other facilities. Online training modules will also be available as a resource for individuals and facilities that are interested in incorporating MDP-specific trainings into their current dragonfly courses. Look for more details in the coming months!

**2013 Migratory Dragonfly Short Courses**

**What:** A day-long course designed to educate participants about the importance of dragonflies and train them to become citizen science contributors to MDP research projects across North America.

**When:** 2013 courses are being planned. Spring courses will be held in Minnesota in late April and Chicago, IL in early May. Please check the Xerces events page for updates on locations and registration.

**Cost:** FREE
Participants receive an MDP Monitoring Toolkit which includes a field guide to migratory dragonflies, monitoring protocol booklet, and more!

**Skills and Objectives**

- Learn how to identify migratory dragonfly species.
- Understand the basics of dragonfly life history, ecology, and migratory behavior.
- Understand the current conservation needs of dragonflies worldwide.
- Learn how to collect and submit data for on-going MDP research projects.

**General Course Agenda**

9:30 - 9:45 am: Welcome & introductions
9:45 - 10:45 am: Dragonfly life history and ecology
10:45 - 11:30 am: Dragonfly migration
11:30 - 11:45 am: Break
11:45 am - 12:30 pm: Conservation of dragonflies
12:30 - 1:10 pm: Citizen scientists and the MDP
1:10 - 1:20 pm: Break
1:20 - 2:00 pm: Identification of migratory dragonflies
2:00 - 4:00 pm: Field trip: Observing and identifying dragonflies
MDP Participant Follow-up Survey

We asked, and you answered! The follow-up survey was well-received, with 83 participants providing feedback. With all responses gathered, we plan to incorporate changes and updates to MDP tools and resources to make participating in MDP projects even more fun and rewarding.

Your feedback is an important tool in adaptive management; we will use volunteers’ suggestions and comments to guide revision of MDP resource materials as needed, identify any barriers to volunteer participation and retention, and to determine program strengths and aspects that volunteers find most engaging and motivating. Much of the discussion during the MDP’s 3rd annual steering committee meeting in January 2013 revolved around feedback from MDP participants. These discussions are informing action plans for the coming year, as participant feedback helps shape our strategies and goals. When asked what changes would encourage more participation in MDP projects, over 70% of respondents answered either “receiving updates”, “online quizzes”, or “online training”. We understand these needs and will establish monthly e-newsletters to communicate updates, and incorporate online training modules and self-directed quizzes on the MDP website. Other barriers to participation included “ease of data entry” and “lack of understanding protocols”, important issues that we plan to address in the coming months.

With your participation, we look forward to another successful year of data collection and improvements in citizen science tools and resources. Thank you for your feedback and support as the program develops - we’ll see you around the pond!

Please Keep Those Records Coming!

MDP Website Updates

We literally can’t do it without you. Dragonfly migration spans all of North America, and the mysteries surrounding it can only be solved by many dedicated observers monitoring their movements across this landscape. As with researchers studying monarch migration in North America decades earlier, we need your help to piece together the story of dragonfly migration from Canada to Mexico (and beyond???)

The MDP website went public in 2012 and participants began contributing Pond Watch and Monitoring data soon after the first short courses were held. A total of 219 MDP users submitted 725 records to the site in 2012!

Our partners at the University of Texas at Austin who also administer the website Odonata Central (OC), have developed the MDP website for participants to submit data for MDP projects. As a sister site, all data entered onto the MDP website will soon be automatically linked to the OC database. The MDP is also looking at ways to increase our data cache including data sharing with other sites such as iNaturalist. New mapping features on the MDP site allow users to view geographic data and to search observations by year, location, or taxon. In the coming months the MDP will be working on several updates and improvements to the way data is submitted, including an online Pond Watch portal that will hopefully alleviate any confusion about data collection and submission by participants. New branding and a new look to the site will be ways the MDP makes data submission easy and inviting!

A total of 219 registered MDP website users submitted 725 records to the site in 2012!

2013 updates

- To all participants of the 2012 MDP follow-up survey, Thank You!
- All survey participants who provided an e-mail address received a 2013 dragonfly calendar!
- Look for updates to the monitoring protocols in the coming months.
- Watch for upcoming online training modules.
- Do you know of a nature center or other facility that can host a dedicated Pond Watch site to collect long-term data? Please send an email to: dragonfly@xerces.org.

website updates

- New functionality allows users to search, filter, and map records.
- Future updates include a new Pond Watch portal.
- The website goes bi-lingual! Look for the Spanish version of the MDP website in the coming months.
- Monitoring protocols will soon include ID of exuviae to understand local emergence and reproduction at pond sites.
MDP Projects Update
An inside look into three citizen science projects investigating annual movements of migratory species in North America

Pond Watch
MDP’s Project Pond Watch was launched in 2012 to engage citizen scientists in collecting seasonal information about dragonflies at the local ponds and wetlands they visit on a regular basis. Participants collect data on five focal migratory species: Common Green Darner, Variegated Meadowhawk, Wandering Glider, Spot-winged Glider, and Black Saddle-bags. This information will help increase our knowledge of the timing and location of dragonfly migrations and our understanding of the relationship between migrant and resident populations within the same species.

Pond Watch is especially popular among educators, as the protocols are amenable for use by individuals of all ages. It is also a favorite for parks and nature centers as a way to engage and educate volunteers and visitors in place-based learning. We hope to expand Pond Watch by developing educator training modules and holding “Train the Trainer” courses, so that educators can bring Pond Watch to facilities all around North America and ensure long-term data collection at dedicated sites. Many of the records submitted to the site were negative observations (i.e., a site visit where target species were not found), but knowing both absence and presence of target species is vitally important to understand the annual movements and timing of the arrival of dragonflies at local ponds.

Additional observations that will help tell the story of migratory activity at ponds is identification of exuviae and nymphs, which reveals emergence timing and origins of adults at different latitudes. Please stay tuned for these future changes to the protocols and to data submission on the website.

Migration Monitoring
Short courses were instrumental in launching MDP’s Migration Monitoring Project. The courses introduced participants to the phenomenon of migration and provided them with the tools and resources to collect data. Substantial migrations were seen in the midwest around Lake Superior, along the East Coast, and on the southeast coast of Mexico.

There was little migration along the West Coast in Canada and the US, in contrast to previous years when large movements of Variegated Meadowhawks have been reported. Few migration reports were entered on the MDP web site in 2012, but the MDP continues to glean historical accounts of migration events throughout North America from odonate and bird list serves, Facebook Group pages, and personal communications with MDP members. These data will eventually be combined with reports already on the MDP website and will help piece together the story of dragonfly migration, and hopefully in the future to identify any changes in timing, frequency, or duration of migration events.

Stable Isotopes
MDP is using the Stable Isotope Project to investigate patterns of reproduction, emergence, and movement among migrant dragonfly species at different latitudes throughout North America. MDP partners at the Smithsonian Conservation Biology Institute and the Vermont Center for Ecostudies (VCE) recruited volunteers to collect Common Green Darner specimens across a latitudinal gradient in the southeastern US and Canada in early spring and summer; wings from museum specimens are also used. VCE partners are now analyzing the “isotopic fingerprint” of these specimens to determine the distance traveled by a migrating dragonfly from the pond where it developed and emerged as an adult.

Data analyzed in 2012 are reaffirming our basic knowledge of spring movements in migrants and are helping us distinguish migratory individuals from residents. Individuals arriving at ponds in New York, Vermont, and Wisconsin in April originated from areas much further south. Conversely, by July it appears that mostly resident populations are inhabiting the ponds at northern collection sites. Collection regions include the Bahamas, Virgin Islands, Dominican Republic, Jamaica, Mexico, Puerto Rico, five Canadian provinces, and 35 US states.

To contribute data and learn more about MDP’s projects, please visit: www.migratorydragonflypartnership.org

dragonfly fun facts

- Prehistoric dragonflies took flight 300 million years ago with 2½ foot wing spans.
- Dragonflies and damselflies belong to the order Odonata, which refers to the nymphs’ “toothed” jaws.
- There are about 6,000 species of dragonflies worldwide except in Antarctica. The US has about 450 species.
- Dragonflies are masters of flight, and can fly at speeds of up to 36 miles per hour.
- Each of a dragonfly’s four wings can move independently.

Spot-winged Glider (Pantala hymenaea), © John Abbott.

Wandering Glider (Pantala flavescens) nymph, © John Abbott.

Common Green Darner (Anax junius) nymph, © John Abbott.

This cast-off skin of a dragonfly nymph (exuvia) left after adult emergence can provide insights into life history and can be analyzed to understand local isotope signatures at Pond Watch sites, © Alexa Carleton.
POND WATCH!
BEGIN LOOKING FOR DRAGONFLIES AT LOCAL PONDS DURING SPRING MIGRATION.

LOOK FOR THE MDP CITIZEN SCIENCE e-NEWSLETTER IN YOUR INBOX!

MONITORING DRAGONFLY MIGRATION IN NORTH AMERICA
Protocols for Citizen Scientists
at www.migratorydragonflypartnership.org

MDP’s Dr. Michael L. May authored the latest review on migration in dragonflies in the journal of Insect Conservation:
A critical overview of progress in studies of migration of dragonflies (Odonata: Anisoptera), with emphasis on North America

Sign up to National & Regional list serves and Facebook group pages to discuss dragonflies

Dennis Paulson’s eastern and western dragonfly field guides are both available in Xerces’ online store

Additional Resources

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upcoming events & opportunities

Migratory Dragonfly Short Course
April 27, Sherburne National Wildlife Refuge, Zimmerman, MN

Migratory Dragonfly Short Course
April 28, Northland Arboretum Brainerd, MN

Migratory Dragonfly Short Course
May 4, Peggy Notebaert Nature Museum Chicago, IL

Check the Xerces Events page for course information and registration details.

Photo submission contest
Deadline March 15
Do you have photos of dragonflies or of people participating in MDP projects or short courses? Submit your photo for a contest to highlight participation in MDP events. We’ll include a photo each month for the e-newsletter.

Submit Photos
All rights remain with the photographers.

Become a Short Course Trainer!
Attend a “Train the Trainer” Workshop
In an effort to increase our capacity to provide Migratory Dragonfly Short Courses, we are looking for knowledgeable individuals to train volunteers. Look for information in the next e-Newsletter about attending a “Train the Trainer” Workshop.

Dennis Paulson shows course participants a dragonfly.

media relations

See MDP’s John Abbott in a video about the MDP and its citizen science projects

I love dragonflies: This video summarizes the Migratory Dragonfly Partnership. A nice example of how the project works can be seen in citizen scientist Greg Lasley’s and researcher John Abbott’s relationship. They’re both friends and colleagues contributing to migratory dragonfly research. Image courtesy TACC.

Order your 1/2 price Xerces calendar today!

Dragnflies of North America
2013 Calendar

2013 DRAGONFLY CALENDARS MAKE A GREAT GIFT!