

Newsletter of the Ohio Odonata Society

Ohio Dragon Flyer



Newsletter of the Ohio Odonata Society

Ohio Dragon Flyer



Ohio Odonata Society Board

President – Kyle Bailey
k47bailey@gmail.com

Vice President – Dave McShaffrey
mcshaffd@marietta.edu

Past-President – Malisa Spring
spring.99@osu.edu

Member-at-Large – Chelsea Gottfried
chelsea.gottfried@gmail.com

Treasurer – Sherree Cyra
bluebell101sc@gmail.com

Data Manager – Jim Lemon
jlem@woh.rr.com

Newsletter Editor – Jim Lundberg
lundbergj@hotmail.com

In This Issue

Any Ode Answer – Instars and Seasons. Bob Glotzhober provides expert answers.

Any Ode Question – Two questions posed.

2022 Ohio Odonata Survey 2022 – Species and Counties.

Flight Range Expansion. Data from Jim Lemon.

New County Records. A note from Jim Lemon.

Survey Corner – Odonata Monitoring at Wiregrass Lake. Submitted by Ron Boudouris.

Combo Maps/Charts – An invaluable data product available to OOS Members. Created by Jim lemon.

Cover Photo

Grey Petaltail *Tachopteryx thoreyi* (exuvia)

Exuvia pl. exuvae – Latin meaning “stripped from a body”

Cedar Bog, May 28, 2018. I saw the larvae crawling up the plantain, then checked back on it numerous times, noting progress, only to miss the departure. It was a busy day with Spatterdock Darners and Brown Spiketail also flying.

Jim Lemon

Any Ode Answer

Last newsletter, Jim Lundberg posed questions concerning Odonate life hidden below the surface. Bob Glotzhofer, who has conducted related studies, including raising Tiger Spiketail larvae to adult emergence, provides the expert answers.

Q. *Are the number of instars and seasons before emergence as adults entirely species-dependent, or do they also depend on environmental factors? Also, what changes other than size occurs molt to molt? Thank you in advance, Jim Lundberg*

A. The quick answer is yes to both. Instars (or stadia, depending on the precise definition and the usage of the author) is the period between larval molts. According to Corbet (1999), Odonata larvae progress through 9 to 17 instars (he prefers stadia) before emerging as an adult. His figures are based upon 121 species for which he could find data, 63% of those species had between 11 to 13 instars, and 86% were between 10 to 14 instars. The median and mode were 12 instars. He notes that his is based on mostly Pond Damselflies (Coenagrionidae) and Pond Skimmers (Libellulidae), as most of

these are easiest to raise in captivity. Therefore, to a degree, the number of instars is species dependent.

But the number of instars and speed of development may also depend upon environmental conditions, as suggested by the question. Corbet points out that photoperiod (the changing length of daylight) in the late summer or fall may arrest development for those larvae in the F1 or F0 instar [Note: Since it is difficult to watch development starting from egg hatch, biologists count instars backward. Hence, the very last instar before ecdysis to the adult is termed "F0", or final larval instar. The one preceding the final larval instar, then, is F1. The one before that is F2, with each earlier instar



Tiger Spiketail Larva. in lab. July 15, 2010 CerroneaLarva5611

getting a larger number]. Arresting development then means that instar may last much longer and overwinter before development continues. In my ten-year study of the Tiger Spiketail, I had sixteen larvae survive in the lab through the F0 to emerge as adults. Two of the F0 instars emerged as adults after 50 or 53 days in that instar. The other fourteen overwintered, spending 219 to more than 300 days in the F0 instar before emerging as adults.

Other studies reported in Corbet also indicate that if early development is retarded (temperature and/or food), not only does it slow down emergence, but it can add one or two instars to the larva's development. Both early retarding of development and F1 or F0 retarding of development may result in some individuals from the same batch of eggs emerging as adults in different years! This is known as cohort splitting and spreads the genes across a wider calendar range, which can aid survival of the species in the event of a catastrophic environmental impact in a single year. With the Tiger Spiketails I studied, data from both the field and the lab strongly suggested that the larval development takes either 3 or 4 years – it is variable.

Jim also asked about changes during the larval development other than size. These can be quite significant. Body shape changes. Identifying characters such as the number and placement of abdominal spines or setae on the labellum change, as well as a variety of other characters. In many species, external sexual organs may become visible – in females of some species the gonapophyses may be visible as early as F7, while both sexes may have visible sex organs in some species by F3 or F4. As the last several instars arrive, wing pads become visible, and the length of the wing pads is a good indicator of the which near final instar the larva is within. All of these changes make identification of Odonata larvae almost impossible if you are not working with an F2, F1 or F0 larva! Even at that, larval ID is a challenge! *Bob Glotzhober*

Corbet, Philip S. 1999. Dragonflies: Behavior and Ecology of Odonata. Comstock Publishing Associates, Cornell University Press. Ithaca, NY. 829pp

Glotzhober, Bob. 2006. Life history studies of *Cordulegaster erronea* Hagen (Odonata: Cordulegastridae) in the Laboratory and the Field. *Bulletin of American Odonatology* 10 (1): 1-18.

Editor's Note: Bob's article on life history of *Cordulegaster erronea*, referenced directly above and linked here: [bao_2006_10_1.pdf \(squarespace.com\)](#), provides more information on instar development. With details on habitat and natural history, it is also, a must-read for anyone interested in searching for Tiger (and other) Spiketails.

Any Ode Question

Q. *Do different damselfly and dragonfly species mature at different rates? I read somewhere that "the average dragonfly matures in a single year." What is the extent of variability beyond the "average?"*

Q. *If somebody yelled, "Tachopteryx thoreyi on your pants!", what would you do – swat it? The first one I encountered had landed on my wife. Of course, Gray Petaltails are a lot less terrifying than *Tachopteryx thoreyi*, and Cathy just smiled and held still for the photo op. We don't tend to use scientific names in common conversation; we tend to use, well, common names. When I read articles, I gloss over the Latin. Most Odonata in the USA have common names, and *iNaturalist* and *Odonata Central* searches using common names work just fine, so why do the newsletter articles include both species common name and scientific name?*

So, yes, there are *two* Any Ode Questions in this newsletter. All readers are encouraged to participate. Any Ode Answers, one line or full article, will be published in the next newsletter. Please note if you prefer that your questions or answers should remain anonymous. Submit Any Ode Question or Any Ode Answer to lundbergj@hotmail.com.

2022 Ohio Odonata Survey (as of 1/24/2023) Jim Lemon jlem@woh.rr.com

We are maybe close to done on 2022, incoming is a trickle. The numbers that follow are the current report. For 2022, we have at least 35,481 research grade (RG) observation submitted to iNaturalist. 2022 is now the most reported Odonata season for all of OOS data. New monthly highs were also reported for May, Jun, and Oct. This set of observations represents 136 species, from 1,034 contributors. New County Records are at 127. Great Blue Skimmer and Painted Skimmer both were reported in 7 new Counties. Columbiana County had the most new species with 6.

136 Species	# Observations	# Counties	# Users	# Days	New Highs	# Co Records
Amber-winged Spreadwing	62	15	20	25		1
American Rubyspot	593	38	76	114	o/u/d	0
Arrow Clubtail	20	7	9	14		0
Arrowhead Spiketail	19	10	14	12	u	1
Ashy Clubtail	102	19	28	34	o/u/d	0
Aurora Damsel	44	15	22	22	d	1
Autumn Meadowhawk	1351	72	161	134	o/c/d	0
Azure Bluet	312	54	74	83		1
Band-winged Meadowhawk	126	16	37	51	u	2
Banded Pennant	114	20	24	44		2
Beaverpond Baskettail	2	1	1	1		0
Black Saddlebags	544	73	100	121	o/u	0
Black-shouldered Spinyleg	59	22	22	28		1
Black-tipped Darner	7	3	5	4		0
Blue Corporal	27	11	19	18		2
Blue Dasher	2490	88	279	135		0
Blue-faced Meadowhawk	208	22	46	61		2
Blue-fronted Dancer	971	80	122	116	o/d	0
Blue-ringed Dancer	344	42	46	77		0
Blue-tipped Dancer	690	71	89	84	o	1
Brown Spiketail	15	4	5	7	c	0
Calico Pennant	386	52	71	86		0
Carolina Saddlebags	208	41	62	69		2
Cherry-faced Meadowhawk	2	1	2	1		0
Citrine Forktail	165	33	35	70		3
Clamp-tipped Emerald	9	8	8	8	c	0
Cobra Clubtail	59	4	22	20		0
Comet Darner	104	32	36	44	o	6
Common Baskettail	39	19	24	16		1

Common Green Darner	513	70	119	156		0
Common Sanddragon	17	4	4	5	o/c	0
Common Whitetail	1757	88	292	142	o	0
Cyrano Darner	43	21	21	27	o/c/u/d	3
Delta-spotted Spiketail	8	2	3	4		0
Dot-tailed Whiteface	213	32	38	44	o/c/d	3
Double-ringed Pennant	6	1	1	1		0
Double-striped Bluet	680	71	74	126		0
Dragonhunter	72	19	30	36		1
Dusky Clubtail	28	4	7	10	o/d	0
Dusky Dancer	265	46	42	70	o	0
Eastern Amberwing	1591	88	171	119	o/u	0
Eastern Forktail	2293	88	173	169	u	0
Eastern Least Clubtail	48	8	13	17	o/c	0
Eastern Pondhawk	2475	88	261	143	o	0
Eastern Red Damsel	193	20	45	47	o/c/u	1
Eastern Ringtail	21	4	7	10	c	0
Ebony Jewelwing	1121	77	292	107	o	1
Elegant Spreadwing	66	20	23	32	o/c/d	1
Elfin Skimmer	82	1	18	21	o	0
Elusive Clubtail	13	1	4	7	o/u/d	0
Emerald Spreadwing	79	17	29	28	o/u	0
Familiar Bluet	883	79	106	150	o/c/u/d	0
Fawn Darner	42	20	25	31	u	0
Flag-tailed Spinyleg	92	21	19	35		1
Fragile Forktail	1922	88	177	170	o/u	0
Furtive Forktail	1	1	1	1		1
Gilded River Cruiser	7	4	4	5		0
Golden-winged Skimmer	6	3	4	4		2
Gray Petaltail	60	14	29	29	o/d	2
Great Blue Skimmer	174	32	45	64	o/d	7
Great Spreadwing	116	25	49	55	c/u	1
Green-faced Clubtail	14	1	4	4	o/u/d	0
Green-striped Darner	9	6	8	9		0
Halloween Pennant	483	71	117	87		0
Handsome Clubtail	17	6	7	11	c/u/d	1
Harlequin Darner	24	3	8	7	o	0
Jade Clubtail	26	4	11	4	o/c/u	2
Lance-tipped Darner	4	4	4	4		0
Lancet Clubtail	240	38	37	51	o/d	1
Laura's Clubtail	2	2	2	2	c	0
Lilypad Clubtail	1	1	1	1		0

Lilypad Forktail	102	8	22	29	u	0
Little Blue Dragonlet	1	1	1	1		1
Lyre-tipped Spreadwing	8	2	5	7	u	1
Macromia Hybrid	8	5	6	5	u	2
Midland Clubtail	84	17	22	29		2
Mocha Emerald	9	7	5	8		1
Northern Bluet	3	2	3	2	c	0
Northern Spreadwing	1	1	1	1		1
Ocellated Darner	12	4	6	6	o/c/u/d	1
Orange Bluet	585	72	70	125	o/d	1
Painted Skimmer	291	42	77	60	o/c/u/d	7
Paiute Dancer	65	4	17	18	c	0
Plains Clubtail	35	1	6	16		0
Powdered Dancer	747	56	95	101	o/d	0
Prince Baskettail	385	76	64	87	u	0
Pronghorn Clubtail	19	5	10	12		0
Racket-tailed Emerald	10	3	6	2		0
Rainbow Bluet	22	6	10	11		0
Rapids Clubtail	15	7	10	9		1
Red Saddlebags	21	7	10	15	o/u/d	2
Riffle Snaketail	3	1	3	3		0
River Bluet	9	1	7	4	o/u/d	0
River Jewelwing	1	1	1	1		0
Royal River Cruiser	55	31	29	40	c/u/d	3
Ruby Meadowhawk	19	8	9	13		1
Russet-tipped Clubtail	54	3	11	22	o/u/d	1
Rusty Snaketail	24	4	9	11	o/c/d	0
Sedge Sprite	76	13	22	27	o/c/u/d	2
Seepage Dancer	197	5	34	39	o/c/u	0
Shadow Darner	146	33	63	67	o/u/d	1
Skimming Bluet	478	64	65	109	o	1
Slaty Skimmer	781	68	107	105	o/c	5
Slender Baskettail	2	2	2	2		1
Slender Spreadwing	581	67	89	111	o/c	0
Smoky Rubyspot	58	4	5	18		0
Southern Pygmy Clubtail	5	3	4	4	c	1
Southern Spreadwing	8	6	7	7		1
Spangled Skimmer	167	41	45	52	c	5
Spatterdock Darner	16	7	12	12		0
Sphagnum Sprite	74	8	21	24	o/u	0
Splendid Clubtail	11	2	7	7	d	0
Spot-winged Glider	55	19	23	27		0

Spotted Spreadwing	98	22	28	38	o/c	2
Springtime Darner	24	14	17	15	u	1
Stream Bluet	611	64	78	94	o/u	0
Stream Cruiser	18	5	7	7	o	1
Swamp Darner	70	30	49	39		4
Swamp Spreadwing	61	21	22	36		3
Sweetflag Spreadwing	54	22	27	36	o/u/d	2
Swift River Cruiser	52	21	20	34		0
Swift Setwing	52	7	10	21	o/c	2
Tiger Spiketail	6	5	5	5	u	0
Tule Bluet	48	10	11	25	c	0
Turquoise Bluet	105	17	20	27		2
Twelve-spotted Skimmer	511	63	123	97		0
Twin-spotted Spiketail	3	3	3	3		1
Uhler's Sundragon	6	1	1	1	o	0
Unicorn Clubtail	311	51	70	47	o/d	1
Vesper Bluet	109	23	22	45	o/c/d	4
Violet Dancer	1123	77	108	118	o/d	0
Wandering Glider	205	45	70	72	u	3
Westfall's Slender Bluet	332	49	60	57	o/u	4
White-faced Meadowhawk	24	7	12	18	c/u	1
Widow Skimmer	1606	88	232	126		0
Yellow-sided Skimmer	30	1	3	4	o	0

"New High" highlights those values where 2022 is now the top # of observations, # of counties, # of users, and # of days.

Note that Cyrano Darner, Familiar Bluet, Ocellated Darner, Painted Skimmer, and Sedge Sprite set new highs for all of these metrics. Note also that Painted Skimmer had 7 new County Records.

88 Counties	# Observations	# Sp	# Users	# Days	New High	# Co Records
Adams	108	34	22	27		0
Allen	71	24	6	16		1
Ashland	249	36	13	30	o/s/d	0
Ashtabula	2374	67	19	148	o	0
Athens	111	34	21	34		0
Auglaize	67	23	2	6		3
Belmont	393	27	2	7	o/s/d	2
Brown	74	32	6	6		0
Butler	617	41	50	108		1
Carroll	106	27	6	14		1
Champaign	1296	68	41	73	s	1
Clark	856	59	25	74	o/s/d	3
Clermont	385	51	43	116	d	2
Clinton	112	30	12	23		0
Columbiana	159	46	11	20	o/s/d	6
Coshocton	1409	58	13	116	o/s/u	3
Crawford	117	34	6	33	d	3
Cuyahoga	762	52	100	136	u/d	0
Darke	217	46	7	25		1
Defiance	56	21	6	9		0
Delaware	275	38	45	64		1
Erie	268	30	24	68	o/d	0
Fairfield	138	31	22	26		1
Fayette	168	32	5	15		2
Franklin	2341	62	117	144	s	1
Fulton	214	30	6	23	o/u/d	0
Gallia	141	25	7	14	d	0
Geauga	550	69	40	91		1
Greene	745	64	62	108	u/d	1
Guernsey	126	23	3	5		0
Hamilton	724	56	68	121	o	1
Hancock	392	60	19	83	d	3
Hardin	85	32	3	18		1
Harrison	274	38	5	24	o/d	3
Henry	315	34	6	17	o/s/d	1
Highland	76	28	13	17	d	0
Hocking	121	36	24	30		0
Holmes	205	29	8	27	o/s	1
Huron	340	29	5	31	o/s/d	3
Jackson	120	31	8	18		0
Jefferson	231	34	7	26	o/s/u/d	3
Knox	156	22	17	22	u	0
Lake	605	68	46	83		1

Lawrence	231	38	4	10	o/s	2
Licking	198	34	25	43		1
Logan	401	47	16	46	o/d	2
Lorain	753	49	38	112		1
Lucas	3012	76	74	169	o/u/d	1
Madison	240	34	15	22		3
Mahoning	105	42	10	48		1
Marion	329	30	8	9	o	4
Medina	216	44	31	63		2
Meigs	381	31	1	4	o	3
Mercer	93	22	3	7		2
Miami	485	54	21	23	o/s/u	0
Monroe	187	28	2	5	o	2
Montgomery	1211	79	50	123	o/s/d	3
Morgan	144	32	7	13		2
Morrow	491	31	15	24	o/s/u/d	1
Muskingum	201	34	9	26	d	0
Noble	372	27	7	9	o/s/d	0
Ottawa	185	31	50	56	s/u/d	5
Paulding	59	21	2	4		0
Perry	94	21	1	24		1
Pickaway	124	34	16	24		3
Pike	267	40	9	14	o	3
Portage	484	76	56	84	s	3
Preble	230	36	12	20		3
Putnam	125	23	1	7		0
Richland	138	30	15	27		1
Ross	114	34	13	16		0
Sandusky	254	42	11	36	o/s	4
Scioto	117	33	9	15		3
Seneca	287	31	7	12	o	3
Shelby	139	34	15	13	u	5
Stark	2755	76	45	129	o/s/u/d	4

The "New High" column highlights those values where 2022 is now the top: o for # of observations, s for # of species, u for # of users, and d # of days.

Note that Stark, Jefferson, and Morrow set new highs for all of these metrics.

Flight Range Expansion Jim Lemon

One thing we keep track of is the range of days that a species is seen in Ohio. We call this the flight range – when we should expect to start (or stop) looking for a species. It also offers some insight to on-going changes. We had 22 changes to our species flight range in 2022 – 13 new early flight dates and 9 new late flight dates. Note two instances (Dragonhunter and Rubyspot) where we had same-day observations at different ends of the state.

Species	Date	Observer	County
Dragonhunter	2 Jun	lgilbert	Geauga
Dragonhunter	2 Jun	beaton422	Montgomery
Handsome Clubtail	22 Jul	jimlem	Miami
Elusive Clubtail	23 Oct	lundbergj	Hamilton
Elusive Clubtail	23 Oct	dtibbets	Hamilton
Flag-tailed Spinyleg	12 Jun	srmyers	Hancock
Black-shouldered Spinyleg	21 Sep	jimlem	Hocking
Eastern Least Clubtail	20 May	lundbergj	Adams
Comet Darner	11 May	smwhite	Montgomery
Common Green Darner	6 Mar	smwhite	Montgomery
Royal River Cruiser	11 Jun	lthies	Hamilton
Gilded River Cruiser	11 Jun	srmyers	Hancock
Little Blue Dragonlet	29 May	jackieriley	Lucas
Blue Corporal	1 Jul	spider wanderer	Delaware
Golden-winged Skimmer	25-Jul	S048bugs	Franklin
Great Blue Skimmer	20 May	lmillerua,	Franklin
Great Blue Skimmer	20 May	lisaclairmiller	Franklin
Band-winged Meadowhawk	29 Oct	jcefus	Stark
American Rubyspot	5 Nov	quddy	Portage
American Rubyspot	5 Nov	mikeabel	Fayette
Smoky Rubyspot	24 Oct	jheiser	Coshocton
Turquoise Bluet	15 May	smwhite	Greene
Orange Bluet	4 Nov	monicap273	Seneca
Tule Bluet	15 May	smwhite	Greene
River Bluet	4 Jun	srmyers	Hancock
Westfall's Slender Bluet	19 May	roamingthewoods	Ashtabula

2022 New County Records Jim Lemon

Another bit we track is the first report of a species in a county. We call that a County Record. This is a one-time event. Finding a new County Record at this point is challenging and seems to get more difficult as the years go by. For 2022, we had 128 new County Records. This compares favorably to 2020 (115) and 2021 (112), but trails 2018 (330) and 2019 (321). The peak year was 1959 (405, primarily by R. Alrutz).

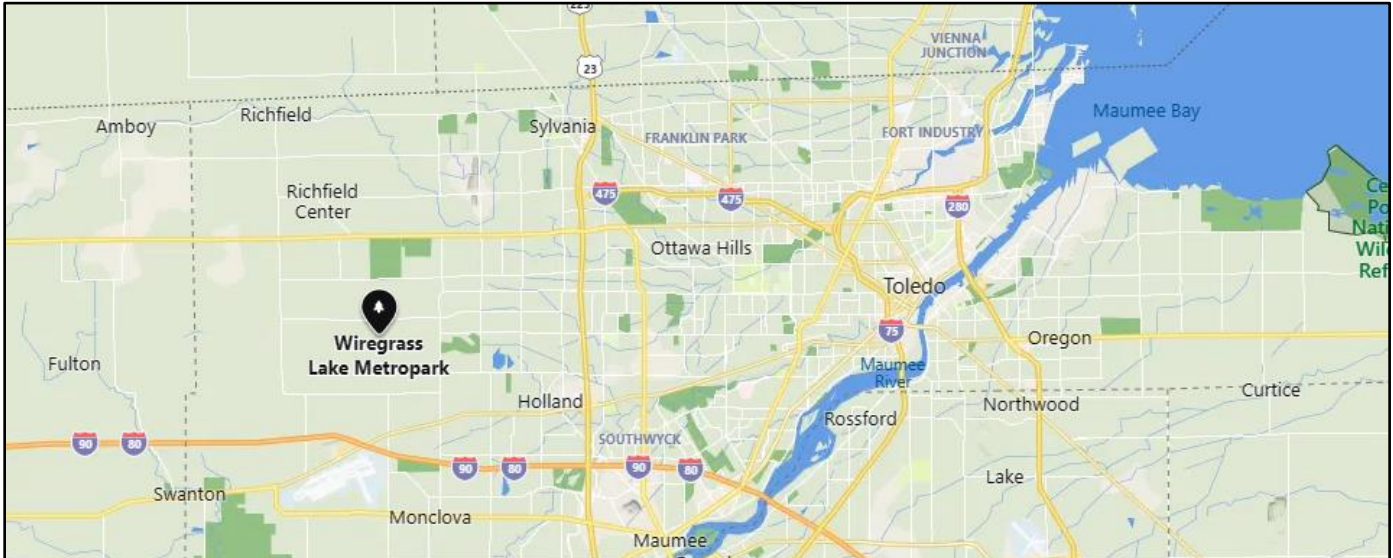
<i>Species</i>	<i>County</i>	<i>Date</i>	<i>iNat User</i>
Amber-winged Spreadwing	Hancock	6/4/2022	srmyers
Arrowhead Spiketail	Logan	6/4/2022	jimlem
Aurora Damsel	Crawford	6/18/2022	chelsealynne
Azure Bluet	Auglaize	6/18/2022	jimlem
Banded Pennant	Licking	6/20/2022	susankamps
Banded Pennant	Clark	7/10/2022	terrinnorris
Band-winged Meadowhawk	Lorain	7/11/2022	dear_deaddeer
Band-winged Meadowhawk	Trumbull	7/16/2022	charleshappell
Black-shouldered Spinyleg	Shelby	7/13/2022	jimlem
Blue Corporal	Crawford	5/20/2022	chelsealynne
Blue Corporal	Delaware	7/1/2022	spider_wanderer
Blue-faced Meadowhawk	Auglaize	6/18/2022	jimlem
Blue-faced Meadowhawk	Portage	9/1/2022	jsemroc
Blue-faced Meadowhawk	Portage	9/1/2022	quddy
Blue-tipped Dancer	Ottawa	8/6/2022	rjacob
Carolina Saddlebags	Mercer	5/19/2022	jimlem
Carolina Saddlebags	Wayne	6/4/2022	benniesaylor
Citrine Forktail	Seneca	5/27/2022	monicap273
Citrine Forktail	Wood	7/19/2022	jimlem
Citrine Forktail	Marion	8/7/2022	darth_schrader
Comet Darner	Coshocton	6/11/2022	jheiser
Comet Darner	Fairfield	6/18/2022	raptor_1
Comet Darner	Morrow	6/18/2022	jessicalowery
Comet Darner	Mahoning	6/21/2022	lewarren
Comet Darner	Scioto	6/26/2022	dougoveracker
Comet Darner	Columbiana	6/30/2022	quddy
Common Baskettail	Pickaway	5/21/2022	turtlerunner
Cyrano Darner	Sandusky	6/10/2022	carolr
Cyrano Darner	Henry	6/27/2022	jimlem
Cyrano Darner	Ottawa	7/16/2022	jackieriley
Dot-tailed Whiteface	Hardin	5/27/2022	t_krynak
Dot-tailed Whiteface	Shelby	6/5/2022	jimlem
Dot-tailed Whiteface	Monroe	6/24/2022	monicap273
Dragonhunter	Stark	6/25/2022	jcefus
Eastern Red Damsel	Hamilton	6/6/2022	jackstenger
Ebony Jewelwing	Mercer	8/16/2022	jimlem
Elegant Spreadwing	Scioto	6/18/2022	monicap273
Flag-tailed Spinyleg	Scioto	9/9/2022	monicap273
Furtive Forktail	Champaign	5/2/2022	jimlem
Golden-winged Skimmer	Lake	7/14/2022	sallypsandpiper
Golden-winged Skimmer	Franklin	7/25/2022	s0428bugs
Gray Petaltail	Columbiana	6/9/2022	jsemroc
Gray Petaltail	Meigs	6/19/2022	monicap273

Great Blue Skimmer	Ottawa	6/2/2022	rjacob
Great Blue Skimmer	Shelby	6/4/2022	jimlem
Great Blue Skimmer	Richland	6/8/2022	carolr
Great Blue Skimmer	Butler	6/17/2022	nireklov
Great Blue Skimmer	Pickaway	6/19/2022	turtlerunner
Great Blue Skimmer	Pike	6/21/2022	jimlem
Great Spreadwing	Jefferson	8/23/2022	gcasp60
Handsome Clubtail	Stark	6/22/2022	kent_miller
Jade Clubtail	Montgomery	6/22/2022	rasamoto
Jade Clubtail	Preble	6/30/2022	whateverwatcher
Lancet Clubtail	Tuscarawas	6/12/2022	monicap273
Little Blue Dragonlet	Lucas	5/29/2022	jackieriley
Lyre-tipped Spreadwing	Hancock	8/2/2022	srmyers
Macromia Hybrid	Montgomery	7/25/2022	rasamoto
Macromia Hybrid	Logan	8/11/2022	jimlem
Midland Clubtail	Columbiana	6/15/2022	quddy
Midland Clubtail	Monroe	6/16/2022	dmcshaffrey
Mocha Emerald	Montgomery	7/10/2022	rasamoto
Northern Spreadwing	Williams	6/28/2022	jimlem
Ocellated Darner	Portage	9/18/2022	dhochadel
Orange Bluet	Meigs	7/23/2022	monicap273
Painted Skimmer	Fayette	4/24/2022	turtlerunner
Painted Skimmer	Shelby	5/9/2022	jimlem
Painted Skimmer	Seneca	5/12/2022	ccarrollc1
Painted Skimmer	Crawford	5/14/2022	chelsealyne
Painted Skimmer	Huron	5/15/2022	carolr
Painted Skimmer	Madison	5/30/2022	jimlem
Painted Skimmer	Columbiana	7/1/2022	quddy
Rapids Clubtail	Columbiana	6/22/2022	jsemroc
Red Saddlebags	Clark	5/12/2022	terrinnorris
Red Saddlebags	Coshocton	9/8/2022	quddy
Royal River Cruiser	Shelby	7/13/2022	jimlem
Royal River Cruiser	Holmes	7/22/2022	jheiser
Royal River Cruiser	Marion	8/28/2022	darth_schrader
Ruby Meadowhawk	Clermont	7/7/2022	dmmeyers
Russet-tipped Clubtail	Greene	9/7/2022	smwhite
Sedge Sprite	Stark	5/26/2022	benniesaylor
Sedge Sprite	Sandusky	7/30/2022	darth_schrader
Shadow Darner	Lawrence	10/22/2022	monicap273
Skimming Bluet	Sandusky	7/30/2022	darth_schrader
Slaty Skimmer	Huron	7/13/2022	monicap273
Slaty Skimmer	Wood	7/29/2022	rickbarricklow
Slaty Skimmer	Marion	8/7/2022	ccarrollc1
Slaty Skimmer	Ottawa	8/17/2022	dr__kenda

Slaty Skimmer	Harrison	9/15/2022	quddy
Slender Baskettail	Preble	5/30/2022	rasamoto
Southern Pygmy Clubtail	Medina	5/25/2022	sallypsandpiper
Southern Spreadwing	Sandusky	5/29/2022	kimsmith
Spangled Skimmer	Clark	5/30/2022	terrinnorris
Spangled Skimmer	Madison	5/30/2022	jimlem
Spangled Skimmer	Preble	5/30/2022	rasamoto
Spangled Skimmer	Hancock	6/4/2022	srmyers
Spangled Skimmer	Jefferson	6/5/2022	monicap273
Spotted Spreadwing	Coshocton	9/14/2022	jheiser
Spotted Spreadwing	Allen	9/15/2022	jimlem
Springtime Darner	Jefferson	6/5/2022	monicap273
Stream Cruiser	Geauga	5/21/2022	toddeiben
Swamp Darner	Pike	4/24/2022	jimlem
Swamp Darner	Huron	5/24/2022	monicap273
Swamp Darner	Stark	6/1/2022	mbarath
Swamp Darner	Seneca	6/26/2022	chelsealynne
Swamp Darner	Columbiana	7/9/2022	acarnes77
Swamp Spreadwing	Pickaway	7/4/2022	darth_schrader
Swamp Spreadwing	Harrison	8/28/2022	monicap273
Swamp Spreadwing	Pike	9/17/2022	monicap273
Sweetflag Spreadwing	Fayette	5/24/2022	mikeabel
Sweetflag Spreadwing	Madison	6/1/2022	lisaclairemiller
Swift Setwing	Warren	7/2/2022	shane5767
Swift Setwing	Morgan	7/30/2022	monicap273
Turquoise Bluet	Marion	5/29/2022	monicap273
Turquoise Bluet	Portage	6/1/2022	quddy
Twin-spotted Spiketail	Medina	5/17/2022	dionysus240
Unicorn Clubtail	Belmont	6/4/2022	monicap273
Vesper Bluet	Darke	5/29/2022	coachwhipbooks
Vesper Bluet	Carroll	6/7/2022	spidi
Vesper Bluet	Perry	6/28/2022	mlski
Vesper Bluet	Warren	9/7/2022	rasamoto
Wandering Glider	Lawrence	7/22/2022	monicap273
Wandering Glider	Morgan	8/3/2022	heidi47
Wandering Glider	Belmont	9/22/2022	appalachiahowie
Westfall's Slender Bluet	Harrison	6/11/2022	monicap273
Westfall's Slender Bluet	Auglaize	6/18/2022	jimlem
Westfall's Slender Bluet	Meigs	6/19/2022	monicap273
Westfall's Slender Bluet	Ottawa	7/5/2022	jsully357
White-faced Meadowhawk	Clermont	10/16/2022	dmmeyers

Survey Corner – Odonata Monitoring at Wiregrass Lake Ron Boudouris

In March of last year (2022), I received a phone call from Rick Barricklow asking if I would like to work with him on an Odonata monitoring project at Wiregrass Lake Metropark in Lucas County. The project had previously been managed and conducted by Kim Smith in partnership with the Metroparks Toledo volunteer monitoring program. Having been an ode enthusiast for only a few years, I jumped at the opportunity to not only hone my ID skills but to also participate in a citizen scientist project that might provide some interesting and useful data about dragonflies and damselflies.



Wiregrass Lake is an eleven-acre, man-made lake and is encircled by a ½ mile trail. It has a varied shoreline with sandy beaches, shrubs, trees, and a few concrete structures with benches. After a sand mining operation on 16 acres ceased in the late 1980's, plans for a potential future housing development started to take place. However, Metroparks Toledo was able to acquire the property in 2004, preventing it from being sold off as lakefront lots.

After extensive buckthorn removal and native wet prairie plantings, much of the site has been restored as part of a larger scale project supporting turtle conservation, state-listed plants, and globally rare plant communities, as well as other wildlife species. In fact, some of the best examples of the Oak Openings Region's wet prairie communities exist here. Wildlife corridors, such as the newer, three-mile Mosely Trail, were created via this Metropark site to connect other natural area habitats within the Oak Openings Region.

In 2015, Wiregrass Lake Metropark officially opened to the public. In addition to primitive camping at a few sites, recreational activities such as hiking, fishing, kayaking, and canoeing are also offered; however, balancing these popular pursuits with preservation is critical for continued success at this park, and monitoring wildlife populations such as odes is important.

Informal observations prior to the official start of the monitoring project in 2019 indicate that large numbers of dragonflies and damselflies could be seen in a single day. Given the anecdotal information prior to 2019, there appears to have been a decline in the overall number of species as well as the number of individuals, although the current trends are not clear; and during the years of the survey, the overall numbers have been relatively steady. The reasons for the decline/fluctuations in the number of species and individuals are unclear but may have to do with human activity, weather/climate, lake levels, predators, etc.

Each year, the monitoring project begins in May and ends in September. Surveys occur approximately every ten days give or take a day or two depending on weather conditions and/or the schedules of the monitors. The lake is divided

into four quadrants with count totals being tallied for each quadrant as well as overall totals being tallied for each monitoring day and for the season. Individuals are noted that are flying over the lake, along the shoreline, on the trail, and in the vegetation on the side of the trail opposite the lake.

Species	2022	2021	2020	2019
Variable Dancer	221	76	230	170
Eastern Amberwing	215	219	189	195
Calico Pennant	118	124	189	195
Familiar Bluet	80	20	40	44
Autumn Meadowhawk	67	10	30	5
Slender Bluet	64	11	79	26
Widow Skimmer	60	60	112	78
Banded Pennant	67	10	30	5
Eastern Forktail	64	11	79	26
Double Striped Bluet	40	47	89	76
Slaty Skimmer	38	15	29	70
Prince Baskettail	33	25	18	14
Black Saddlebags	28	10	28	18
Blue-fronted Dancer	27	21	13	18
Common Whitetail	26	9	5	3
Blue Dasher	11	6	8	23
Dusky Clubtail	10	4	2	2
Fragile Forktail	10	8	2	2
Eastern Pondhawk	9	5	35	24
Flag-tailed Spinyleg	8	0	0	1
Stream Bluet	4	0	1	7
Common Green Darner	3	8	5	14
Wandering Glider	3	3	0	1
Skimming Bluet	3	33	18	12
Dusky Dancer	3	0	0	0
Swamp Darner	2	0	0	3
Unicorn Clubtail	2	1	0	0
Azure Bluet	2	0	0	2
Twelve-spotted Skimmer	1	2	3	5
Orange Bluet	1	1	1	4
Halloween Pennant	0	5	29	22
Total Observations	1242	981	1450	1416
Total Species	30	35	30	39

Comments/Observations

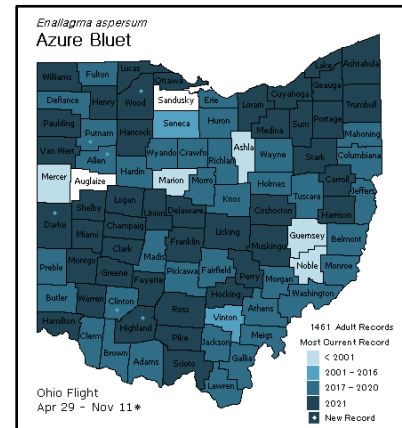
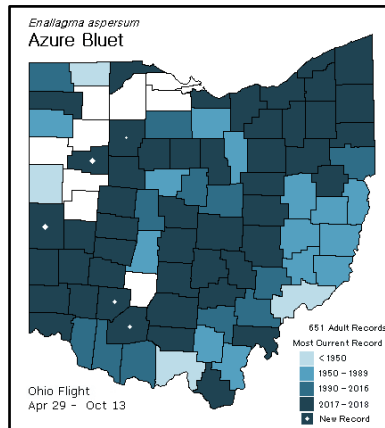
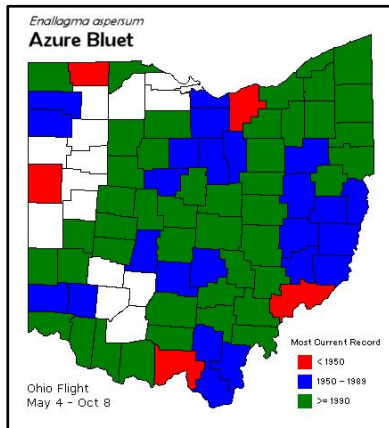
1. The level of the lake, at the beginning of the season, was higher than had been observed in many years. By the end of the season, the lake level was normal or slightly below normal.
2. Halfway through the season, Metroparks Toledo cleared much of the invasive buckthorn along the shoreline creating more areas where the shoreline could be directly observed, but also decreasing the number of woody plants for perching.
3. The total number of Ashy/Dusky Clubtails for 2022 was 39. They were found in all four quadrants. Rick and I were able to take close-enough photos of the terminal abdominal appendages to determine that, at least, 10 of the 39 that were Dusky Clubtails.
4. There appears to have been a significant decline in the number of Halloween Pennants as none were observed this year.
5. There was a significant decrease in Skimming Bluet individuals.
6. There was a “breakout” of Flag-Tailed Spiny Legs; and two were observed flying in tandem.
7. There was a significant increase in the number of Autumn Meadowhawks and Familiar Bluets.
8. There has been a steady increase in the number of Common Whitetails.
9. Unique individual species may have been missed because the monitoring occurred about every 10 days. For example, Rick identified a Pronghorn Clubtail on a non-monitoring day this past year. We will more carefully note these species in 2023 even though they will not be included in the official survey.
10. We usually scheduled the monitoring around 12:30-2:30 PM and would sometimes adjust the day backward or forward by a day or two to take advantage of the best weather conditions for observing Odes.
11. Other species seen in previous years but not in 2022 include Cyrano Darner, Pronghorn Clubtail, Carolina Saddlebags, and Blue-Faced Meadowhawk, among others.



Thanks to Karen Menard, Monitoring and Research Supervisor with Metroparks Toledo for her help and support during the 2022 monitoring season and for her input regarding this report. Also, thanks to Kim Smith for taking the time to meet with Rick and me to ensure a smooth handoff for the 2022 monitoring season and to Rick for inviting me to be a part of this project. We are looking forward to the 2023 monitoring season. What will it bring? Your comments and questions are welcome. I can be contacted at bison90@centurylink.net. *Ron Boudouris*.

Editor’s note: Thank you, Ron, for sharing the monitoring methodology, comments and observations! Good luck in 2023. Article submissions for the **Survey Corner** can be of any scope. Submit yours to lundbergj@hotmail.com

2022 Combo Maps/Charts



These are three (of several) earlier forms of Jim Lemon's species maps which have evolved into the invaluable Combo Maps/Charts containing *both* Ohio County data *and* Ohio Flight Range data. Below, Jim discusses data and application.

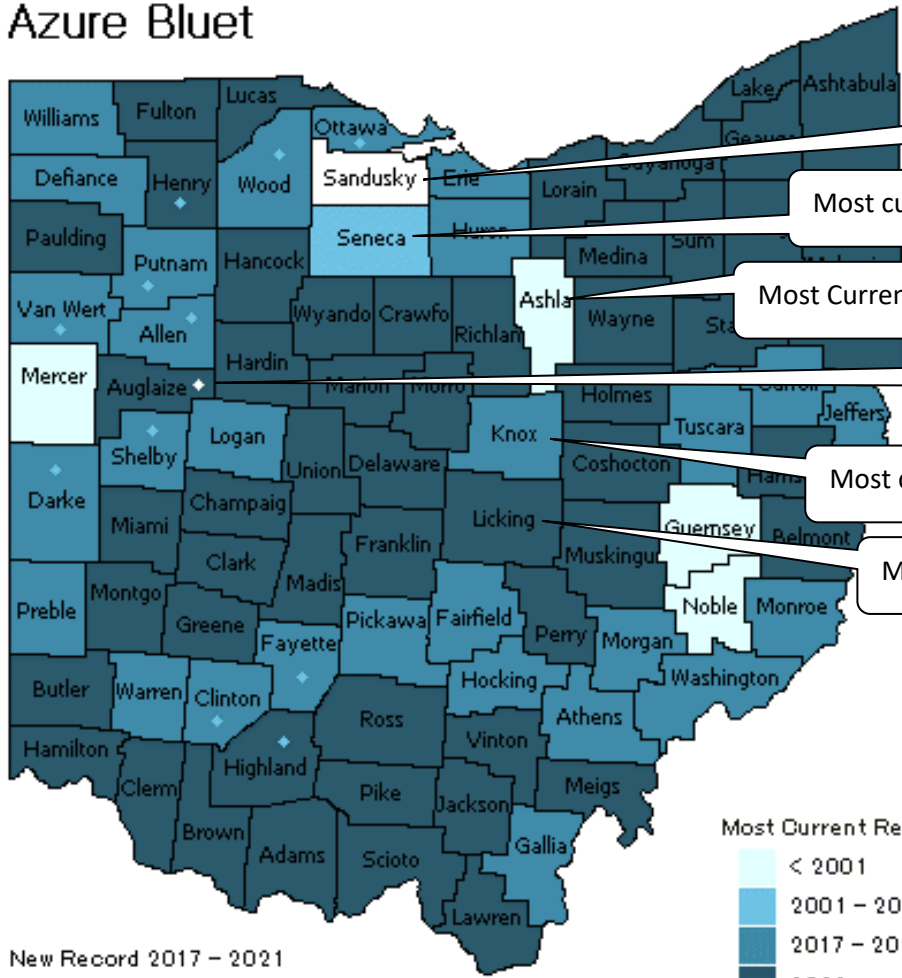
Data: As for the Combo Map/Charts. We track (in the database) and report Ode info at a county level e-solution. Some current data (much of iNat) has more precise location data, but much of the historical data is only to County (and some are unknown). We also track info by day of observation. This is also, generally, accurate (but some are also unknown). At this point, iNat records have swamped the data set. The first statewide survey pretty much ended in 2000. Given the relative sparse data, as well as time span, for current use, it makes sense to group things as prior to 2001. This helps highlight what hasn't been seen in 20+ years - if it hasn't been seen in 20 years, it doesn't make much difference if the last sighting was 1995 or 1925. The next time span (2001-2016) is the time between surveys - this period is now dominated by iNat observations as people have put in their historical photos. 2017-2021 is the recent statewide survey, and 2022 is (of course) the most recent year. It's interesting to me to see the dynamic of the current year along with recent observations that weren't seen in 2022.

The numbers charted are OOS database records with an adult (means flying). Exclusively nymph records are not charted. Historical records that note multiple adults are treated as a single record.

Application: Refer to the Azure Bluet Combo Chart below. If you have a specific County in mind, you can orient yourself to the location of the county, then scroll through the maps looking at what's been reported. Special attention could go to species that haven't yet been observed (new County Record for Sandusky) or something not recently reported (also exciting). For the Azure example, if you're going to Mercer Co, check the flight range and field marks for that species - maybe you'll have a good day out.

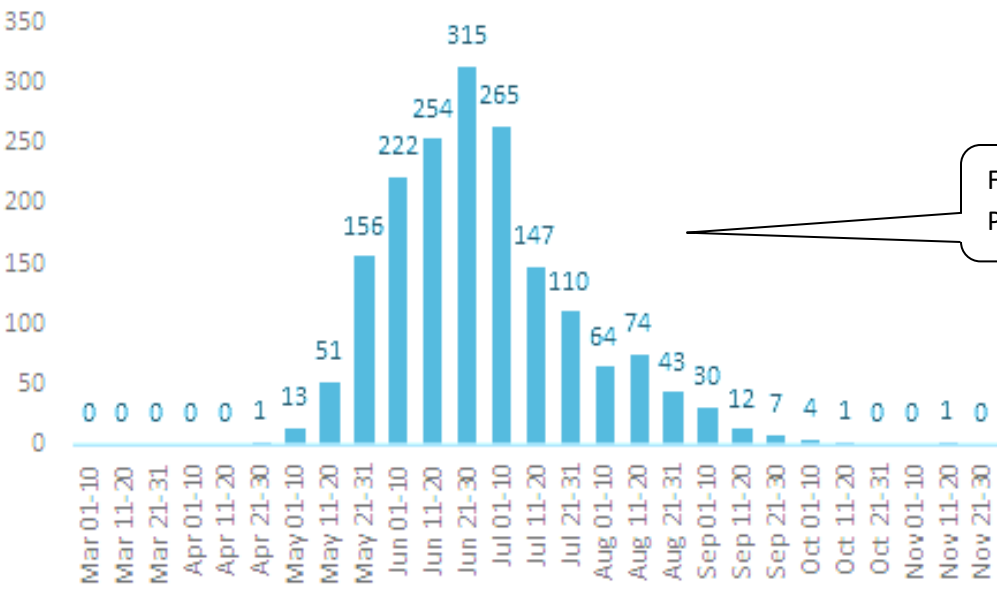
If you are thinking about trying to find a specific species, go to that map/chart and see where it was reported last year, then look at flight chart to get an idea of when to look. Again, for the Azure example, look at the counties that are the darkest (say Montgomery), then at the tallest bars on the flight (mid-Jun to early-Jul. You could then go to iNat and look for the individual observations for the target county and time period (you'll have to use filters) to see specific locations.

Enallagma aspersum
Azure Bluet



◆ New Record 2017 - 2021
 ◆ New Record 2022

Most Current Record
 < 2001
 2001 - 2016
 2017 - 2021
 2022



Flight Range April 21 - October 10.
 Peaking the week of June 21-30

OBSERVATION FREQUENCY - OHIO ODONATA SURVEY DATABASE, 2022

