

Photographic Primer for Confusing Odonata Species



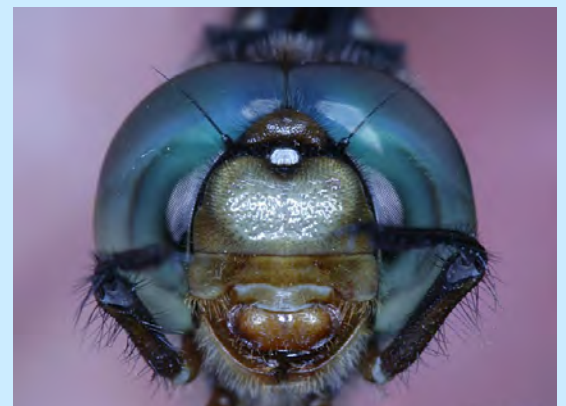




Fawn Darner



Lance-tipped Darner



Spatterdock Darner



Cyrano Darner



Comet Darner



Harlequin Darner



Canada Darner

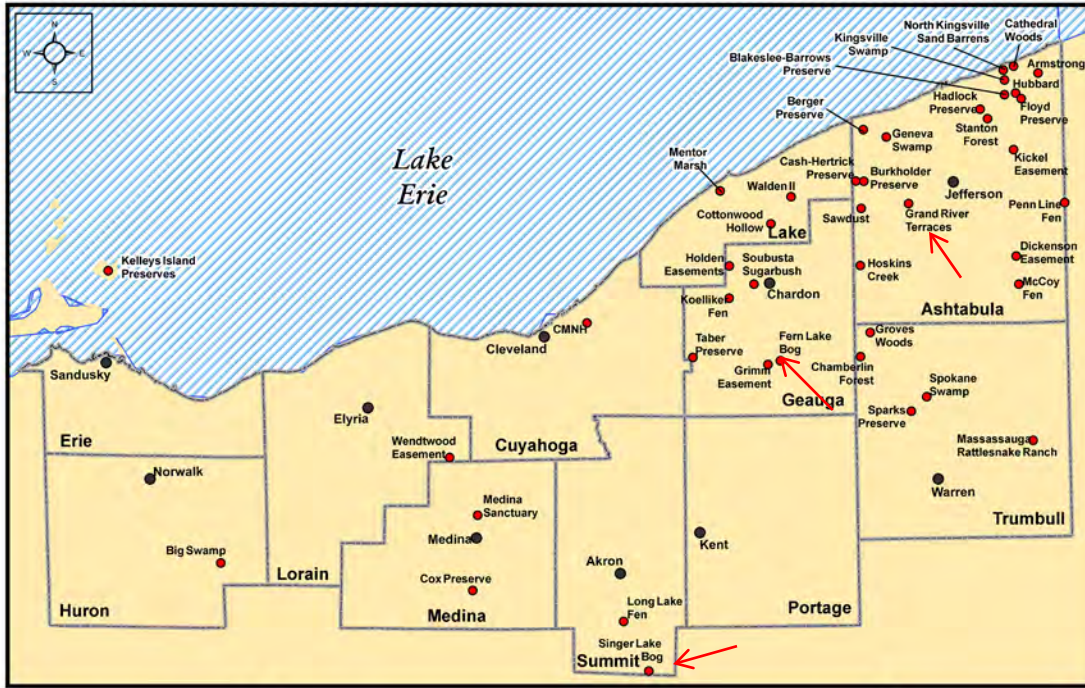



Black-tipped Darner



Green-striped Darner

Ohio & CMNH Odonata Facts



Cleveland Museum of
NATURAL HISTORY 



- 165 Odonate species currently known in Ohio:
 114 Dragonflies
 51 Damselflies

Williams Co. - most – 104 (2001)

Brown Co. - least – 28 (2001)

- On CMNH Preserves: (as of 2015)

76 Dragonfly species –

6 - State Endangered

2 - State Threatened

1 - Species of Concern

41 Damselfly species –

1 - State Endangered

2 - State Threatened

- CMNH Preserves - Species #s

1. Singer Lake – 72 species

2. Fern Lake – 71 species

3. GRT – 70 species



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Dragonfly?
(Suborder Anisoptera)

Damselfly?
(Suborder Zygoptera)



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Size Does Matter!



Eastern Pondhawk (dragon) - above
Eastern Forktail (damsel) - below



Southern Pygmy Clubtail (dragon) - left
Fragile Forktail (damsel) - right

The Longest Dragon & Damselfly



Swamp Darner (*Epiaschna heros*)
Length - 3.70"



Great Spreadwing (*Archilestes grandis*)
Length - 2.44"

The Smallest Dragon & Damselfly



Elfin Skimmer (*Nannothemis bella*)
Length – 0.85” (M-above; F-below)



Citrine Forktail (*Ischnura hastata*)
Length – 0.98” (M)



Identification Challenges – Colors, Patterns, Genitalia: Which One IS This?

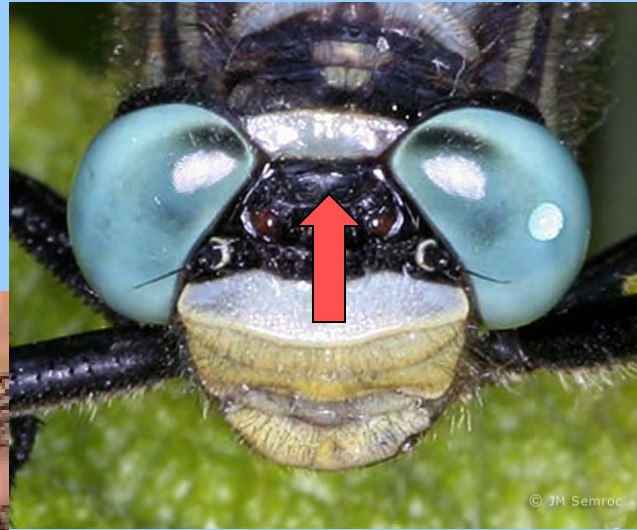


Use Eye Structure to Categorize a Dragonfly:

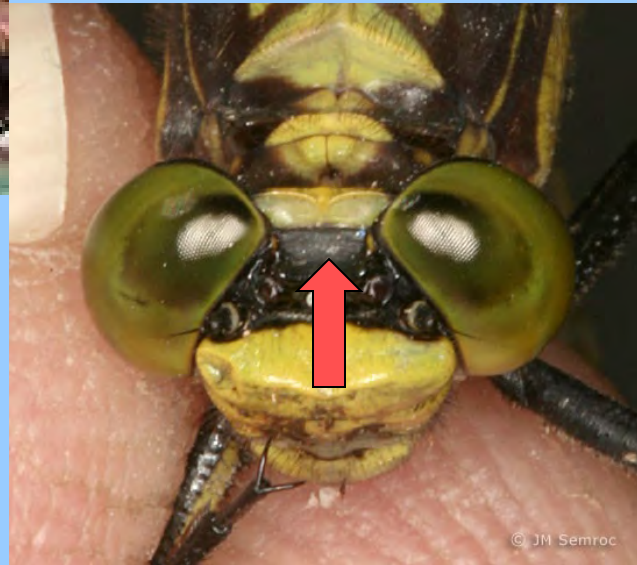
Eyes Separate & Eyes Barely Touching at a Point



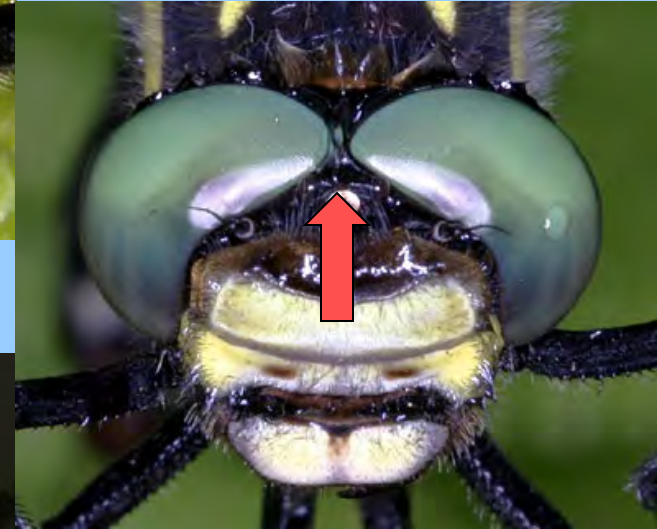
**Petaltails –
eyes separate**



**Clubtails –
eyes separate**



**Spiketails –
eyes barely touching**



Use Eye Structure to Categorize a Dragonfly:

Eyes Meet at a Seam – Long & Short



Cruisers/Skimmers



Emeralds



© JM Semroc



Darners

Damselflies – Eyes Do Not Touch



So They Can Do This To Hide & Watch!



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Guidelines for Definitive Odonata Observations & Shots

- Try for dorsal & lateral shots – thorax & abdomen patterns can be quite similar for different species



Spatterdock Darner



Green-striped Darner



**Double-striped
Bluet**



**Familiar
Bluet**

Tantalizing Thoraxes

Lance-tipped Darner



© JM Semroc

Delta-spotted Spiketail



© JM Semroc

Arrow Clubtail



© JM Semroc

Abdominal Artistry



Cyrano
Darner

© JM Semroc



Russet-tipped Clubtail



Midland Clubtail

© JM Semroc



Dusky Clubtail (M)



Lilypad Clubtail (M)



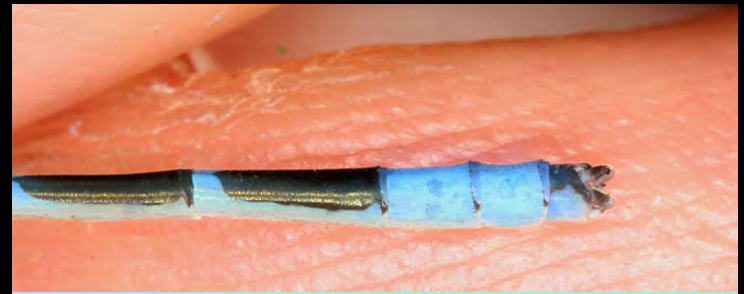
Elegant Spreadwing
(M)



Spotted Spreadwing
(M)

Guidelines for Definitive Odonata Observations & Shots

- Close-up terminal appendages and genitalia shots (paraprocts, cerci & ovipositors) are sometimes necessary for correct species identification



Tule Bluet (M)



Emerald Spreadwing (F)

Where to Look for Dragons & Damselflies

- Check forest edges, meadows & grassy shrub areas in early a.m. for roosting dragons & damselflies. As they retire for the evening, they tend hang with their dorsal sides facing eastward for early morning dew-drying and sunny warm-up.



Guidelines for Definitive Odonata Observations & Shots

- Certain families, especially skimmers, often return to the same perch as they hunt prey – recognize the site, get into a good viewing position and wait for them to return.



The Mating Wheel



Common Green Darners



Rainbow Bluets

How To Lay An Egg

Oviposition Gallery – Damselfly Species



Western Slender Bluets



Slender Spreadwing: **F** oviposits alone



Powdered Dancers



River Jewelwing

Underwater Oviposition – River Jewelwing



Female River Jewelwing Ovipositing While Submerged in Flowing Stream



Egg Insertion Punctures in Eelgrass



Individual Eggs Inserted In Plant Cells – elongate, cylindrical shape

How To Lay A Bigger Egg



Black-tipped Darner (*Aeshna tuberculifera*)

Egg Laying on Plant Debris at Water's Surface



Egg Mass Made by Prince Baskettail (*Epitheca princeps*)



Male & Female in mating wheel



Eggs laid within gel mass on lily pad

**My
Family
Album:
Blue
Dasher**



Close-up of egg mass
 $\frac{1}{2}$ " water depth – eggs hatched in 12 days



Nymph hatch – 1 day old – approx. 2mm long

The Aquatic Stage – Dragonfly Nymphs



Dragonhunter – largest nymph



Dragonhunter – adult – 3.33”



Elfin Skimmer – smallest nymph



Elfin Skimmer – adult - .85”

The Aquatic Stage – Damselfly Nymphs



Eastern Red Damsel – adult male – .95”



Pond Damselfly - nymph



Ebony Jewelwing – adult male – 1.85”

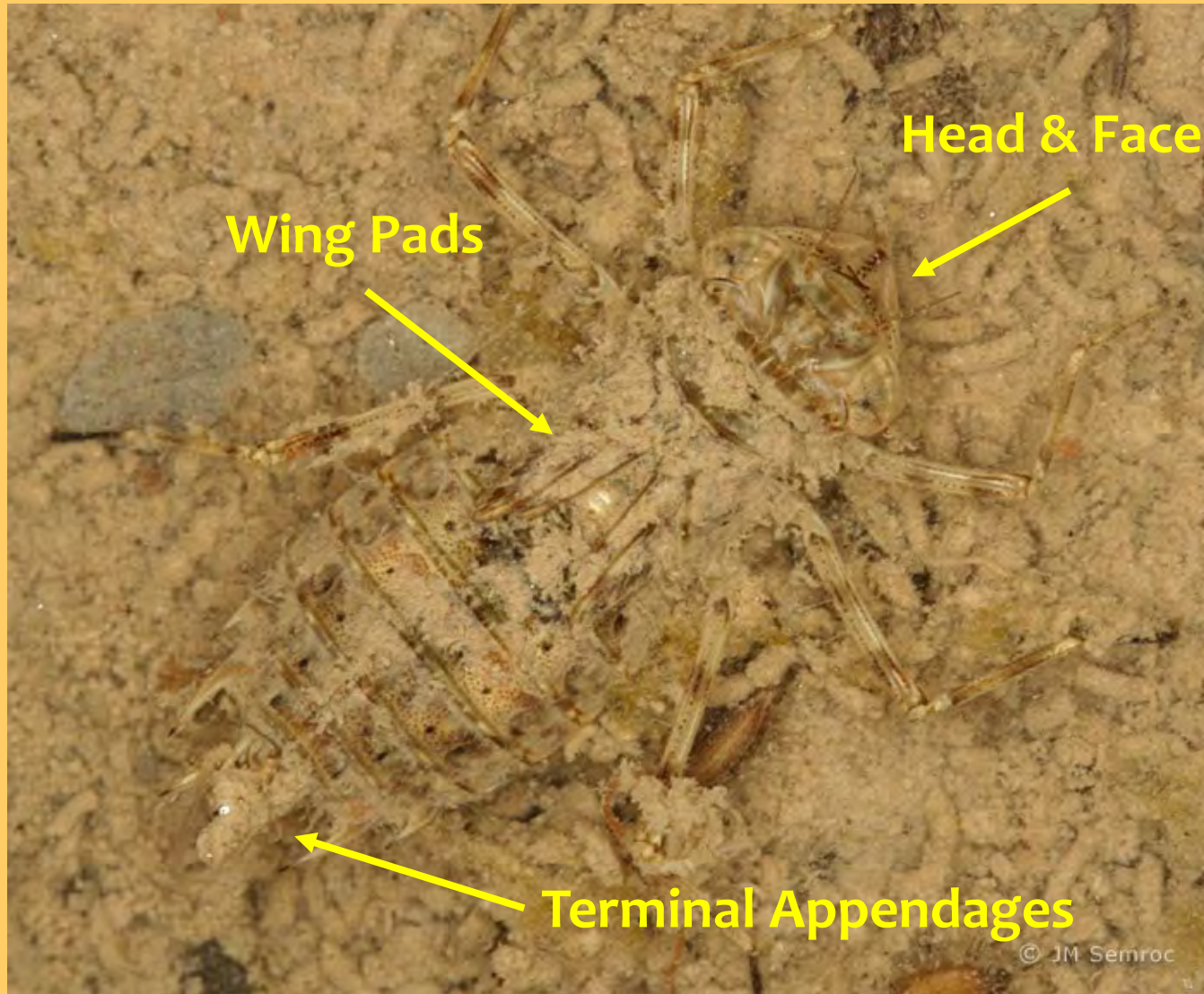


Ebony Jewelwing - nymph

Aquatic Stage - Nymph Camouflage



Aquatic Stage - Nymph Camouflage



Aquatic Stage to Flying Adult – Wandering Glider





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Species Gallery

Darners



- Eyes meet at a long seam
- Abdomen pinched at segment 3
- Large, fast-moving dragonflies
- Some species migratory
- Mosaic darners fly mostly in the Fall

Spatterdock Darner

(*Rhionaeschna mutata*)



Adult Male Spatterdock Darner



Male Terminal Appendages



Female Terminal Appendages



Mating Wheel F (left), M (right)

Mosaic Darners – The “Tiara”

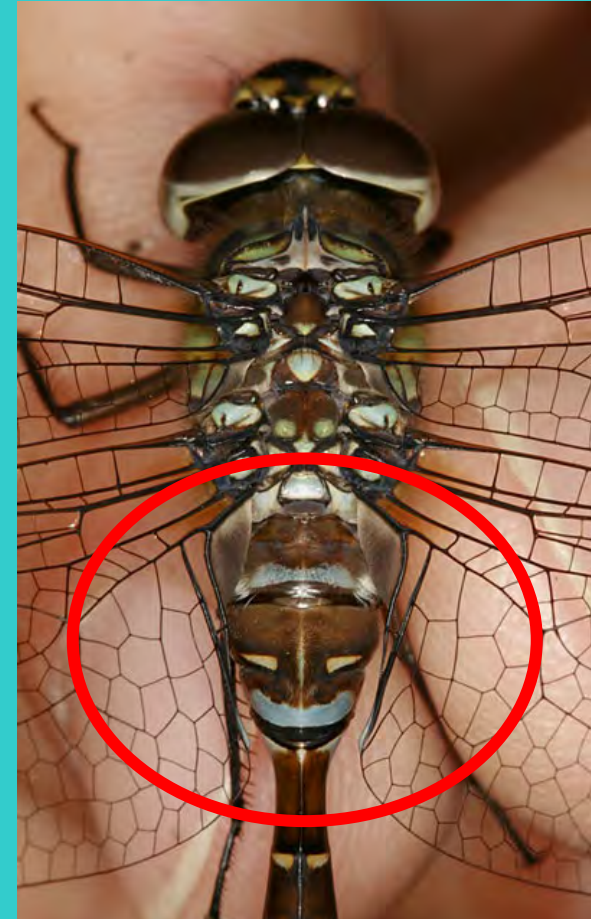
Dorsal View of AS 2



Black-tipped Darner (M)
(*Aeshna tuberculifera*)

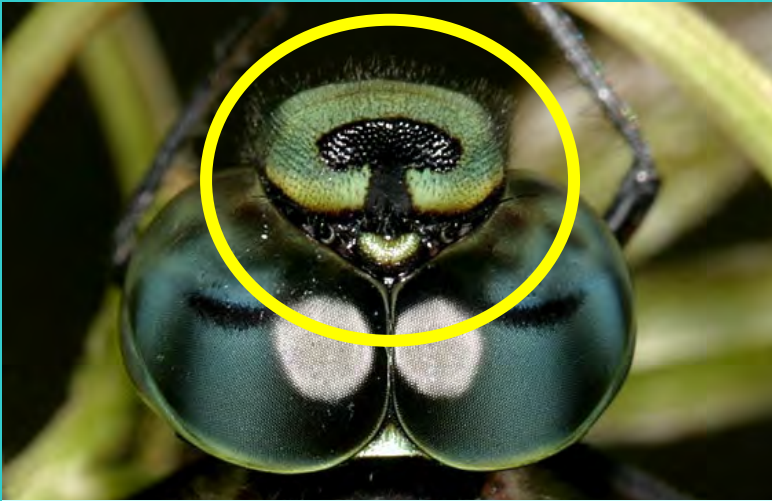


Spatterdock Darner (F)
(*Rhionaeschna mutata*)

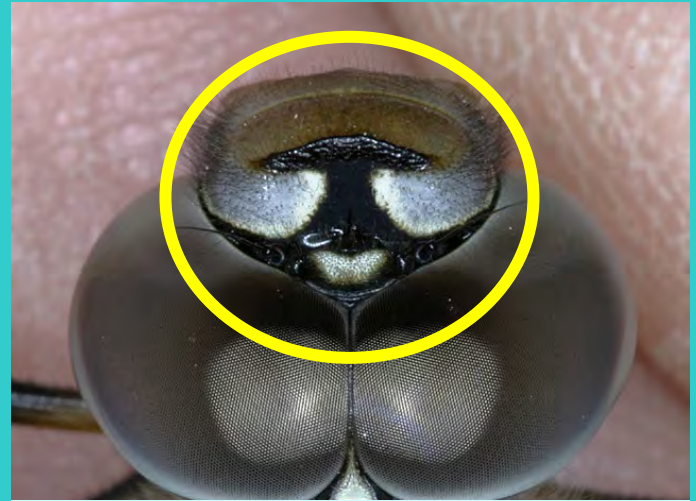


Green-striped Darner (M)
(*Aeshna verticalis*)

Darners – The “Mushroom”



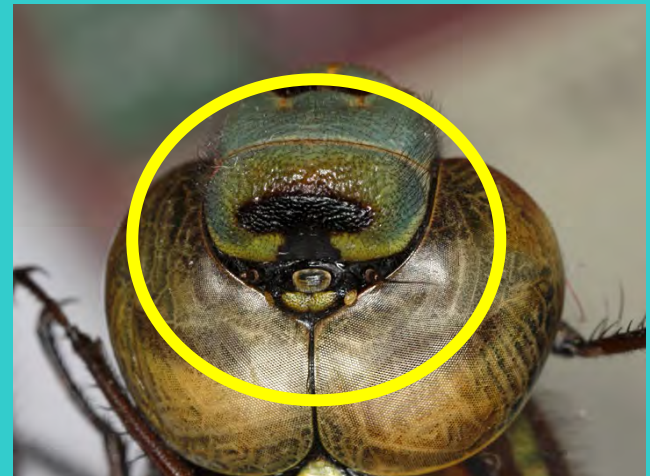
Black-tipped Darner
(*Aeshna tuberculifera*)



Spatterdock Darner
(*Rhionaeschna mutata*)



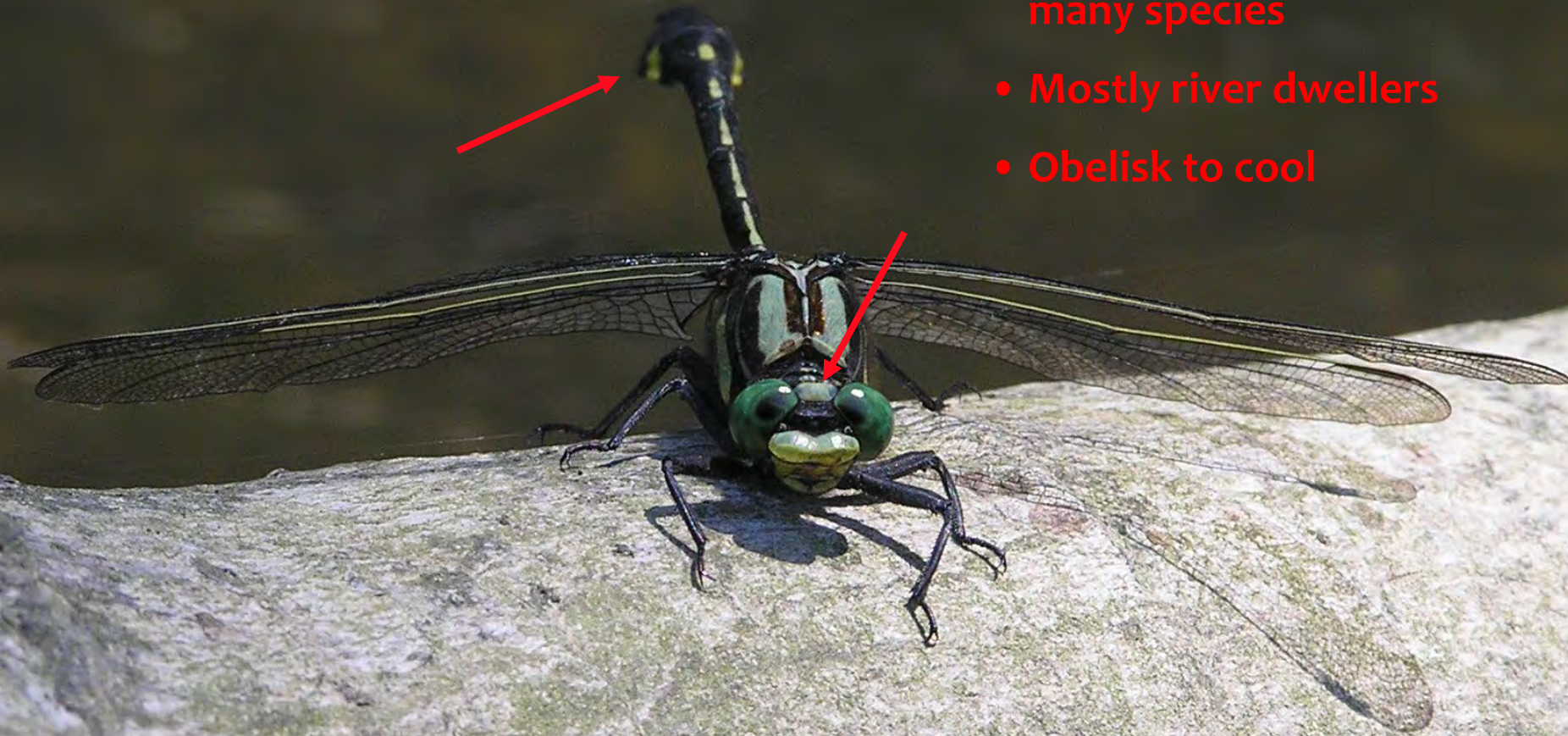
Springtime Darner
(*Basiaeschna janata*)



Canada Darner
(*Aeshna canadensis*)

Clubtails

- Often rest horizontally
- Eyes separated
- Clubbed abdomen in many species
- Mostly river dwellers
- Obelisk to cool



© JM Semroc



Black-shouldered Spinyleg (*Dromogomphus spinosus*)



© JM Semroc

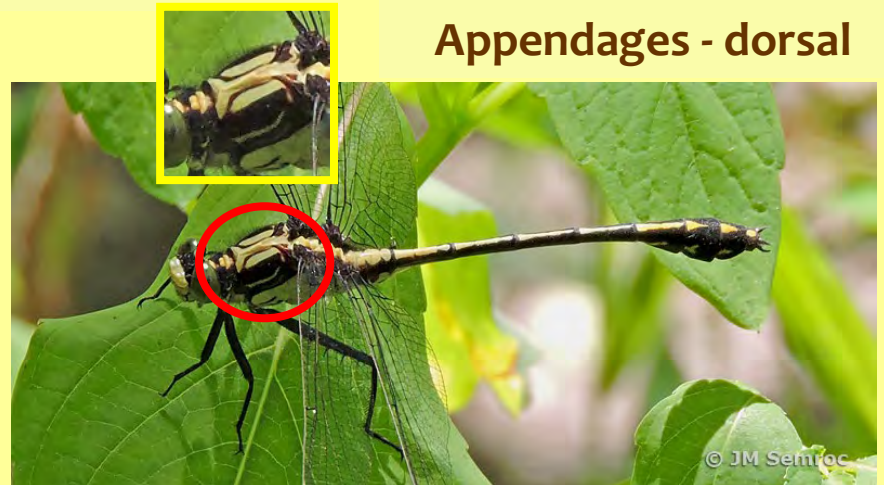
Female Terminal Appendages - ventral

Nymph

Female Terminal Appendages - dorsal



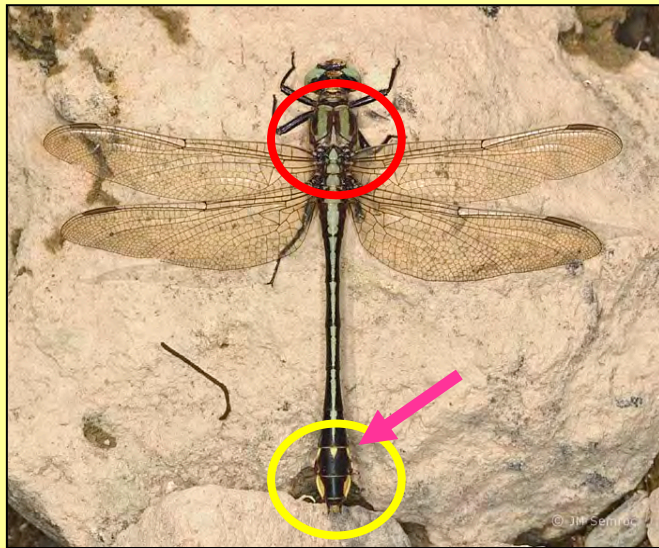
Adult Female



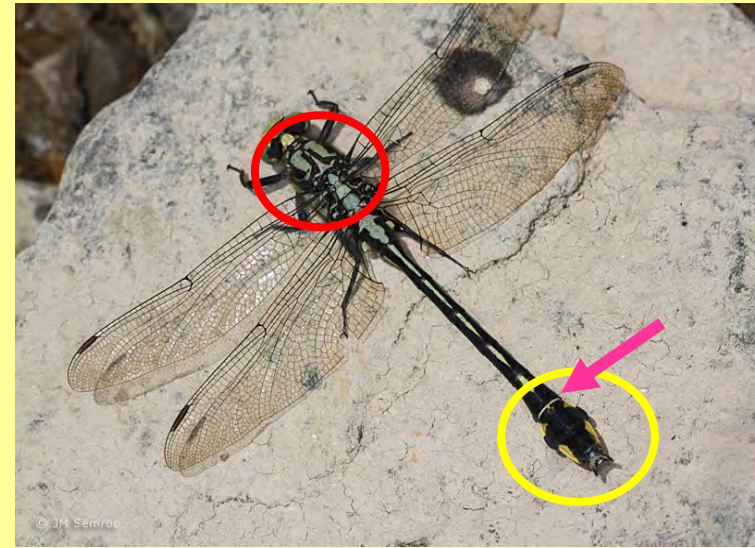
Adult Male

© JM Semroc

Comparing Midland & Splendid Clubtails



Midland Clubtail
(*Gomphus fraternus*)



Splendid Clubtail
(*Gomphus lineatifrons*)



Midland Clubtail
Dining on a crane fly

- Midland is medium-sized—1.90” to 2.13”
- Splendid is large & more robust - 2.60” to 2.70”
- Midland shows a small, gold triangle at the top of S8 – Splendid shows a thin, yellow line
- Splendid will often “walk” when perched to get a better view of their surroundings

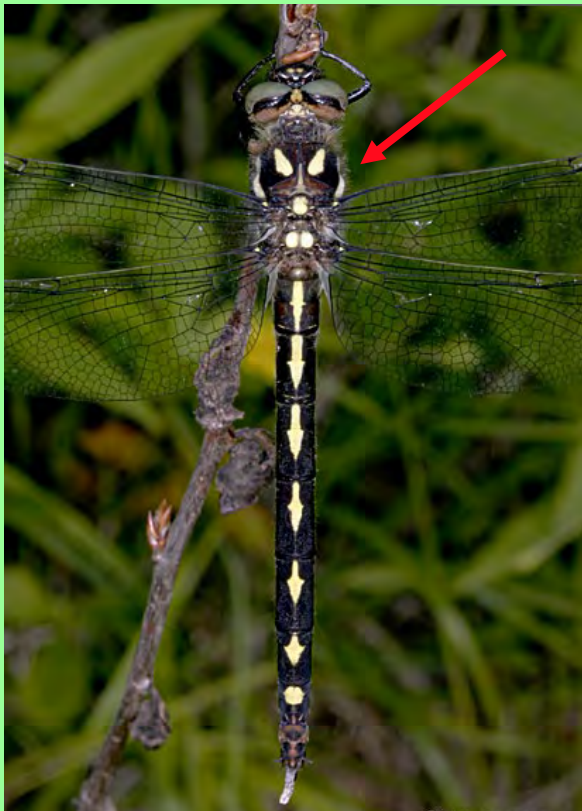


Splendid Clubtail
Dining on a Rapids Clubtail



- Eyes barely touching
- Dark brown and yellow patterns
- Inhabitants of small streams, ditches, and woodland clearings

Spiketails



Arrowhead
(*Cordulegaster obliqua*)

- Abdominal patterns are very diagnostic
- All but the Tiger have a flight period from late May through June
- Tiger flies from late June through August



Twin-spotted
(*Cordulegaster maculata*)



Tiger (SOC)
(*Cordulegaster erronea*)



Delta-spotted
(*Cordulegaster diastatops*)

- Females have similar coloration to males & are noted for their long, pointed ovipositors used to insert eggs into stream beds
- Five species in Ohio



Cruisers

- Brilliantly-colored eyes meet at a seam
- Deep brown with yellow markings
- Girdled thorax
- Denizens of streams and rivers

Cruiser Species



Royal River Cruiser
(*Macromia taeniolata*)

- Royals have been found hanging vertically, low to the ground in tall grasses
- May be confused with Spiketails but fly later in the year (July-October)



Stream Cruisers in Mating Wheel
(*Didymops transversa*)



Swift River Cruiser
(*Macromia illinoensis illinoensis*)

- Swift shows the bold, yellow "taillight" on S7
- Streams more often seen as immatures in fields near rivers in May & early June



Emeralds

- Striking green eyes in adults that meet at a seam
- Deep brown body color with few yellow markings
- Found mostly in clearings and wetlands

Emerald Species (Corduliidae)



American Emerald (E) – teneral
(*Cordulia shurtleffi*)

- American has a pale yellow ring between S2 & S3 but not as bold as in the Racket-tailed. Abdomen gradually widens from S3 to S7. Longer in body length than Racket-tailed.
- Racket-tailed males have a narrow abdomen until S6 where it abruptly fans out to form the “racket-tail.” Males patrol open areas away from water, such as clearings & fields.



Racket-tailed Emerald (E)
(*Dorocordulia libera*) M-top; F-below

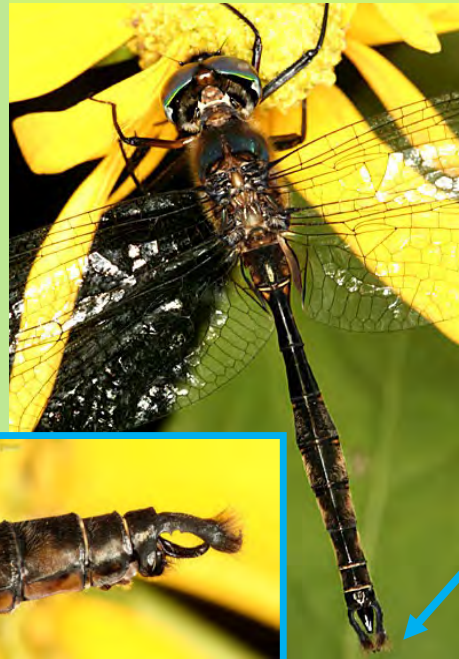




Mocha Emerald
(Somatochlora linearis)



Brush-tipped Emerald
(Somatochlora walshii)



Emeralds - Striped (*Somatochlora*)



Clamp-tipped Emerald
(Somatochlora tenebrosa)

- Mochas often seen in late evening swarms. Abdomen is arched laterally.
- Brush-tippeds often found in bright, sunny areas near wet meadows - prefers native cattail & burreed. Far smaller than Mocha & Clamp-tipped
- Clamp-tippeds prefer woodland paths & small forest streams. Shorter than Mochas with bolder yellow markings on thorax & S2

Skimmers



- Eyes meet at a seam
- Variety of colors and structures
- Wings often marked with patterns
- Territorial and easy to study
- Females often quite dimorphic

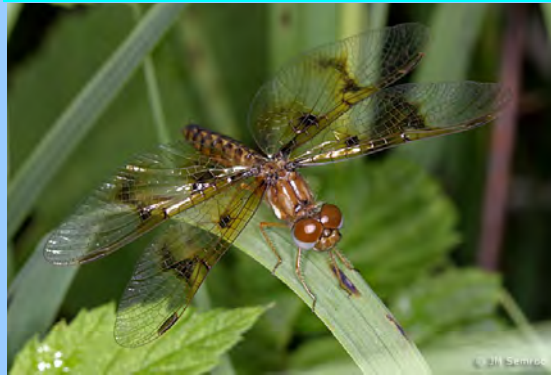
Dimorphism in Skimmers



Eastern Amberwing



Blue Dasher



Eastern Pondhawk



Slaty Skimmer



Comparing Halloween & Calico Pennants



Calico – (M) above



Halloween – (M) above



Wing Tip Edges Have Spots



Wing Tip Edges Are Clear

Comparing Calico Pennant to Red & Carolina Saddlebags



Calico Pennant (M)



Red Saddlebags (M)



Carolina Saddlebags (M)



Red Saddlebags (M)



- Calico - multiple spots in wings in addition to red "saddle" on HW
- Red - saddle with small, clear "hole" adjacent to abdomen; no wing spots
- Carolina - complete saddle; no hole; no other wing spots



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Carolina (*Tramea carolina*)

Comparing Saddlebag Gliders (*Tramea*)



© JM Semroc

Red (*Tramea onusta*)

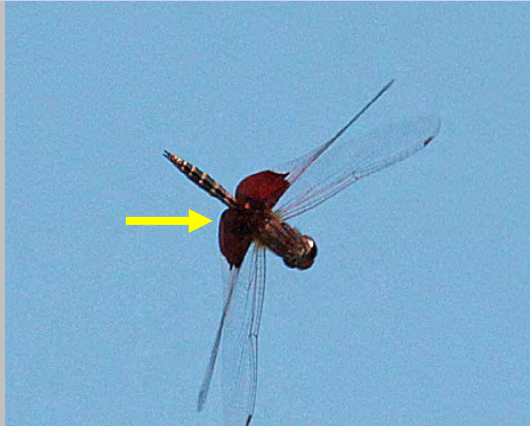


Black (*Tramea lacerata*)

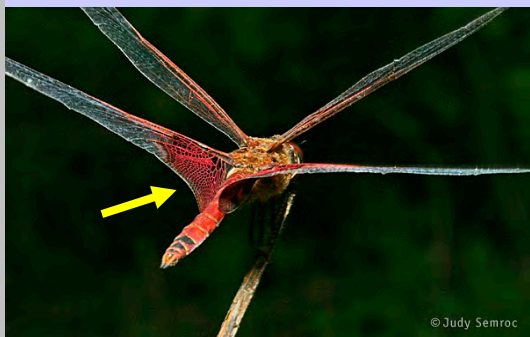


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Red



Carolina



© Judy Semroc

- Carolina has a solid wine-colored saddle and dark markings on S8-S10
- Black has a dark saddle with a small clear opening near the abdomen. It has long, dark terminal appendages
- Red is smaller than the Carolina. It has an extensive saddle with a clear (hole) section in the middle. **The hamules are noticeably larger than the Carolina's.**



S. Burch

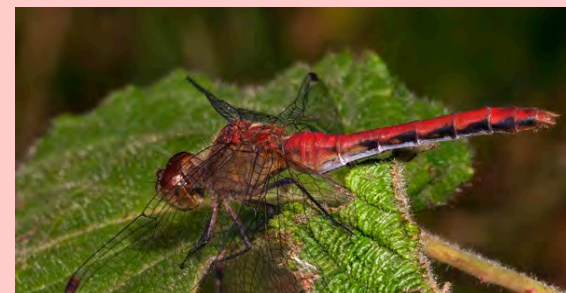
The “Red” Meadowhawks – (*Sympetrum* Sp.)



Autumn (*S. vicinum*)



Band-winged (*S. semicinctum*)



Ruby (*S. rubicundulum*)



White-faced (*S. obtrusum*)



Blue-faced (*Sympetrum ambiguum*)



- Autumn - brown legs; flies into late Oct.
- Band-winged - **rusty wing patches**
- Ruby - black legs; flies into Sept.



The “Blue” Skimmers



Eastern Pondhawk (M)
(*Erythemis simplicicollis*)



J. Burns

Great Blue Skimmer
(*Libellula vibrans*)



Spangled Skimmer (M)
(*Libellula cyanea*)



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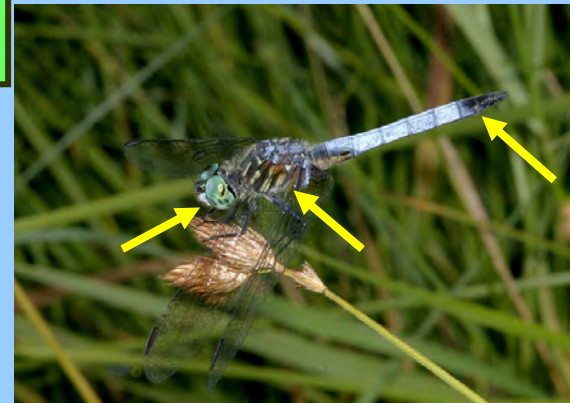
Elfin Skimmer (M)
(*Nannothemis bella*)

- Pondhawk has green face, white cerci
- Great Blue is large, dark-edged wingtips
- Spangled has white stigmas
- Elfin is smaller than 1”, white face
- Slaty has dark stigmas, face & eyes
- Dasher has white face, striped thorax, dark abdominal end



© JM Semroc

Slaty Skimmer
(*Libellula incesta*)



Blue Dasher (M)
(*Pachydiplax longipennis*)

Tricky Skimmer Ladies



G. Lasley

Great Blue Skimmer
(*Libellula vibrans*)



Fredrick B. Siskind ©

Slaty Skimmer
(*Libellula incesta*)



© Jim Burns

Spangled Skimmer
(*Libellula cyanea*)



© Ron Melder
u2guns.com



L. Elliot



W. Sandford
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- Great Blue has dark stigmas; dark nodus spots; white face; thicker dark abdominal segment delineations
- Slaty has dark stigmas, face & eyes; occasional small, dark spots at the nodus
- Spangled has white stigmas; faint dark line at nodus; dorsal surface can look similar to Widow Skimmer (F)



Twelve-spotted Skimmer (M)



Banded Pennant (M)



Widow Skimmer (M)



Twelve-spotted Skimmer (F)



Painted Skimmer (F)



Widow Skimmer (F)



Prince Baskettail



Common Whitetail (F)



Common Whitetail (M)

Comparing Variegated Meadowhawk, Wandering & Spot-wing Gliders



Variegated Meadowhawk
(*Sympetrum corruptum*)



Wandering Glider
(*Pantala flavescens*)



© Jim Burns

Spot-winged Glider
(*Pantala hymenaea*)



© 2009 Jim Johnson



© Tim Hajda

Damselflies



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- Eyes are separated
- Wings often held in different positions by different genera
- Slender and often go unnoticed



Ebony Jewelwing (M)

Broad-winged Damselflies



American Rubyspot (F)



River Jewelwing (M)

- Both sets of wings are the same size
- Wings remain wide to the point of attachment to the thorax – not stalked



Great Spreadwing



Swamp Spreadwing



Slender Spreadwing



Spotted Spreadwing



Amber-winged Spreadwing



Elegant Spreadwing

Spreadwings

Comparing At Rest Wing Positions of Spreadwings, Bluets, Dancers & Aurora Damsel

- Lestes hold their wings at an angle of 45°
- Bluets hold their wings mostly in line with their abdomen
- Dancers hold their wings above the horizontal of their abdomen
- Auroras hold wings at a spreadwing-like angle
- These positions can be seen in the field using binoculars



Emerald Spreadwing
(*Lestes dryas*)



Slender Spreadwing
(*Lestes rectangularis*)



Marsh Bluet
(*Enallagma ebrium*)



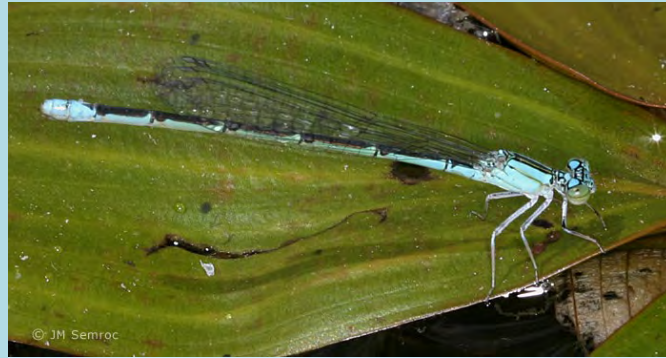
Aurora Damsel
(*Chromagrion conditum*)



Blue-ringed Dancer
(*Argia sedula*)



Azure Bluet



Western Slender Bluet



Rainbow Bluets

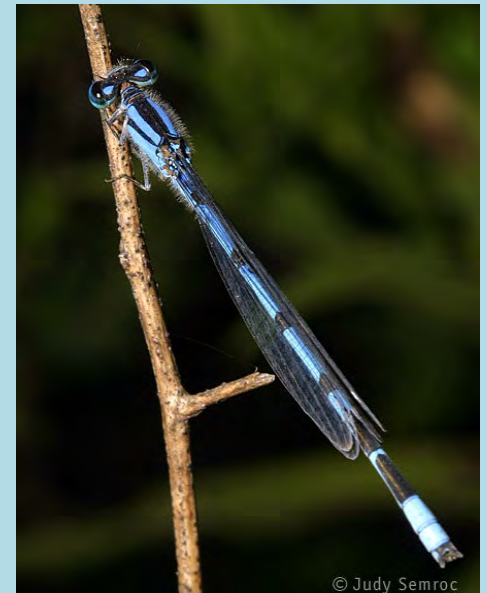
Bluets



Double-striped Bluet



Vesper Bluet



Familiar Bluet



Blue-fronted Dancer



Blue-tipped Dancer

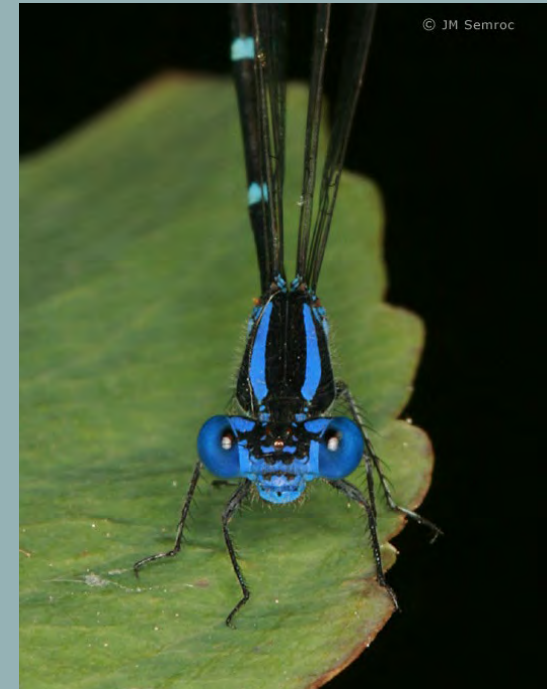
Dancers



Powdered Dancer



Violet Dancer



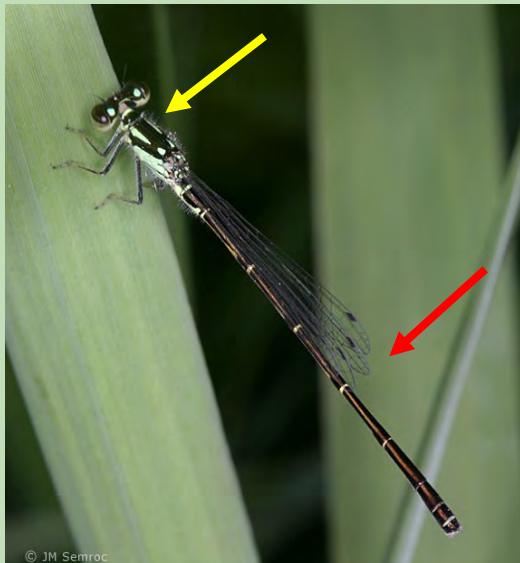
Blue-ringed Dancer



Eastern Forktail (M)



Eastern Forktail (imm F)



Fragile Forktail



Citrine Forktail



Fragile Forktail

- Forktails have short wings relative to body length
- Citrine has the shortest wings of the group—reach just past S5;
- Forktails do not oviposit in tandem
- Immature females' "exclamation points" can be blue in Fragile Forktails

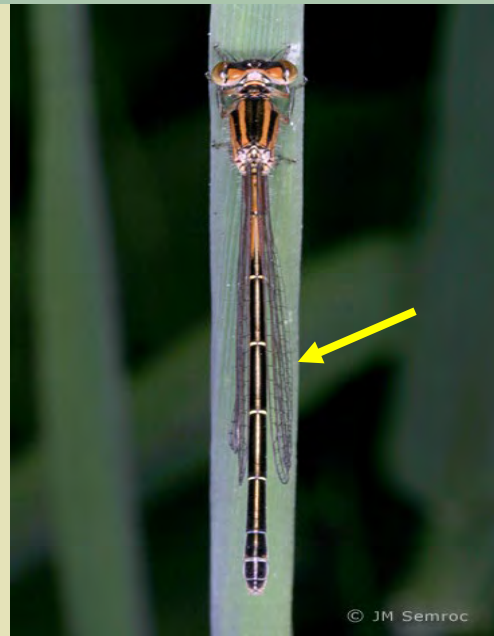
Forktails



Eastern Red Damsel
(*Amphiagrion saucium*)



Eastern Forktail (imm F)
(*Ishnura verticalis*)



Comparing Eastern Red Damsel With Eastern Forktail Immature Female

- E. Red Damsel; entire abdomen is red; face, back of head & top of thorax is blackish brown. S 8, 9, 10 have darkish brown to blackish dorsal spots.
- Eastern Forktail – postocular spots are orange; thorax shows alternating black and orange stripes; S 5-10 are dark with pale segment rings



Sedge Sprite (M)



Forktail Predating Sprite

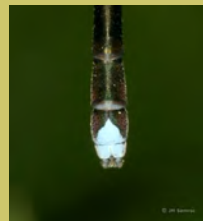


Sedge Sprite (F)

Sprites



Sphagnum Sprite (M)



Odd Female dorsal
S 8, 9, 10
pattern



Sphagnum Sprite (F)

Close Scrutiny of Field Marks Result in Unexpected Rewards!



Aurora Damsel – *Chromagrion conditum*

Close Scrutiny of Field Marks Result in Unexpected Rewards!



Aurora Damsel – *Chromagrion conditum*
(With VERY special thanks to Jonathan White)

Close Scrutiny of Field Marks Result in Unexpected Rewards!



Aurora Damsel – *Chromagrion conditum*
(With VERY special thanks to Jonathan White)

Travel and Enjoy Dragons and Damsels Everywhere



Dragonflies and Damselflies of Northeast Ohio

Second Edition



Larry Rosche
Judy Semroc
Linda Gilbert
with illustrations by
Jennifer Brumfield



CMNH NATURAL AREAS

Conservation Outreach Program

Clues For Finding Rare Odonates





Gray Petaltail

(*Tachopteryx thoreyi*)

Habitat: Woodland seeps, fen seeps and open areas within wet woods associated with ravines & riparian corridors

Diagnostic Behavior: While it basks and feeds, look for this species on snags, downed tree trunks and manmade structures within the desired habitat

Distribution: Currently known to be found in 6 of the 14 counties covered within DDNEO2

Status: Uncommon





Frosted Whiteface

(*Leucorrhinia frigida*)

Habitat: Cold bog lakes

Diagnostic Behavior: Similar behavioral characteristics as the American Emerald. Tends to perch lower on vegetation than the American Emerald. Runs repeated hunting forays and returns to favored perches

Distribution: Currently only found locally in Portage County and formerly in Geauga County.

Status: **Endangered**





Chalk-fronted Corporal

(*Ladona julia*)

Habitat: Cold bog lakes

Diagnostic Behavior: Likes to rest low on logs and branches over preferred habitat. Also likes to rest on roadsides & are at times, hit by vehicles.

Distribution: Currently only found at protected sites in Summit & Ashtabula Counties. Formerly occurred at Herrick Fen in Portage Co.

Status: **Endangered**



Four-spotted Skimmer

(*Libellula quadrimaculata*)

Habitat: Ponds and wetlands

Diagnostic Behavior: Males tend to be very territorial and return to the same perch quite often. Look for it hunting within a meadow or woodland edge habitat near preferred water features

Distribution: For NE Ohio, it appears to have all but disappeared from area. No local records in the past 6 -10 years. Formerly found in 7 NE Ohio counties

Status: Extremely rare





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Elfin Skimmer

(*Nannothemis bella*)

Habitat: Bogs and fens

Diagnostic Behavior: Moves slowly as it pauses to perch close to the surface of the bog mat or on sedges. When perched, wings are held forward and downward

Distribution: In NE Ohio, currently only known from Singer Lake Bog – Summit Co.

Status: **Endangered**





River Jewelwing

(*Calopteryx aequabilis*)

Habitat: Streams, especially those with eel-grass (*Vallisneria* sp.)

Diagnostic Behavior: Typically flits in and around stream corridor searching for prey or other unwanted males. Can be found perched on rocks or vegetation hanging over stream proper

Distribution: Currently only known from the Upper Cuyahoga River watershed – Geauga Co.

Status: **Endangered**





Seepage Dancer

(*Argia bipunctulata*)

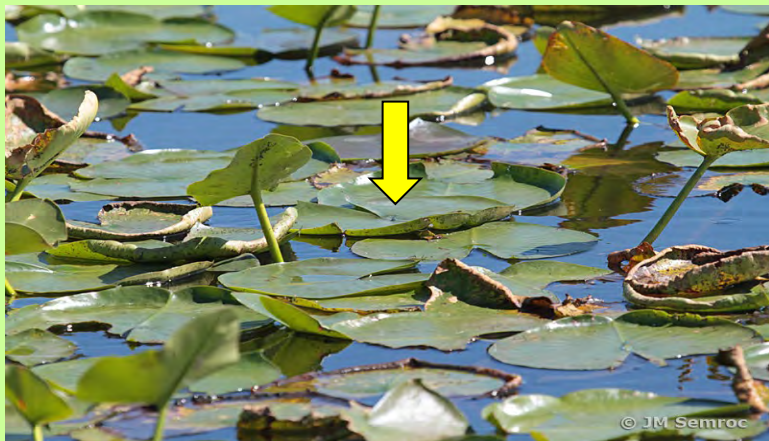
Habitat: Calcareous seeps & fen environments

Diagnostic Behavior: Both sexes fly low amongst the fen shrubs & vegetation. Hard to locate unless one looks closely for motion.

Distribution: For NE Ohio, it was re-discovered recently in Stark Co. Also found in southwest Ohio.

Status: **Endangered**





Lilypad Forktail

(*Ischnura kellicotti*)

Habitat: Lakes & ponds with lily-pad vegetation

Diagnostic Behavior: Both sexes will sit, hunt & feed from lily pad leaves. Look closely on the leaf surface both near and far from shore. May be found later in the season than previously thought – September – October in 2012

Distribution: For NE Ohio, it was discovered in the Fall of 2012 in Stark Co. Previous records date from the early 1990's in Williams Co. - extreme NW corner of Ohio & in 2012 in Athens Co. – SE part of Ohio

Status: **Endangered**

Darners - Thoracic Stripe Comparisons



Black-tipped

© JM Semroc



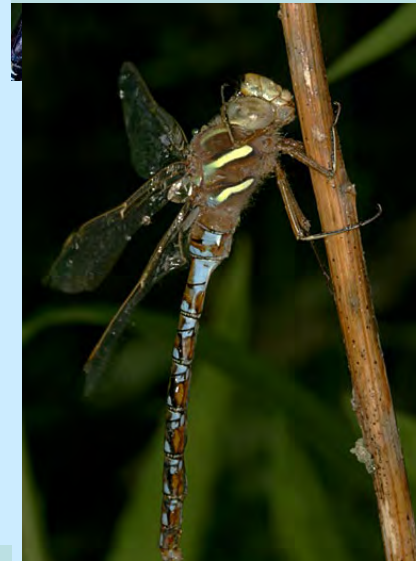
Lance-tipped



Lance-tipped



Spatterdock



Springtime



Springtime



Where to Look for Dragons & Damselfly

- Habitats vary, but most species are found somewhere near water – emergence and hunting prey can take them to seeps, open meadows, river & stream edges, yards & other sites with insect-attracting plants.



Is it This or That?

Regularly Occurring Northeast Ohio Mosaic Darners

Dorsal Views of Abdominal Segment 2

Lance-tipped



Male



Female

Black-tipped



Male



Female

Shadow



Male



Female

Green-striped



Male



Female

Spatterdock



Male



Female

The Aquatic Stage – Odonata Nymphs



Dragonfly Nymphs

- Shorter, bulkier in size & shape
- Gills are inside the abdomen
- Nymphs can expand & contract abdomen to move water over gills
- Nymphs can squeeze water out rapidly for short bursts of underwater jet propulsion – helps to surprise prey items



Damselfly Nymphs

- Longer & narrower in size & shape
- Three fin-like gills are located at the end of the abdomen
- Gills can be damaged or missing – may only have one or two

Approximate Nymph Age – Wing Pad Length



Egg Laying With Friends



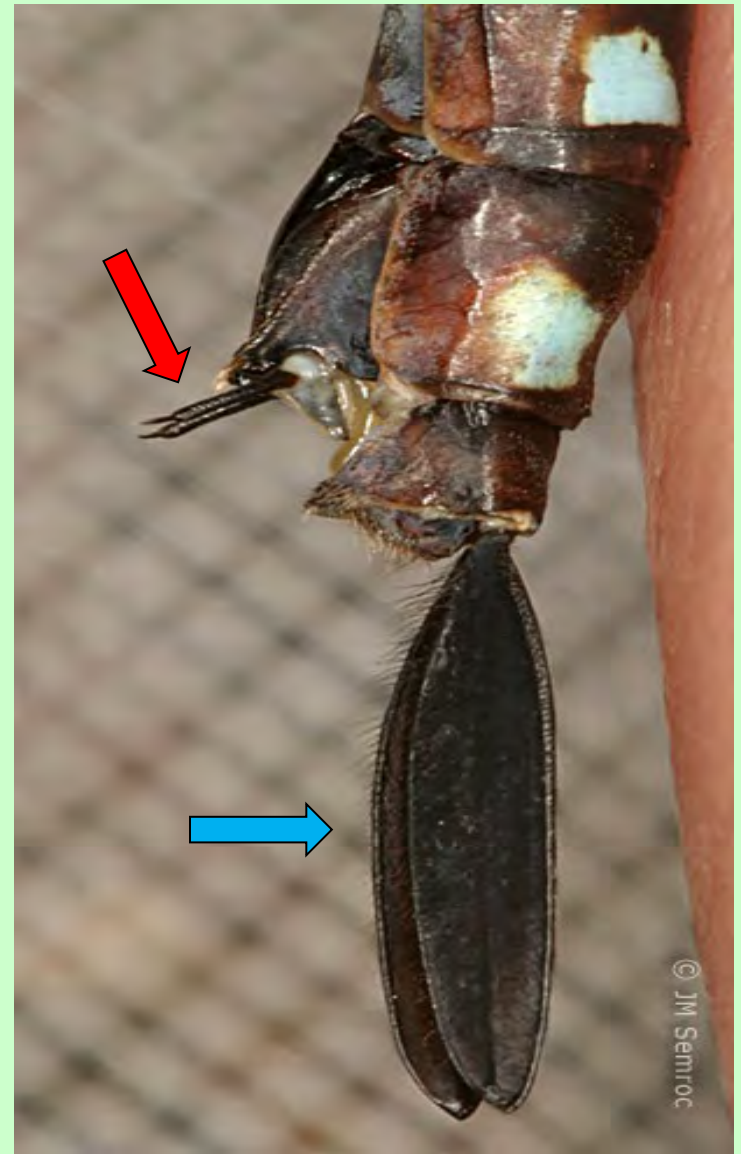
Sweetflag Spreadwing (*Lestes forcipatus*)

L. Rosche

Out of Water Oviposition – Black-tipped Darner



Slice in plant for egg insertion



Ovipositor (egg laying) & Cerci (sensory)

Egg Laying On The Wing



Common Whitetail (*Plathemis lydia*)