

# Observing Odonates: Odo-Con 17



Presented by Giff Beaton



Dragonhunters

# But what about small?

Elfin Skimmer

Sphagnum Sprite



# How do we go from this



Eastern Pondhawk



Allegheny River  
Cruiser

More importantly, how do we get from:



Halloween Pennant



White-faced  
Meadowhawk

# How do we get to



Subgenital plate

Tibial keel

More exact  
how do we  
from



# There are many ways to learn more... and they are all really fun!

- Get out! Outside that is...
- Seek new habitats
- Seek different seasons
- Join groups and walks with people who know more than you do
- Read books
- Read newsletters
- Go to meetings.... like this one



Easiest way to find new species:



This works with flowing habitat too:



Almost as easy:



Look for high quality habitat



# Easy AND fun ways to get better



# Other sources of info

Volume 27 : Number 1

OOS website : [www.marietta.edu/~odonata/](http://www.marietta.edu/~odonata/)

April 2017



## The Ohio Dragon - Flier



\* Newsletter of the Ohio Odonata Society \*

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### SAVE THE DATE & SEE YOU THERE : 23, 24 + 25 - JUNE - 2017 (2017 DRAGONFLY CONFERENCE + OOS ANNUAL MEETING)

By 2017 OOS officers

The 2017 Ohio dragonfly conference (dubbed Odo-Con-17) [which will kick off the start of the state-wide project to update the Ohio Dragonfly book and Ohio survey of Odonata : more details at the conference and on the conference page - see below] and the Ohio Odonata Society Annual Meeting will take place in Northeast Ohio at the Grand River Conservation Campus in Rock Creek, Ohio; 23-25 June-2017 : All conference information has been compiled by the organizers and is available at the conference page (link below).

\* See conference page at : (on the OOS website)

<http://w3.marietta.edu/~odonata/ocon17/odo-con-17-index.html>

\* Promotional flyer available here :

<http://w3.marietta.edu/~odonata/ocon17/Odo-Con-17%20Flyer.pdf>

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

www.free-printable-calendar.com

For details concerning any/all of the following : consult the conference page (link above).

LODGING :

FIELD TRIPS : including links for the Grand River Conservation Campus trails, facilities, etc.

SPEAKERS : and speaker Bios

PROPOSED AGENDA : **Friday, 23 June** 5:00-8:00pm; registration + welcome, etc : **Saturday, 24 June** is a packed full day with items scheduled from 8:00am to 8:00pm (cookout dinner included) : **Sunday, 25 June** 8:00 - 9:30am meeting items / open field trips after. See conference page for detailed agenda (link above).

### IMPORTANT / REGISTRATION IS REQUIRED!

\* **REGISTRATION** : Space is limited / so please register early. See registration form = the last page of this newsletter / also available on-line at <http://w3.marietta.edu/~odonata/ocon17/Odo-Con-17%20Registration.pdf> Registration (which includes OOS membership for 2017\*\*) is \$35.00 (\$25.00 if postmarked before 10-April-2017).

\*\* OOS Members, since conference registration includes OOS membership, there is no need to submit 2017 member dues (unless of course you are not attending Odo-Con-17 / then please submit member dues as usual).

# Meetings



Dragonflies and  
Damselflies of Northeast Ohio  
Second Edition



Larry Rosche  
Judy Semroc  
Linda Gilbert  
with illustrations by  
Jennifer Brun



# Books

## Dragonflies & Damselflies

OF GEORGIA AND THE SOUTHEAST



GIFF BEATON

The Dragonflies  
of



Edited by

Robert C. Glotzhofer and David McShaffrey

Ohio Biological Survey

PRINCETON FIELD GUIDES

## DRAGONFLIES AND DAMSELFLIES OF THE EAST

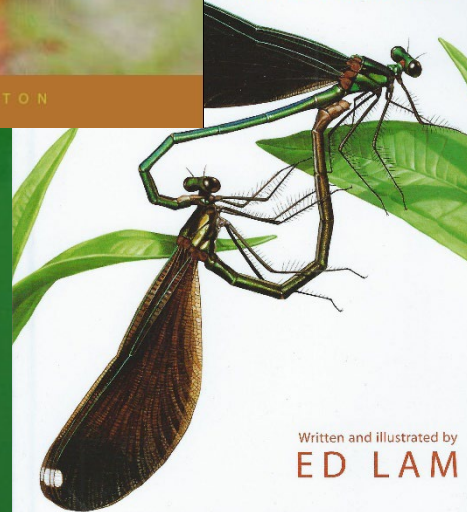
DENNIS PAULSON



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## DAMSELFLIES OF THE NORTHEAST

A guide to the species of eastern Canada  
and the northeastern United States



Written and illustrated by  
ED LAM



# For ID, it's not always about what it IS... but what it ISN'T

Order Odonata is made up of both dragonflies and damselflies

Note: Damselflies are a different suborder, not female dragonflies



Spangled Skimmer



Skimming Bluet

# Anisoptera (Dragonflies)



Golden-winged Skimmer

In general, all dragonflies share these characteristics:

- More robust than damselflies
- Hold wings out flat to sides at rest (some cant wings forward)
- Eyes touching or less than one eye width apart

# Zygoptera (Damselflies)



Variable Dancer

In general, all damselflies share these characteristics:

- Very slender and dainty appearing
- Keep wings closed over back at rest (a few exceptions inc. Spreadwings)
- Narrow heads with eyes widely separated
- Note very short antennae on all odonates



Powdered Dancer



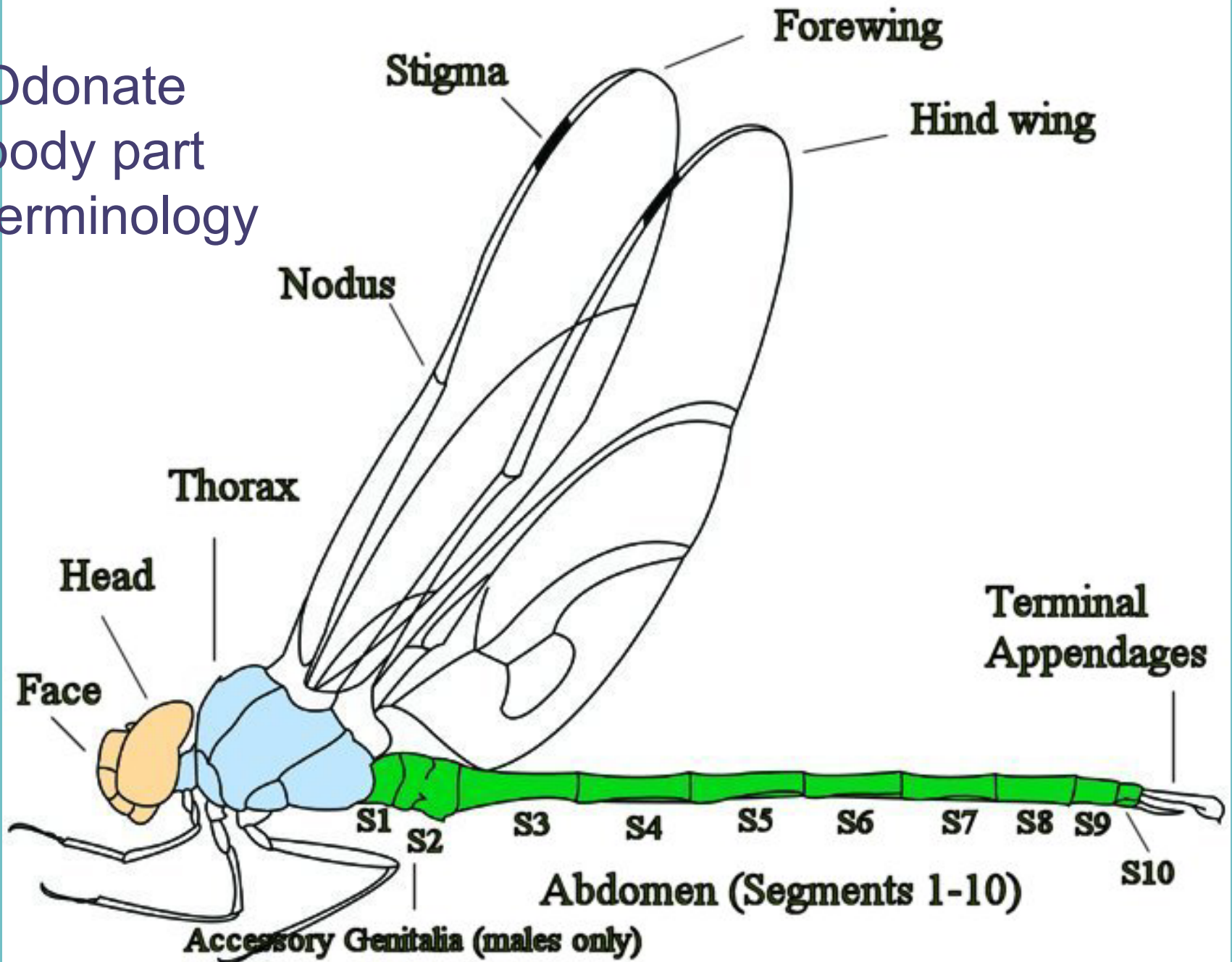
# Neuroptera: these are NOT damselflies



*Ascaloptynx* Owlfly

*Brachynemurus* Antlion

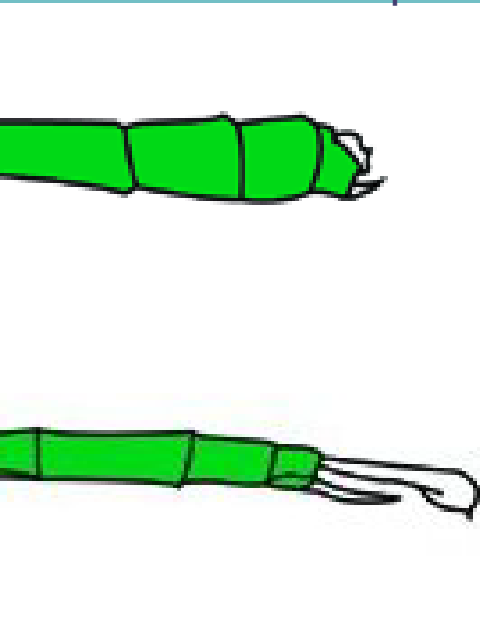
Odonate  
body part  
terminology



# Terminalia

Odonate general: upper appendages are called superior appendages or cerci.

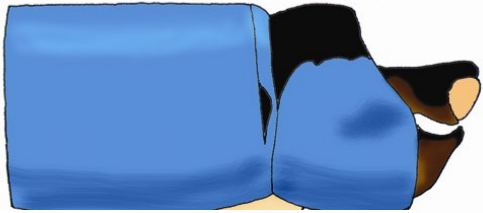
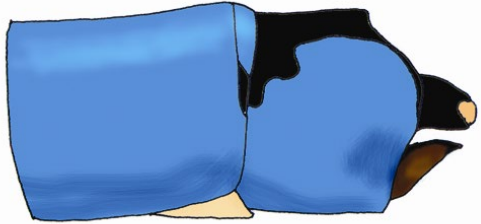
Lower appendages are called inferior appendages. Male uses combo of appendages to hold on to female, and they may be called claspers. In females, usually cerci are absent (except in darners, where they have no function and often break off). Females use an ovipositor (damsels, petaltail, darners) or a similar structure (spiketails, emeralds) to deposit eggs, or a subgenital plate (vulvar lamina) to spread eggs. Shape of all these features may be the only way to tell some similar species apart.



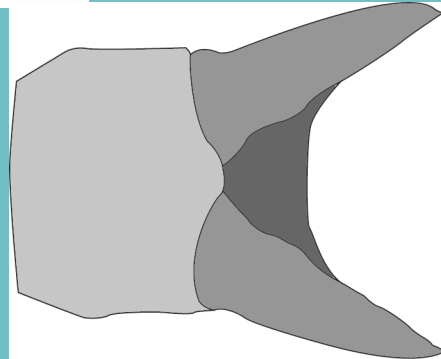
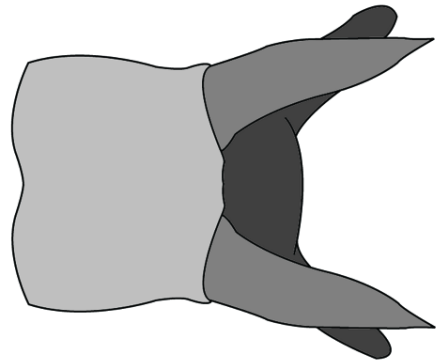
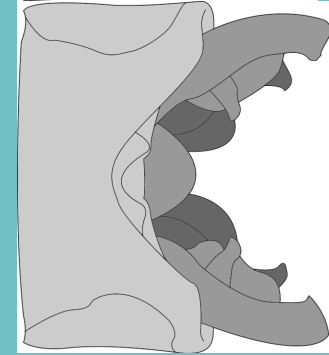
Damselfly: Lower appendages are two paraprocts, epiproct is vestigial. Memory aid: damselflies are fluttery, as if they are parachuting (paraprocts)

Dragonfly: Lower appendage is one epiproct, paraprocts are vestigial.

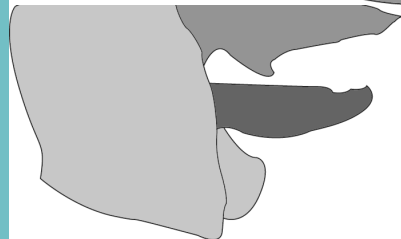
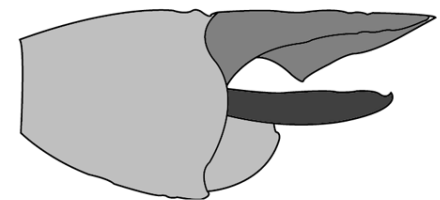
# Terminalia examples (male)



Atlantic Bluet (top) vs Familiar Bluet (bottom). Note shape of cerci and paraprocts... works with dorsal view also



Lancet Clubtail (left) vs Cypress Clubtail (left). Note shape of cerci and epiproct. Bump below epiproct is paraprocts.



# Major Families in OH

## DAMSELFLIES (50)

- Spreadwing Damselflies  
(Lestidae - 11)
- Broad-winged Damselflies  
(Calopterygidae - 5)
- Pond Damselflies  
(Coenagrionidae - 34)

## DRAGONFLIES (114)

- Petaltails (Petaluridae - 1)
- Darners (Aeshnidae - 17)
- Clubtails (Gomphidae - 30)
- Spiketails  
(Cordulegastridae - 5)
- Cruisers (Macromiidae - 6)
- Emeralds (Corduliidae - 17)
- Skimmers  
(Libellulidae - 38)



# Damselflies - 3 Families

## ID tips:

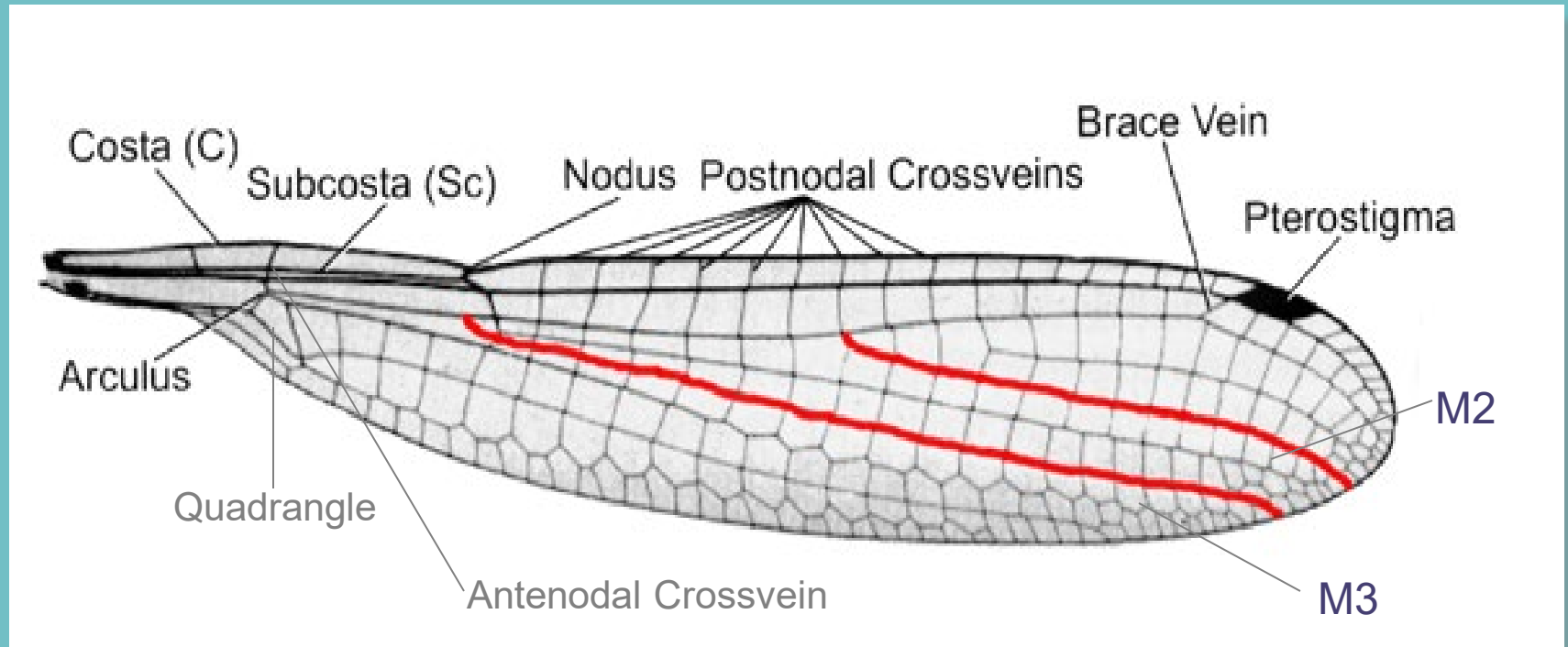
- are the wings stalked or unstalked?
- how big is it?
- shape. All slender, but how long and slender?
- wing venation, pattern on abdomen can all be helpful
- perching style is important, some damsels perch low in vegetation and rarely leave the cover of it, others fly out and about often (mostly pond damsels especially dancers)
- some damsels need to be captured and examined in hand

# Basic Morphology

## Major Veins of Wings

Note: Broad-winged Damselfs are unique for us in having numerous antenodal crossveins and are unstalked

### Damselfly Wing



Note: This is a pond damselfly wing since M3 arises near the nodus (arculus for spreadwings). Location of M2 determines whether dancer (7pn fore/6pn hind), bluet (5/4), or forktail (4/3).

# Spreadwing Damselflies (Lestidae - 11)



Slender Spreadwing

Note yellow  
vein at tips



Elegant Spreadwing

ID:

- wings mostly spread at rest
- number of pruinose segments for males or shape of cerci
- females much harder, look for size, shape, ovipositor, etc.



Great  
Spread-  
wing

# Broad-winged Damselflies (Calopterygidae - 5)



Appalachian Jewelwing



Ebony Jewelwing



American Rubyspot

ID for jewelwings:  
-large, metallic green  
-note wing pattern

-this is the only family of damselflies with unstalked wings (broad at base)



Smoky Rubyspot

# Pond Damselflies (Coenagrionidae- 34)



Dancers-7



Forktails-5



Bluets-17

- Others-5
- Amphiagrion
  - Chromagrion
  - Coenagrion
  - Nehalennia (2)

# Dancers- Argia (7)



Blue-ringed Dancer



Powdered Dancer

ID: -fairly large damselflies, mostly at rivers, males mostly blue  
-some species have several different forms of females  
-all dancers have long spines on legs

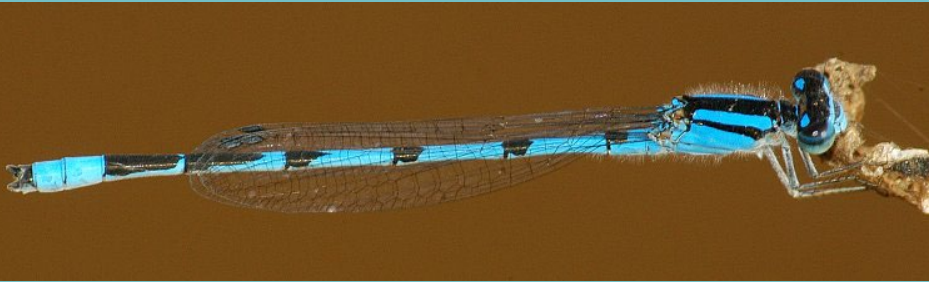


Seepage Dancer



Dusky Dancer

# Bluets- Enallagma (17)



ID: Familiar Bluet

-many blue, esp. males, but not all

-blue males can be split into blue and black or mostly black abdomen

-females very confusing, look closely at thorax. May require in hand examination



Rainbow Bluet



Skimming Bluet



Vesper Bluet

# Forktails- Ischnura (5)



both Citrine Forktail



Liliypad Forktail



Furtive Forktail



Eastern Forktail

ID: -tiny damsels, usually near vegetation  
-many have a red imm female and adult female  
-often numerous



# Others (5)



Eastern Red Damsel (Amphiagrion)



Aurora Damsel (Chromagrion)

-looks like a cross between a bluet and a spreadwing



Sedge Sprite (Nehalennia)  
-two species, really tiny and green

# Dragonflies - 7 Families

## ID tips:

- Do they perch at all or just fly?
- if they perch, how do they perch? vertical, horizontal, on ground, on leaves, or tips, etc
- shape. Long and slender? Short and chunky?
- relative eye position
- pattern on wing, color of stigma, pattern on thorax and abdomen can all be helpful
- location is very important, many clubtails have very restricted ranges and are separated from similar species by distance

# Using eye position to determine dragonfly family



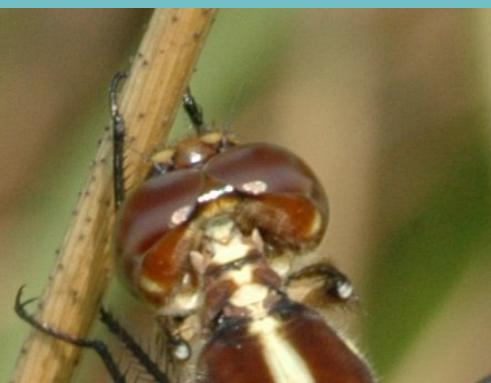
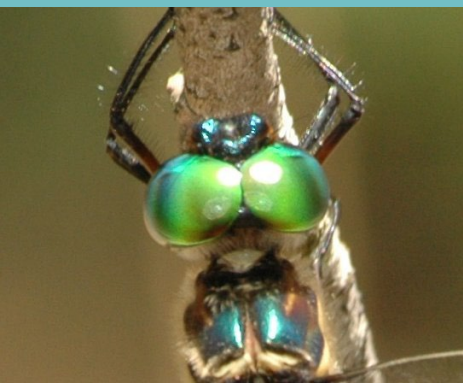
Eyes well separated: has to be clubtail or petaltail



Eyes touching at just one point, or almost touching at one point: has to be spiketail



Eyes meeting across a broad seam: darners

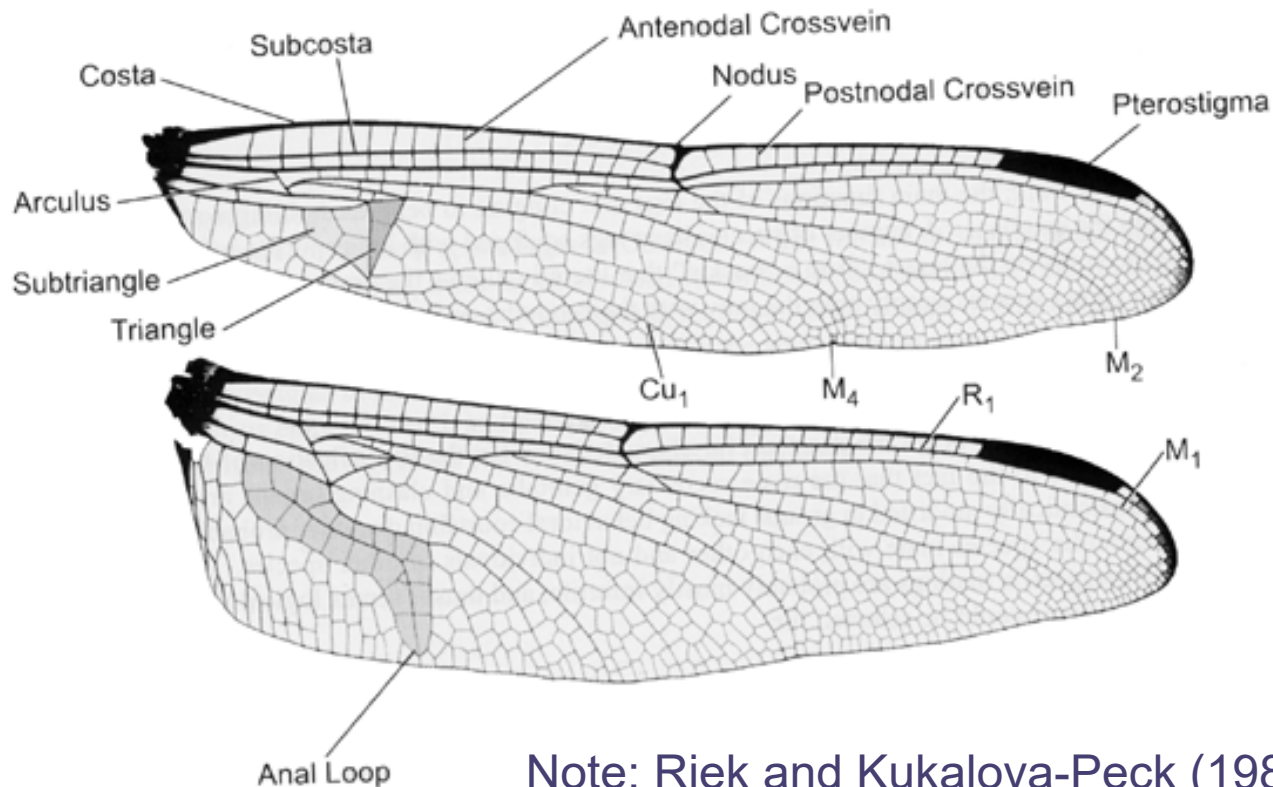


Eyes meeting across a shorter seam: emerald or skimmer

# Basic Morphology

## Major Veins of Wings

### Dragonfly Wing



Note: Riek and Kukulova-Peck (1984)

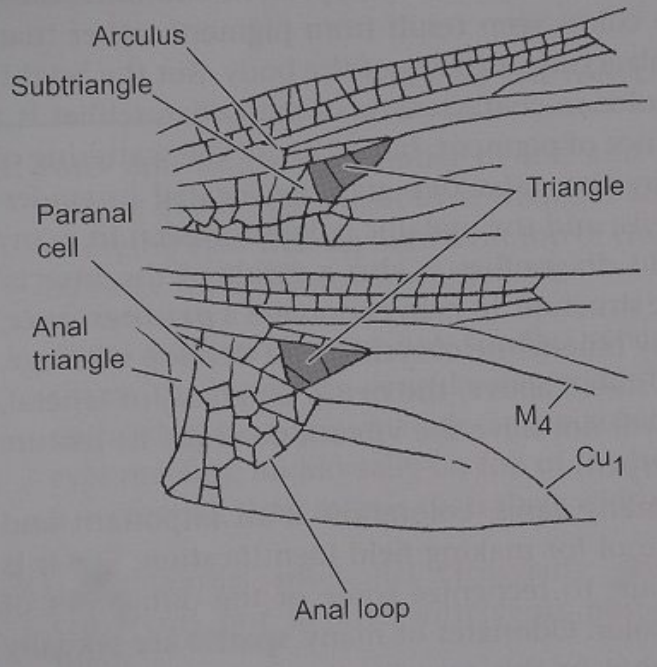
Note: this is a skimmer wing, due to the foot-shaped anal loop

Find:

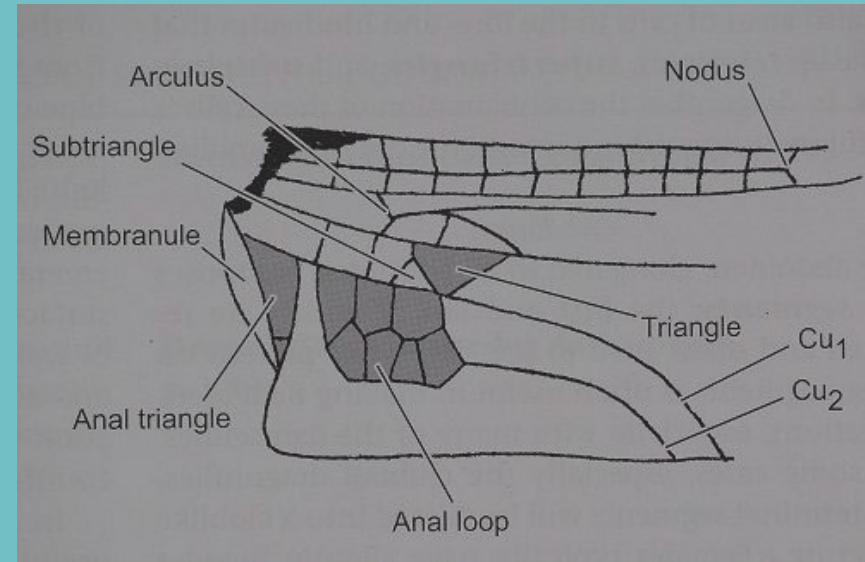
Costa C  
Subcosta Sc  
Radius R  
Media M  
Cubitus Cu  
Anal A

# Wing venation

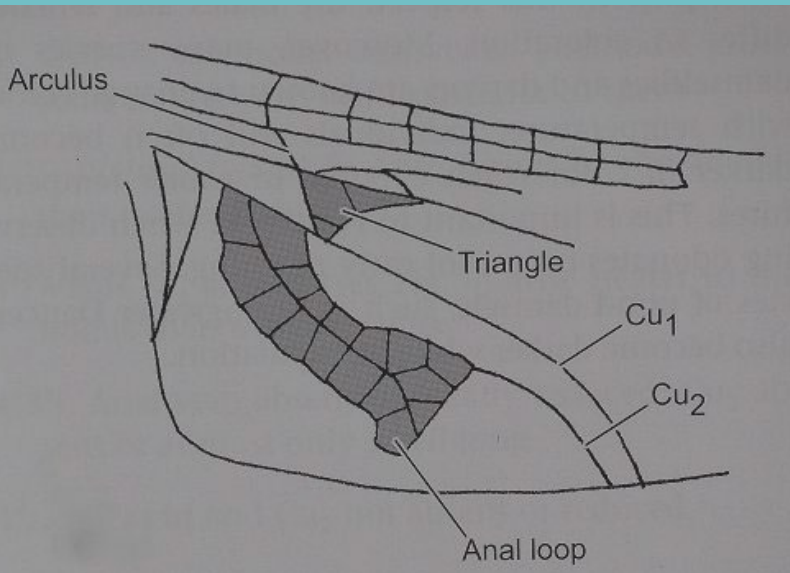
Venation diagrams  
courtesy of Abbott 2005



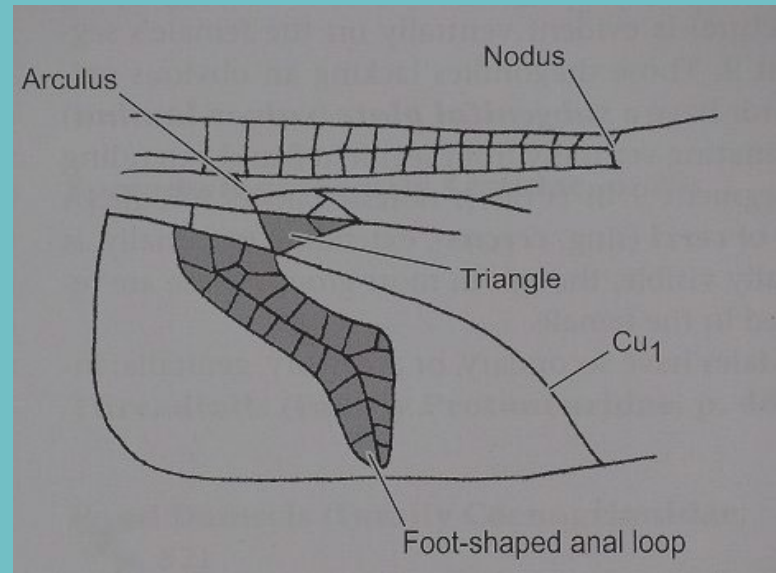
Springtime Darner



Macromia cruiser



Epitheca baskettail



Libellula skimmer

# Wing venation examples



Common Baskettail (left)  
anal loop without foot shape

Common Whitetail (right)  
anal loop pointed, shaped  
like foot

Cu1  
Cu2

Why bother?  
Veins don't lie,  
and they remain  
useful in very old  
specimens.



# Petaltails (Petaluridae)



Gray Petaltail, only species in east  
-only species where larvae do not live  
underwater

# Darners (Aeshnidae) - 17

Genera (8):

Aeshna: 7 species, called “Mosaic Darners,” can be confusing

Anax: two bulky darners, easy to ID in flight or perched

Basiaeschna: only Springtime Darner, smaller and lots of blue, early only

Boyeria: two double spotted darners, slender, very tough to tell apart

Epiaeschna: one very long green one, Swamp Darner

Gomphaeschna: two small slender darners

Nasiaeschna: one large darner, Cyrano Darner

Rhionaeschna, one very similar to Aeshna, Spatterdock Darner

Epiaeschna and Nasiaeschna, the two big green ones, are tough to separate, and so are some of the Mosaics..



# Darners 1



Shadow Darner  
(Aeshna)

- two obvious thoracic stripes
- look at details of stripes and appendages



Lance-tipped Darner  
(Aeshna)

- two obvious thoracic stripes
- look at details of stripes and appendages



Spatterdock Darner  
(Rhionaeschna)

- bright blue eyes
- T spot isolated
- bump under S1
- thoracic stripes again

## Darners 2



### Fawn Darner (Boyeria)

- large, slow, brown
- can ID this genus just by flight style
- summer and fall
- brown darner with two yellow spots has to be Boyeria
- may be confused with emeralds

### Springtime Darner (Basiaeschna)

- small, fast, blue
- fast patrols in straight line
- mostly rivers but a few at lakes
- spring only

### Harlequin Darner (Gomphaeschna)

- very small and slender darners
- mostly marshy areas
- found mostly away from water, flying 1m over vegetation

Two long green ones:



Swamp:

- straight stripes
- little triangle



Cyrano:

- smaller
- wider zig-zag stripes
- schnoz!



Male CGD

## Darners 3

Anax: two species

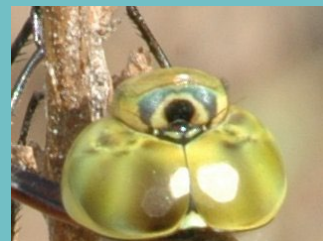


Comet Darners



Common Green Darter (female)

- darker red color + spots
- bulls eye, shape of abdomen
- blue at base



# Clubtails (Gomphidae) - 30

Genera (12)

Arigomphus: two chunky pond clubtails

Dromogomphus: 2 large clubtails with long spines on femur, but wary

Erpetogomphus: one slender colorful river species, Eastern Ringtail

old "Gomphus" 13 species, easier to ID if you can place them in their genus  
(formerly subgenus)

---Gomphurus: 6 are mostly large, big club, mostly green and black with  
yellow spots.

---Hylogomphus: small and chunky (2)

---Phanogomphus: slender, usually skinny club, variable (5). Check colors  
and size of club.

Hagenius: one huge species, Dragonhunter, flies with abdomen bent down

Lanthus: 2 tiny species with black cerci, Pygmy Clubtails

Ophiogomphus: 2 species with bright green thoraxes. Snaketail

Progomphus: one sandy substrate species. Common Sanddragon

Stylogomphus: one tiny species with white cerci, Eastern Least Clubtail

Stylurus: 5 confusing species, mostly rare, mostly in fall. Hanging Clubtails

# Misc Clubtails 1



Unicorn Clubtail  
Arigomphus- Pond Clubtails (2)



Erpetogomphus- Eastern Ringtail



Black-shouldered Spinyleg  
(females diff, yellow on club)



Dromogomphus- Spinylegs (2) Flag-tailed Spinyleg  
Long spines on femora, large, wary.

# Gomphurus - 6



Cobra Clubtail



Skillet Clubtail



Handsome Clubtail



Midland Clubtail

# Phanogomphus – 5



Lancet Clubtail- check s8/9



Dusky Clubtail- darker club



Rusty Snaketail  
Ophiogomphus (2) bright green thorax



Green-faced Clubtail (Hylogomphus - 2)

# Misc Clubtails 2

Small ones: note cerci



S Pygmy Clubtail (Lanthus-2)



E Least Clubtail (Stylogomphus)



Dragonhunter (Hagenius)



# Misc Clubtails 3



Progomphus - Common Sanddragon (cerci)



Laura's  
Clubtail



Russet-tipped Clubtail

Stylurus- Hanging Clubtails (5)  
Later in year, mostly difficult to find

# Spiketails - Cordulegastridae - 5

Two of the spotted species



Twin-spotted Spiketail: spots variable in size on darker abdomen



Brown Spiketail: spots mostly same size on, well, browner abdomen

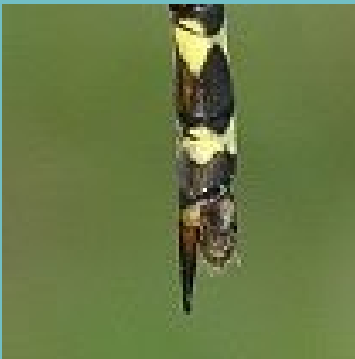
# Spiketails (Cordulegastriidae)



Tiger Spiketail - rings



Arrowhead Spiketail: unmistakable



female...  
note ovipositor

# Cruisers – Macromia (6)

All are slender, many with a slight club, most with brilliant green eyes and a single thoracic pale stripe that wraps around the bottom of the thorax (usually yellow). Most seen only in rapid flight. This page has the easy two.



Didymops: Stream Cruiser. Only brown one, shorter and slower. Eyes dull green.



Royal River Cruiser. Largest, no club really.



Royal River Cruiser

# River Cruisers - Macromia



Allegheny



Illinois



“Georgia”



In general, these three species/subspecies can be separated in the field by a combination of marks on s2, s3, and s7. Can check keel lengths.

Also Gilded (lots of yellow). The OH list sometimes lists *M wabashensis*, which is now thought to be a hybrid between Gilded and Royal.



# Emeralds (Corduliidae - 17)

Cordulia: American Emerald (1)

Dorocordulia: Racket-tailed Emerald (1)

Epitheca: 4 species, possibly two different genera. Includes Prince Baskettail, easy, and 3 baskettails, hard. Epitheca is an old world genus, and some experts believe that our species deserve their own genera, Tetragoneuria for the small baskettails and Epicordulia for The Prince. Again.



Helocordulia: Uhler's Sundragon. Can be separated by the pattern at the base of the wing and abdomen shape.

Neurocordulia: 3 species, the shadowdragons. Very difficult to find due to crepuscular flight habits, but can be separated visually if you can find one.

Somatochlora: 7 species, the striped emeralds. Can be hard to find, but can be identified in the field through a combination of pattern and clasper shape of males or ovipositor spout of females.

# Epitheca – Baskettails (4)

90% of the baskettails you will see will be Common (*E cynosura*). Slender (*E costalis*) probably more common than known.

Common usually has a lot of dark in the hindwing, but does not go all the way to the nodus or all the way back to the trailing edge of the wing. Thick abdomen, with only a very slight constriction at s3. Some have almost no color in wing (left). Relatively short cerci on males, very short and straight on females.



Not shown:  
Beaverpond  
Baskettail, male  
appendages distinct  
and females with  
brown wings.



Slender usually has no color in hindwing, or may have small spots like this. Abdomen more slender overall, with an obvious constriction at s3, and relatively longer cerci. Females have very long cerci.

# Unstriped Emeralds and Sundragon



American  
Emerald-  
Cordulia

-larger than  
Racket-tailed



Uhler's Sundragons look like  
baskettails, but:

- they have muted patterns on the abdomen
- males are more gradually clubbed
- both sexes of both species have a fairly thick almost complete ring of yellow around s2, visible in flight
- cerci have different shape



Racket-tailed  
Emerald-  
Dorocordulia

-smaller than  
American with  
larger club



# Neurocordulia – Shadowdragons (3)

3 species occur in OH, and all are tough to find based on their short, crepuscular flight times. All can be identified by wing markings, if you can manage to see them...



Umber Shadowdragon



Smoky Shadowdragon

Note: virtually all of my shadowdragon photos are from caught and posed individuals

# Somatochlora – Striped Emeralds (7)



Brush-tipped Emerald  
female



Clamp-tipped Emerald



Mocha Emerald

All of the emeralds, both sexes, can be identified in the field, but you need a good look at a perched one or you need to catch them. For males, use thoracic and abdominal pattern and shape of claspers. For females, use thoracic and abdominal pattern, especially pale marks on s8-10 if there are any, and shape and size of the ovipositor.

Hine's Emerald is only listed Endangered odonate but much more common than thought

# Skimmers (Libellulidae) - 38

Genera (14):

Celithemis: 3 small pond pennants

Dythemis: one small slender species, Swift Setwing

Erythemis: one very common pond dragon, Eastern Pondhawk

Erythrodiplax: two dark species

Ladona: 2 chunky spring species, Blue and Chalk-fronted Corporals

Leucorrhinia: small dark species with white faces (called Whitefaces)

Libellula: 9 fairly large conspicuous species, the King Skimmers

Nannothemis: one tiny seepage species, Elfin Skimmer

Pachydiplax: one omnipresent blue species, Blue Dasher

Pantala: two long-winged species almost always on the wing

Perithemis: one tiny wasp-like species, Eastern Amberwing

Plathemis: one honorary king skimmer, Common Whitetail

Sympetrum: 8 smallish slender fall species, females tough but doable

Tamea: 4 graceful “dancing gliders” called saddlebags, 1 (Striped) is a vagrant



# Non-King Blue Skimmers

Also blue, somewhat darker:  
-three king skimmers  
(Slaty, Great Blue,  
Spangled)



Smallest: Little Blue Dragonlet  
(*Erythrodiplax*). Black face, black  
segments at tip, white cerci

Medium, variable: Blue Dasher  
(*Pachydiplax*). White face, black distal  
segments inc cerci, striped thorax, amber  
spots in wings

Largest: E Pondhawk (*Erythemis*). Green  
face, no black segments, white cerci



# Blue King Skimmers



Slaty



Great Blue (both)  
Expect increase  
in numbers



Spangled

Yellow-sided  
Skimmer



# Miscellaneous Skimmers 1



Elfin Skimmer (Nannothemis)



Chalk-fronted Corporal (Ladona)



Eastern Amberwing (Perithemis)

Swift  
Setwing  
(Dythemis)



## Miscellaneous Skimmers 2



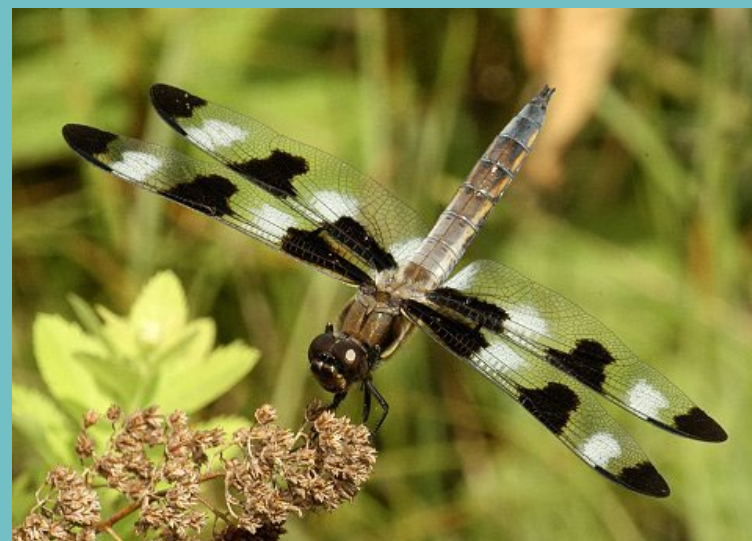
Wandering Glider (Pantala)



Painted Skimmer (Libellula)



Common  
Whitetail  
(Plathemis)



Twelve-spotted Skimmer (Libellula)

# Meadowhawks (Sympetrum)



Band-winged Meadowhawk



Blue-faced Meadowhawk



Ruby Meadowhawk (female)



Autumn Meadowhawk



# Miscellaneous Skimmers 3



Variegated Meadowhawk



Dot-tailed Whiteface- *Leucorrhinia*



White-faced/Cherry-faced Meadowhawk



Calico Pennant- *Celithemis*

# Dancing Gliders (Tramea)



Carolina Saddlebags



Red Saddlebags

Red vs Carolina can be tough. In field, smaller s-bags, paler color on Red. Male has much longer hamule, visible in field.



Black Saddlebags

# Helpful Tools



# Catch or Shoot?

- Three choices for documentation:
- Photograph. Need to know which angles matter.... or take many.
- Capture, photograph, release. See above.
- Capture and collect. Keep in mind relative commonness or rarity of both specimen and habitat.
- Teneral: rarely useful, and fragile.

# Options



Springtime Darner

# New Species, and keep looking!



A couple stories to end with...



# Things to do in your house if you are bored: raise dragonflies!!



rocks to emerge on



crowded turf



# With thanks to:

- Larry Rosche, Judy Semroc and Mike Thomas for ideas and editing
- John Abbott for venation drawings
- For graciously letting me use their images:  
Judy Semroc (3), Dennis Paulson (3), Jim Flynn (1), Earl Horn (1), Chris Jenkins (1)