



Ohio Dragon-Flyer

Newsletter of the Ohio Odonata Society

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Cover: Blue Corporal *Ladona deplanata*. An early season flyer (earliest recorded Ohio flight date is 5 April), the Blue Corporal has recently been expanding its range north in Ohio. Fernald Preserve, Hamilton County, Ohio, April 29th 2019. Canon 7D II, 420mm, 1/640, f/8, ISO1600, Jim Lundberg.

Ohio Odonata Conference 2022

MaLisa Spring

Hello everyone!

After 2 years of pandemic delays, the Ohio Odonata Society plans to host a small conference this summer on **Saturday, June 25th** at the Education Center at Possum Creek Metro Park in Dayton, Ohio. This is a somewhat centrally located spot which is easy to access from many highways and also allows for field trips to find some cool dragonfly and damselfly species nearby.

A few key things to note related to Covid precautions:

1. We plan to keep as much of the conference outdoors as possible. We have limited the number of presentations to maximize the amount of time spent outside.
2. We selected a venue that has several large double doors and large windows that we plan to keep open for the duration to maximize air flow while people are in the building.
3. We opted to have the conference at the end of June which coincides with the lowest case count in 2021, so hopefully this year will follow a similar trend of decreased cases in the state.
4. We cut our normally 3-day conference down to a single day to reduce the overall contact time.
5. Conference size will be capped at 50 attendees.
6. Meals are on your own, so no group gatherings around food. Packing a lunch will reduce chances of getting covid while visiting a restaurant.
7. We ask that you please bring a mask to wear indoors, but again, most of the time will be spent outdoors and there will, hopefully, be only a handful of active cases in the state by then.

With all the formalities out of the way, I wanted to emphasize that we do plan to hold a conference this year, so please save the date. The registration webpage will be open soon! That page will also have more details on presentation topics, field trips, and other logistics.

Also, the Ohio Odonata Society needs a new treasurer! Bob Restifo is officially retiring from his treasurer position that he has held for 2 decades. If you would like the Ohio Odonata Society to continue to exist, please consider stepping up as a new treasurer. This topic will be discussed at the society business meeting at the conference, but feel free to reach out to us beforehand if you think you would like to take up the role. We will also be recruiting a new member-at-large position, but the treasurer position is more important.



Best wishes,
MaLisa
President of the Ohio Odonata Society

Editor's Note: Access 2022 OOS Conference updates here:
<https://u.osu.edu/ohiodonatasurvey/2022/03/28/save-the-date-2022-ohio-dragonfly-conference-saturday-june-25th-in-dayton-ohio/>

March 6 – New Early Flight Date for Dragonflies in Ohio

Sarah White

I spent the weekend of March 5th – 6th hunting for dragonflies. That sounds like a crazy thing to do, on the first March weekend in Ohio. It was definitely a long shot; the previous early flight record for any dragonfly in Ohio was March 12th. But on this particular weekend, there were strong winds roaring out of the south, and Saturday's forecast called for near-record high temperatures in the upper 70's. I figured there was at least a chance of finding some early migrants, so I grabbed my camera and headed out.

I visited a total of seven wetlands in Montgomery and Greene Counties on March 5th. One of these wetlands was Grant Park in Centerville (Montgomery County). This park has great habitat for migratory dragonflies. It has two shallow, well-vegetated wetlands in a large prairie and meadow. The wide-open area makes this site highly visible to migrants. Also, these wetlands partially dry up later in the year, so they have few if any fish. The surrounding prairie provides good shelter and hunting grounds for adult dragonflies.



The weather was great—sunny and in the upper 70's. I saw my first butterflies of the year (several Eastern Commas and a Mourning Cloak). But as for dragonflies, the day was a total bust. I struck out at all seven wetlands I visited on Saturday, including Grant Park.

The next day, March 6th, I decided to make a return trip to Grant Park. I hadn't managed to get any decent photos of the Mourning Cloak the day before, and I wanted to try again. The weather was not quite as favorable on Sunday. It was cloudier, very windy, and a few degrees cooler (around 71 degrees). I was less hopeful of finding dragonflies, but I hadn't quite given up.

I strolled up to the wetland at Grant Park, and there they were! Common Green Darners! These dragonflies had not been there the day before. At some point within the last 24 hours, they had flown in on strong winds from the south.



There were at least three individuals present on March 6th. Possibly more—it was hard to tell because they kept flitting in and out of the vegetation. It was very windy, but when the winds died down, the darners would venture out for quick flights. Conditions were not great for photography, but I managed to get a few documentary shots of an ovipositing pair. A third male was harassing them.

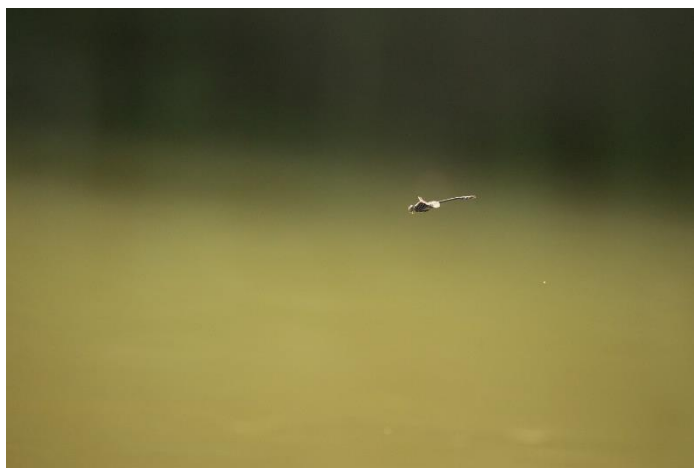
I left Grant Park in the middle of the afternoon and also checked out a wetland in Greene County. By this time, the winds were gusting very strongly, and it was too windy for dragonflies to fly if any were present.

I never did manage to get any photos of that Mourning Cloak, but March 6th is a new early flight date for dragonflies in Ohio. Sadly, the following week, the weather turned cold and snowy, which doesn't bode well for the survival of the darners. But hopefully, some of their eggs will survive and turn into a new generation of Common Green Darners later this season.

The vast majority of Ohio Dragonfly Survey observations are photographs of dragonflies perched near water. Not all species are as cooperative; there are dragonflies that may patrol and hunt over water but habitually set in treetops or heavy cover when not in flight. These species are under-observed within iNaturalist. More flight photos will increase the number of species observed and identified within the Survey, but there are challenges obtaining useable images.

Flight Photos – The Depth of Field Triangle Jim Lundberg lundbergj@hotmail.com

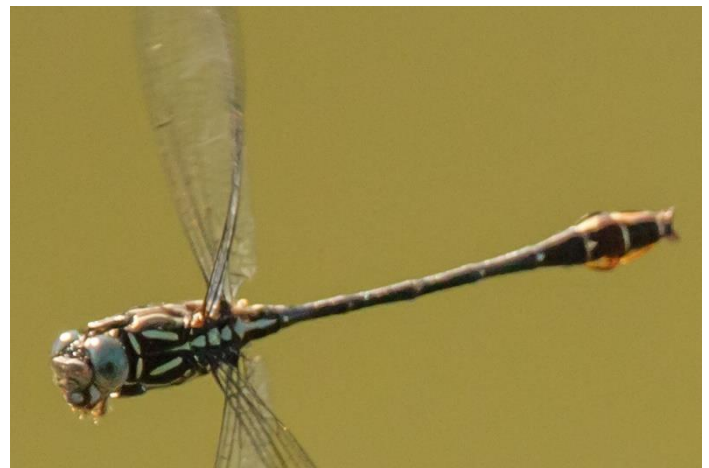
This first article in this Flight Photos series is the often neglected, but important topic, Depth of Field (DOF), defined as the nearest to farthest distance that is in focus. Adequate DOF is a key component of image quality. A too-shallow DOF is *prime* among the usual suspects in the mystery of soft flight photos. Three major factors affect DOF – subject distance, focal length and aperture. How the DOF triangle affects image quality is illustrated in the two examples below.



Canon R6, R100-500 at 500mm, $f/7.1$. $1/2500$, ISO 6400. The dragonfly is approximately 26 feet distant (the first photo remains uncropped for reference). At 26 feet, 500mm and $f/7.1$, the DOF is 3.0 inches – that is, 1.5 inches in front of and 1.5 inches behind the point of focus, allowing little margin for focus error. Fortunately, the point of focus was accurate and the subject perfectly broadside, so the dragonfly (body) is in focus.

A valuable photography exercise is to evaluate an image to determine what, if any, changes would have improved the image. Evaluation: I would have preferred the subject to fill more of the field of view. I carry a 1.4 teleconverter which increases dimensions of the subject image by 40%. But focal length is one of the three factors affecting DOF, and the resulting 700mm focal distance would have reduced DOF from 3.0 inches to 1.2 inches. There is another effect of increasing focal length; the 1.4 teleconverter reduces light by 1 full stop requiring a change to aperture, ISO or shutter speed to achieve proper exposure. To increase aperture *also* decreases DOF. The combination of increased focal length and increased aperture would have reduced DOF to 0.84 inches, and the subject image would have been soft at best. To compensate with increased ISO or reduced shutter speeds are the remaining options – and there's the topic of the next article. As the image is, the dragonfly doesn't occupy a lot of real estate on the sensor but sufficient for ID: Elusive Clubtail *Stylurus notatus*.

Distance to subject 26 feet ^{1,2}		
500mm focal length	$f/7.1$	DOF 3.00 inches
700mm focal length	$f/7.1$	DOF 1.20 inches
700mm focal length	$f/5.0$	DOF 0.84 inches



Canon R6, R100-500 at 500mm, $f/7.1$. $1/2500$, ISO 3200. Camera configuration in this image (same Elusive Clubtail) remained at 500mm and $f/7.1$, however, the Clubtail is now approximately 17 feet distant, reducing DOF to 1.08 inches. The point of focus is somewhere on the head or thorax, both of which are in focus. The subject is not quite broadside, and the abdomen becomes progressively out of focus out to the S10 segment. Evaluation: Decreasing focal length to 420mm and increasing ISO to 6400, would allow a decreased aperture of $f/10$. The result is a doubled DOF of 2.16 inches which would have brought the abdomen into focus at the expense of a slight increase in image noise and decrease in subject image size – preferable.

Distance to subject 17 feet ^{1,2}		
500mm focal length	$f/7.1$	DOF 1.08 inches
500mm focal length	$f/10$	DOF 1.44 inches
420mm focal length	$f/7.1$	DOF 1.44 inches
420mm focal length	$f/10$	DOF 2.16 inches

The table above illustrates an interesting synergy; the potential increase in DOF by combining a decreased focal length and a decreased aperture is greater than the sum of the two individual factors. Decreasing the aperture from $f/7.1$ to $f/10$ increases DOF by $1/3^{\text{rd}}$. Decreasing the focal length from 500mm to 420mm also increases DOF by $1/3^{\text{rd}}$. Decreasing both aperture and focal length (420mm, $f/10$) doubles DOF. Factored Synergy.

Of the DOF triangle factors, we have the least control over subject distance. When the dragonfly approaches, DOF is decreased. Using a *combination* of decreased focal length and decreased aperture to maintain an adequate DOF offers advantages:

- Decreasing focal length creates options to decrease ISO or aperture or increase shutter speed.
- The combined effect of decreased focal distance and aperture on DOF is not simply additive but factored.
- It is easier to follow the subject with the wider field of view offered by a reduced focal length.
- Camera auto-focus tracking is often more effective with a decreased focal length.

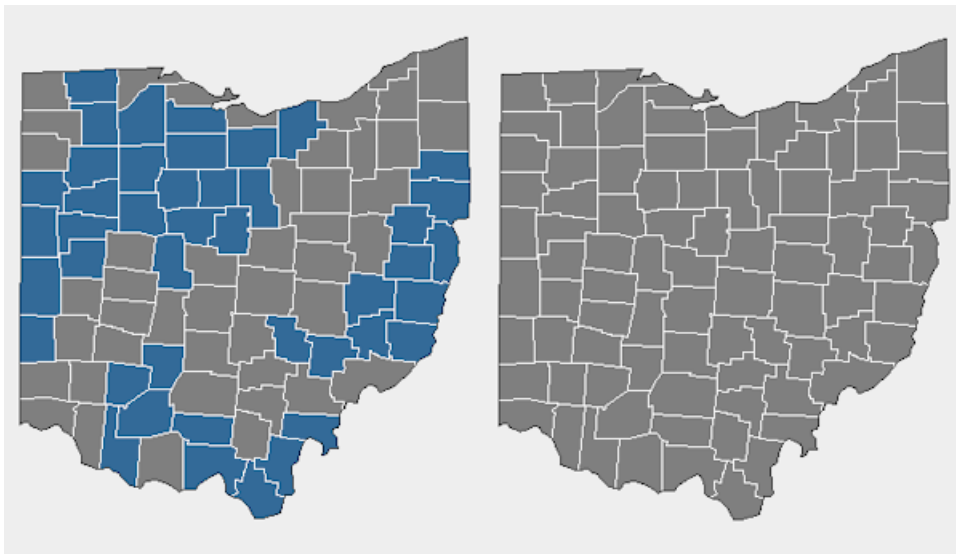
So, that’s a whole lot of numbers and a mind-numbing explanation for leaving the teleconverter in the bag, reducing zoom or trading out for a shorter lens when the flight subject is cooperative and close. Finding the right balance between subject size and sharp imagery takes experimentation. The next topic in the Flight Photos series addresses the flight photo challenge of managing available light – The Exposure Triangle.

1. *Distance-to-subject is based on average size of species versus image size, and calculations are approximate.*
2. *Depth of Field (DOF) calculations are camera specific, but illustrate the effect of the three DOF factors for any camera.*

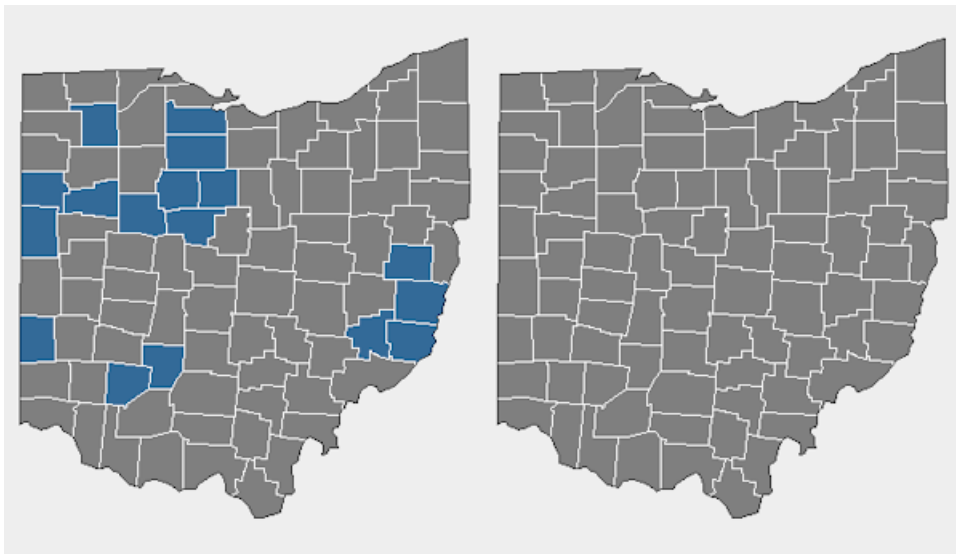
Looking back Jim Lemon jlem@woh.rr.com

In early 2017, at the start of the statewide Survey, MaLisa had a blog entry that highlighted counties that were low on observations and species recorded (<https://u.osu.edu/ohioodonatasurvey/2017/05/>). Her criteria were counties with fewer than 300 observations and counties with fewer than 40 species recorded. Five years later, I'm happy to report that we no longer have -any- counties below those thresholds.

Updating MaLisa's maps (*created in R using packages ggmap, mapdata, and dplyr by MaLisa Spring*) look like this: Originals on the left (blue = less than original threshold), Updates for 2022 to original criteria on the right. Here is the original 2017 observations map (left) and the 2022 update (right). Blue counties had fewer than 300 observations. Now all gray!

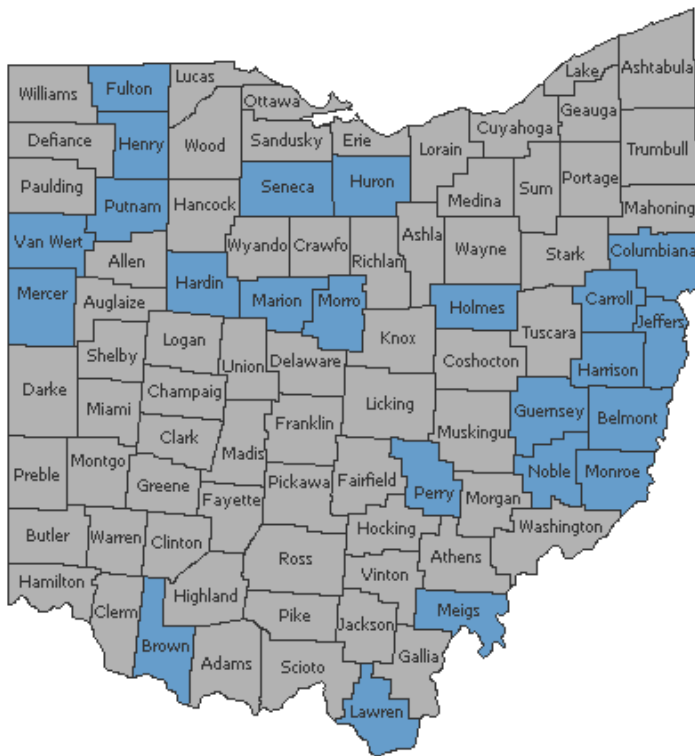


Here is the original 2017 species map (left) and the 2022 update (right). Blue counties had fewer than 40 species. Now all gray!

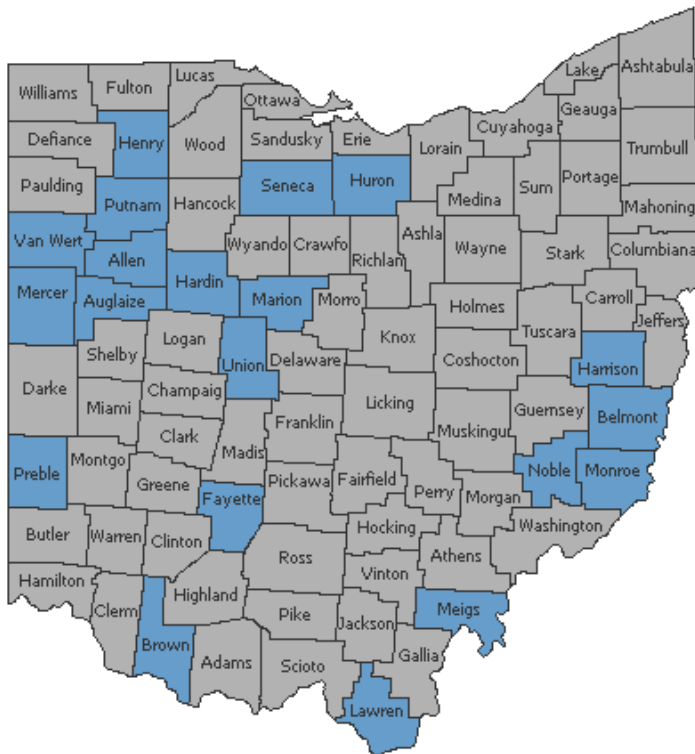


Here is the original 2017 species map (left) and the 2022 update (right). Blue counties had fewer than 40 species. Now all gray!

You can see that we passed all the original thresholds. In fact, we can double the observation requirement (+300) and increase the species by 50% (+20) to have similar county lists.



Ohio Counties color coded for Observations. Blue counties are currently in the range of 324-594 observations (<600). Gray counties have observations in the range of 605-9,340.



Ohio Counties color coded for Species. Blue counties are currently in the range of 50-59 species (< 60). Gray counties have species in the range of 60-117.

Mighty Morphin' Dragons – Part 2

Sally Isacco disacco@roadrunner.com | Jim Lemon jlem@woh.rr.com

Last month we introduced the terminology relating to heteromorphism and looked in detail at Eastern Forktail *Ischnura verticalis*. Next, we'll look at some further examples of Sexual Dimorphism, using some of Ohio's most common Odonata. The goal is to provide some examples that you can see, and help understand some of the variation that can occur.

Eastern Pondhawk *Erythemis simplicicollis*



Ashtabula Co, Jun 27, 2019, Sally Isacco

Here is the mature adult male, note the thorax and abdomen are blue with pruinoscence. Also note cerci (appendages at the end of the abdomen) are pale.



Jackson Co, Jul 6, 2021, Sally Isacco

Now the female. While similar in size to the male, the female is mostly bright green, with some dark markings. Again, note the terminal appendages and how the ovipositor is different from the cerci of the male.



Brown Co, Aug 28, 2019, Jim Lemon

Here is an immature male. Notice the similarity to the female. Pay attention to the terminal appendages.



Shelby Co, Jul 13, 2019, Jim Lemon

Maturing male, note the gradual change from green to blue. Depending on maturation, males can be all green to all blue, with all the gradations from the teneral to mature. The green face and white cerci are consistent.

Common Whitetail *Plathemis lydia*



Pike Co, Jul 1, 2020, Sally Isacco

The mature male is striking with pruinescence on the abdomen that gives the species its common name. Note, also, the banding on the wings. You can find these at nearly every Ohio Wetland. Unmistakable.

The female is quite different, and maybe the most pronounced dimorphism for Ohio Dragonflies. While similar in size, the abdomen and wing patterns are quite different from the male. Female wings have spots rather than bands and the dark abdomen is marked with lateral chevrons. Once again, note the differences in terminal appendages, cerci on the male, ovipositor on the female.



Clark Co, May 17, 2021, Jim Lemon



Left: Brown Co, May 7, 2019; center: Champaign Co, Jun 4, 2020; right: Morrow Co, May 27, 2019, Jim Lemon

This is a sequence of visible physical changes during maturation, left to right. Teneral with clear wings and muted pigmentation. Immature with wing pigmentation. Close to mature, pruinosity developing on the thorax, lateral chevrons still visible.

Twelve-spotted Skimmer *Libellula pulchella*



True to its latin name – pulchella is “beautiful little.” Always a pleasure to see on the wing. The common name refers to the number of black spots on the wings.

This is the female. The differences in the sexes here are similar to Common Whitetail. Wings have different markings. Abdominal markings become obscured in the male. It’s interesting that the female TSS and CW are more visually similar than they are to the respective males. TSS females have a lateral yellow line rather than the lateral chevrons of the CW. But the males are very different and distinctive. Again note the differences in terminal appendages.



Here’s a teneral female. Note the lateral line shows fairly soon after emergence.

And an immature male. Until the white spots appear, the immature males look much like the females.



Eastern Amberwing *Perithemis tenera*



Another very common small Dragonfly. Always fun to see these goldbugs sparring at the water's edge. One of the smallest dragonflies, males have transparent amber wings. Nothing else really like them. Note the typical skimmer cerci.

As we've seen in our other examples, females can be quite different. In the case of Eastern Amberwing, females are similar in size, but their wings are patterned rather than solid amber.



Female wing patterns are also variable. Here are two more examples of wing variation.



April Dragons! Jim Lemon jlem@woh.rr.com



Odonata numbers begin to build in April. Not in the numbers we will see in May, but worth watching for. Here's a map of Counties with observations in April. Darker where observations are in the last 5 years. Franklin and Montgomery are the clear leaders in number of April observations. Notice counties that are white – no April observations. If your county isn't pink, here's your chance to make a mark. Below is a table of the species that have been first recorded in April.

Species	Earliest Flight Date	Observations All Data	Observations Recent Years	Migratory?
Spot-winged Glider	3-Apr	2		Yes
Blue Corporal	5-Apr	67	42	
Stream Cruiser	6-Apr	11	7	
Uhler's Sundragon	6-Apr	6	4	
Common Baskettail	7-Apr	9	2	
Eastern Forktail	8-Apr	138	112	
Carolina Saddlebags	10-Apr	17	16	Yes
Blue Dasher	13-Apr	16	16	
Common Whitetail	13-Apr	20	16	
Painted Skimmer	13-Apr	21	19	
Springtime Darner	13-Apr	24	16	
Southern Spreadwing	13-Apr	19	15	
Citrine Forktail	14-Apr	10	10	
Double-striped Bluet	20-Apr	1		
Ashy Clubtail	20-Apr	2		
Furtive Forktail	20-Apr	2		
Aurora Damsel	23-Apr	5	3	
Dot-tailed Whiteface	24-Apr	3	2	
Unicorn Clubtail	25-Apr	1		Maybe
Familiar Bluet	26-Apr	1	1	
Black Saddlebags	26-Apr	1		Yes
Midland Clubtail	26-Apr	1		
Twin-spotted Spiketail	26-Apr	2	2	
Beaverpond Baskettail	26-Apr	1	1	
Twelve-spotted Skimmer	27-Apr	1		Maybe
Lancet Clubtail	27-Apr	1	1	
Skimming Bluet	29-Apr	2	2	
Azure Bluet	29-Apr	1	1	
Red Saddlebags	29-Apr	1	1	Yes
Orange Bluet	30-Apr	1	1	
Rapids Clubtail	30-Apr	1	1	