Hine's Emerald Dragonfly
Unique Species

Presented by:
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FOMW Public Evening of
Science and Stewardship
November 13, 2014

Unique Ecology ___

Genus (or Group)

Somatochlora

- Somato – body, physical home of the soul
- Chlora – green

- Cryptic
- Elusive
- Inhospitable habitat
- Hard to identify
- Fliers
- 8 similar species in Simcoe County

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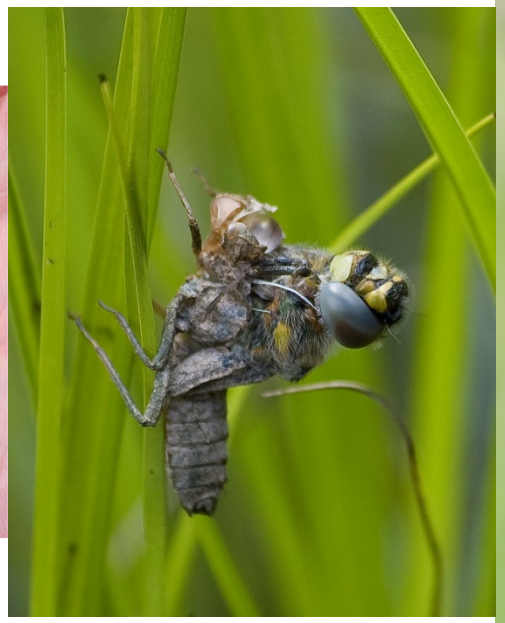


Congeneric Somatochlora kennedyi emerging. Photograph by Denis Doucet, Atlantic Canada Conservation Data Centre.

- Hine's Emerald life cycle
  - Egg - few months?
  - Larva - 4 to 5 years under water
  - Adult - 6 to 8 weeks

Larva Habitat Requirements

- Very restrictive
- Uncommon
- Pure, undisturbed springwater
- Slow moving
- Shallow (few centimetres)
- Undisturbed marsh or fen

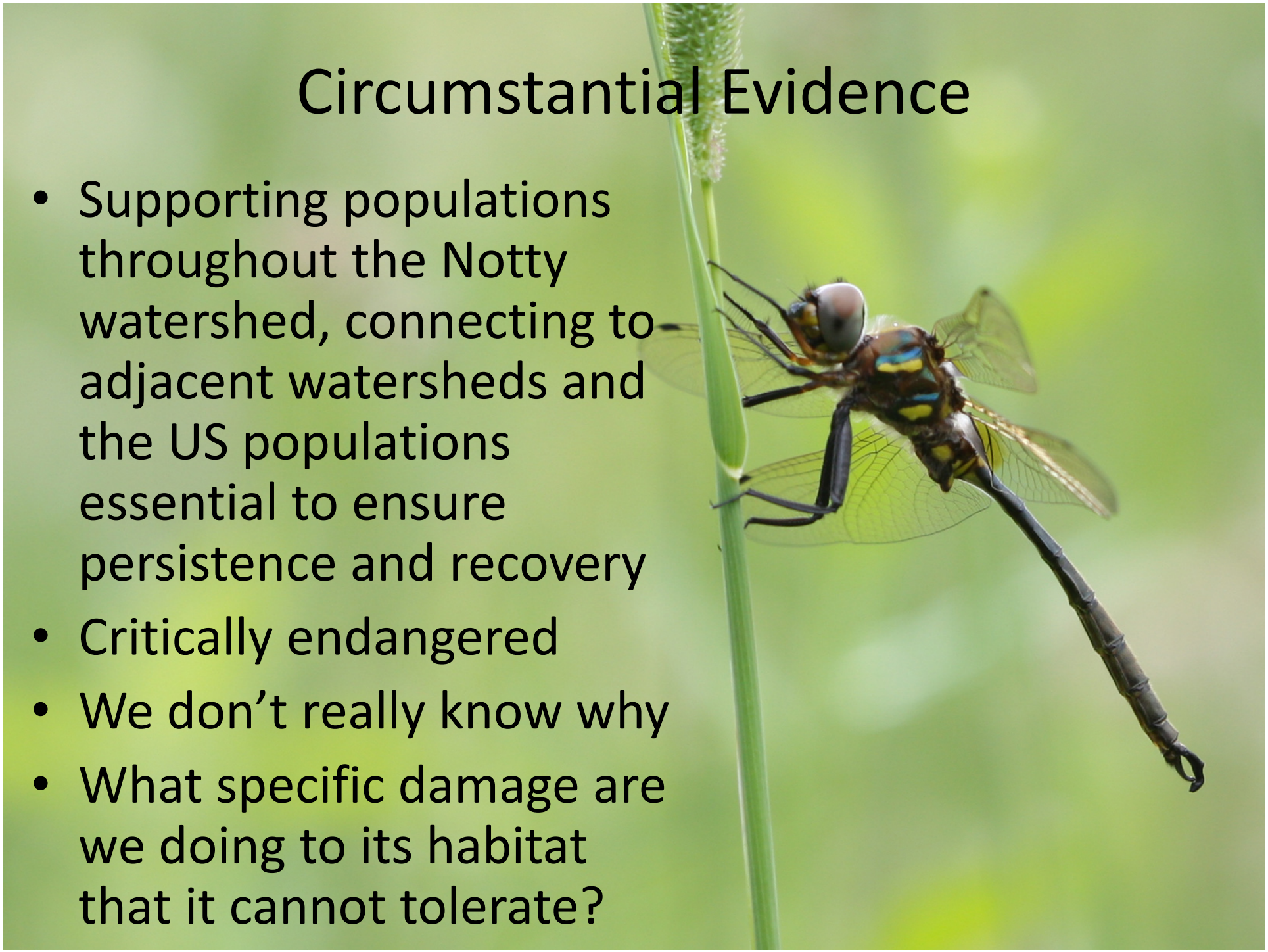
- Extensive part of Minesing Wetlands East of George Johnston Road, North of Snow Valley Road at George Parkway
- Somatochlora walshii and williamsoni, but no hineana. Why? All visible habitat requirements. What unique S. hineana component is missing or is existing that S. hineana can't tolerate?

Adult Habitat Requirements

- Males need wet meadows for foraging, connected to larva and breeding habitats and surrounded by forest for roosting
- Females need dry meadows for foraging, connected to larva and breeding habitats and surrounded by forest for roosting

Circumstantial Evidence

- Supporting populations throughout the Notty watershed, connecting to adjacent watersheds and the US populations essential to ensure persistence and recovery
- Critically endangered
- We don’t really know why
- What specific damage are we doing to its habitat that it cannot tolerate?

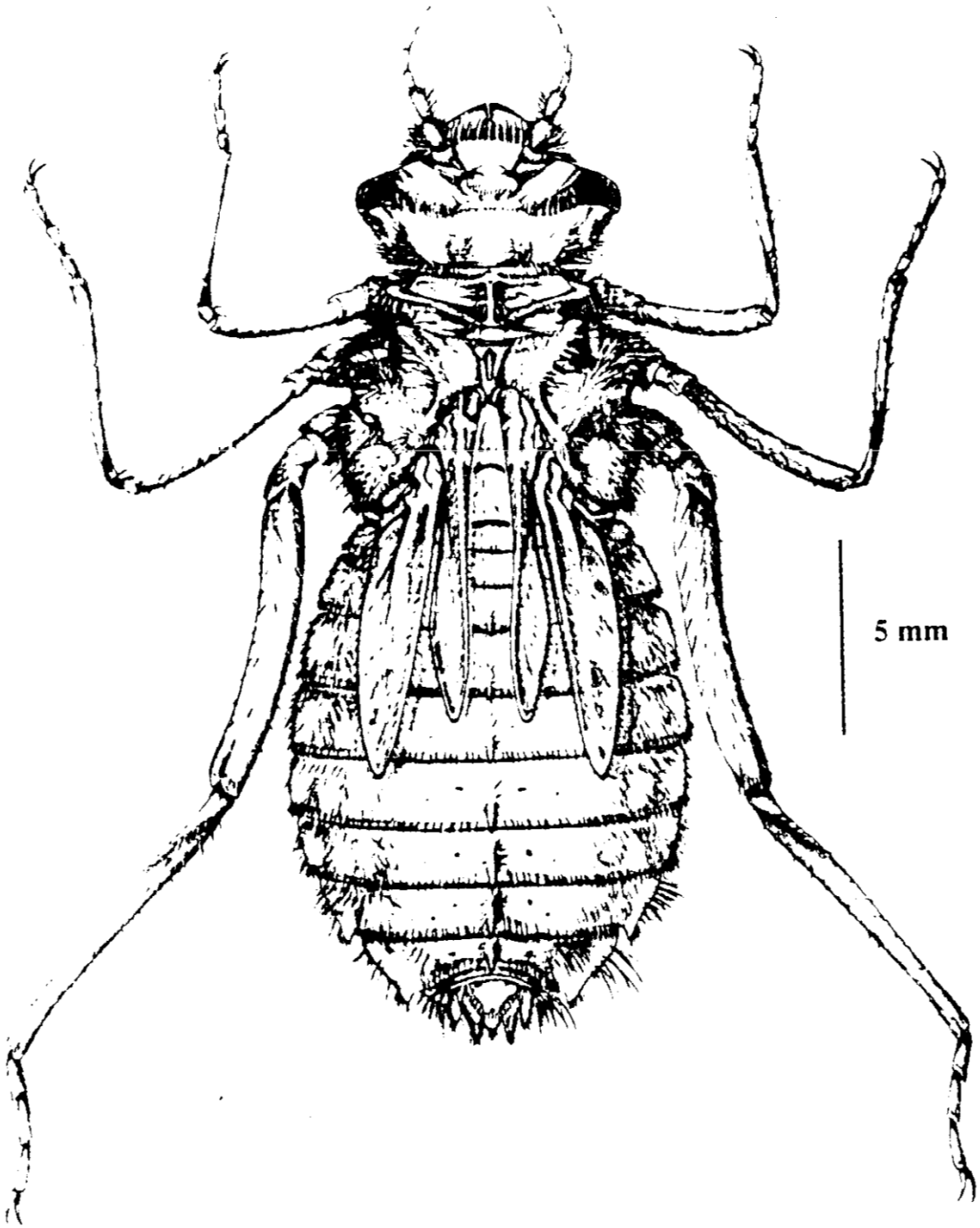


Why should we be interested?

- Because the Hine's Emerald is a very sensitive "canary in a coal mine". Hine's Emerald is telling us that we are damaging its environment, water & air, in a way we do not understand. It is now at the brink of being wiped out in Canada. This canary isn't in a coal mine. It lives where we live. As a larva, it lives in and breathes the water we drink. As an adult, it lives in and breathes the air we breath. If we lose it, how will we know what we are doing to our air and water?

Why should we be interested?

- Because we don't understand our connection with the Hine's Emerald and the role it plays in our ecosystem. We are all connected. We are harming the Hine's Emerald by damaging its habitat to the point where it may soon no longer exist in Canada. What significance will the loss of this species and the damage we have done to its habitat hold for future generations?



Hine's Emerald
Somatochlora hineana Larva

Final stage

Total Length – 25 mm

12 to 14 molts over 4 to 5 years

"Breathes" water through rectum into abdomen

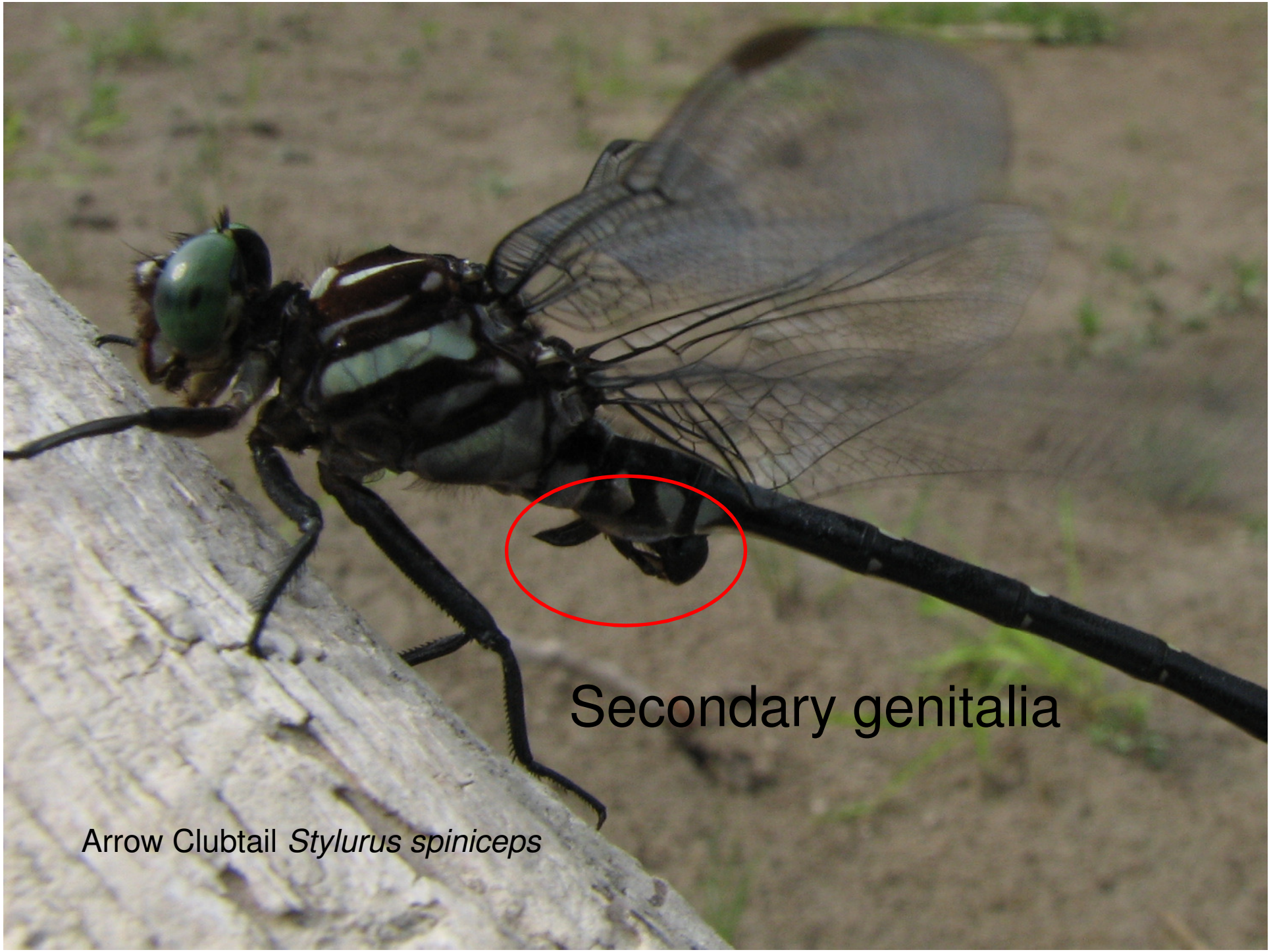
Julianne Snider
Illinois State Museum

Digger Crayfish *Fallicambarus fodiens* Photo by Jim Brighton, MD

- Mutualistic relationship with Hine's Emerald
- Digger Crayfish – ecosystem engineers, like beavers, alligators & elephants

Crayfish Chimney

- Mutualistic
  - Crayfish burrow is refuge for Hine's Emerald from drought and freezing
  - Hine's Emerald is prey for the crayfish



Arrow Clubtail *Stylurus spiniceps*

Elfin Skimmer *Nannothemis bella*
(2 cm long)

Hagen's Bluet *Enallagma hageni*

ECLOSION

Congeneric Somatochlora kennedyi emerging. Photograph by Denis Doucet, Atlantic Canada Conservation Data Centre.