



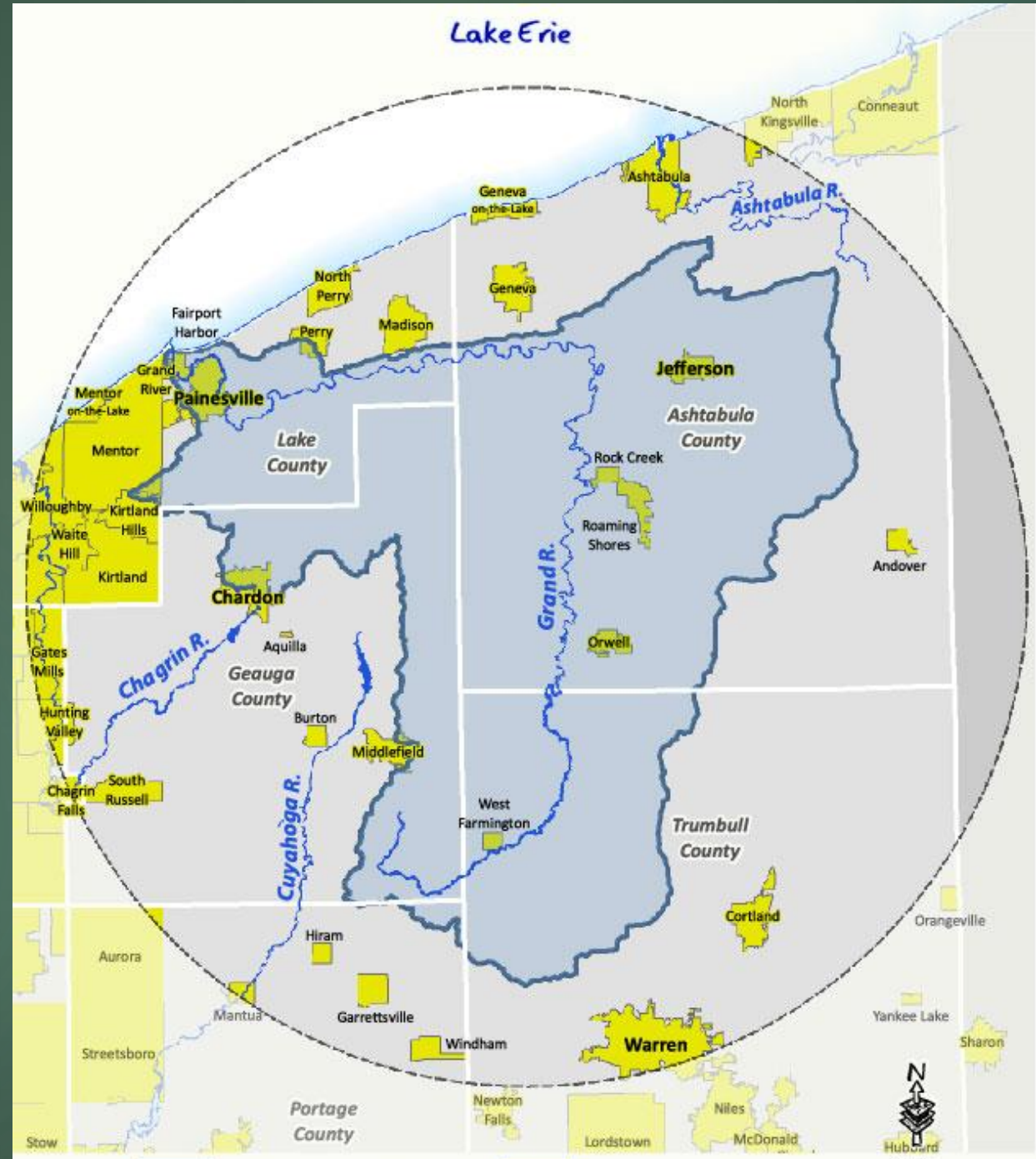
# Clubtails of the Grand River

IDENTIFICATION AND ECOLOGY

# Grand River

- ▶ The Grand River is 102.7 miles long and the watershed covers 712 square miles
- ▶ The source is in Geauga County. It then flows through Trumbull, Ashtabula, and Lake Counties
- ▶ Designated a wild and scenic river on January 17, 1974
- ▶ Wild River- From the Painesville Railroad trestle to the Harpersfield Bridge
- ▶ Scenic River- from the Harpersfield Bridge upstream to Ohio Route 322

# Lake Erie



Legend: Grand River Watershed (light blue), Incorporated Areas (yellow). Scale: 8 Miles. North Arrow.



# LAKE METROPARKS

## MAP OF LAKE COUNTY



LAKE ERIE



Cable Mill/reeby photo file



### LEGEND

- |  |   |  |
|--|---|--|
| <p><b>AC</b> ARCOLA CREEK<br/>Dock Rd., Madison Township</p> <p><b>CRP</b> CHAGRIN RIVER PARK<br/>Reeves Rd., Willoughby/Eastlake</p> <p><b>CFR</b> CHAPIN FOREST RESERVATION<br/>• S.R. 306, 1/2 Mile S. of Eagle Rd., Kirtland<br/>• Hobart Rd., Kirtland</p> <p><b>CSNP</b> CHILDREN'S SCHOOLHOUSE NATURE PARK<br/>9045 Baldwin Rd., Kirtland</p> <p><b>CW</b> CONCORD WOODS NATURE PARK<br/>11211 Spear Rd., Concord Township</p> <p><b>ESGC</b> ERIE SHORES GOLF COURSE<br/>7298 Lake Rd., Madison</p> <p><b>FHP</b> FAIRPORT HARBOR LAKEFRONT PARK<br/>301 Huntington Beach Drive</p> <p><b>GRR</b> GIRDLED ROAD RESERVATION<br/>Radcliffe Rd., Intersection of S.R. 608</p> | <p><b>HHW</b> HELEN HAZEN WYMAN PARK<br/>Rt. 86, Painesville</p> <p><b>HH</b> HELL HOLLOW WILDERNESS AREA<br/>Leroy Center Rd., Leroy</p> <p><b>HV</b> HIDDEN VALLEY PARK<br/>4880 Klason Rd., Madison</p> <p><b>HR</b> HOGBACK RIDGE<br/>Emerson Rd., Madison</p> <p><b>IP</b> INDIAN POINT PARK<br/>Seeley Rd., Leroy</p> <p><b>LFP</b> LAKE FARM PARK<br/>8800 Chardon Road. (Rt. 6), Kirtland</p> <p><b>LL</b> LAKEFRONT LODGE<br/>30525 Lakeshore Blvd., Willoughby</p> <p><b>LS</b> LAKESHORE RESERVATION<br/>4799 Lockwood Rd., Perry</p> <p><b>ML</b> MASON'S LANDING PARK<br/>Vrooman Rd., Perry</p> | <p><b>PFP</b> PAINE FALLS PARK<br/>Paine Rd., Leroy</p> <p><b>PTP</b> PAINESVILLE TOWNSHIP PARK<br/>1025 Hardy Rd., Painesville Township</p> <p><b>PAR</b> PARSONS GARDENS<br/>Erie Rd., Willoughby</p> <p><b>PG</b> PENITENTIARY GLEN<br/>8668 Kirtland-Chardon Rd., Kirtland</p> <p><b>PRCC</b> PINE RIDGE COUNTRY CLUB<br/>30601 Ridge Rd., Wickliffe</p> <p><b>RR</b> RIVER ROAD<br/>5800 River Road, Wickliffe</p> <p><b>RVP</b> RIVERVIEW PARK<br/>Bailey Rd., Madison</p> <p><b>VP</b> VETERANS PARK<br/>5740 Hopkins Rd., Mentor</p> <p><b>VS</b> VISITOR SERVICES<br/>11189 Spear Rd., Concord Township</p> |
|--|---|--|

Reservable Shelter Shelter Fishing  
To reserve a shelter, call 440-358-7275



# Grand River Clubtails- 18 Species

- ▶ Lilypad clubtail- *Agrionomphus villosipes*
- ▶ Unicorn clubtail- *Agrionomphus furcifer*
- ▶ Black-shouldered spinylegs- *Drogomphus spinosus*
- ▶ Flag-tailed spinylegs- *Drogomphus spoilatus*
- ▶ Lancet Clubtail- *Gomphus exilis*
- ▶ Midland Clubtail- *Gomphus fraternus*
- ▶ Splendid clubtail- *Gomphus lineatifrons*
- ▶ Ashy clubtail- *Gomphus lividus*
- ▶ Rapids clubtail- *Gomphus quadricolor*
- ▶ Dusky clubtail- *Gomphus spicatus*
- ▶ Green-faced clubtail- *Gomphus viridifrons*
- ▶ Dragonhunter- *Hagenius brevistylus*
- ▶ Riffle snaketail- *Ophiogomphus carolus*
- ▶ Rusty snaketail- *Ophiogomphus rupinsulensis*
- ▶ Eastern least clubtail- *Stylogomphus albistylus*
- ▶ Laura's clubtail- *Stylurus laurae*
- ▶ Arrow clubtail- *Stylurus spiniceps*
- ▶ Russet-tipped Clubtail- *Stylurus plagiatus*

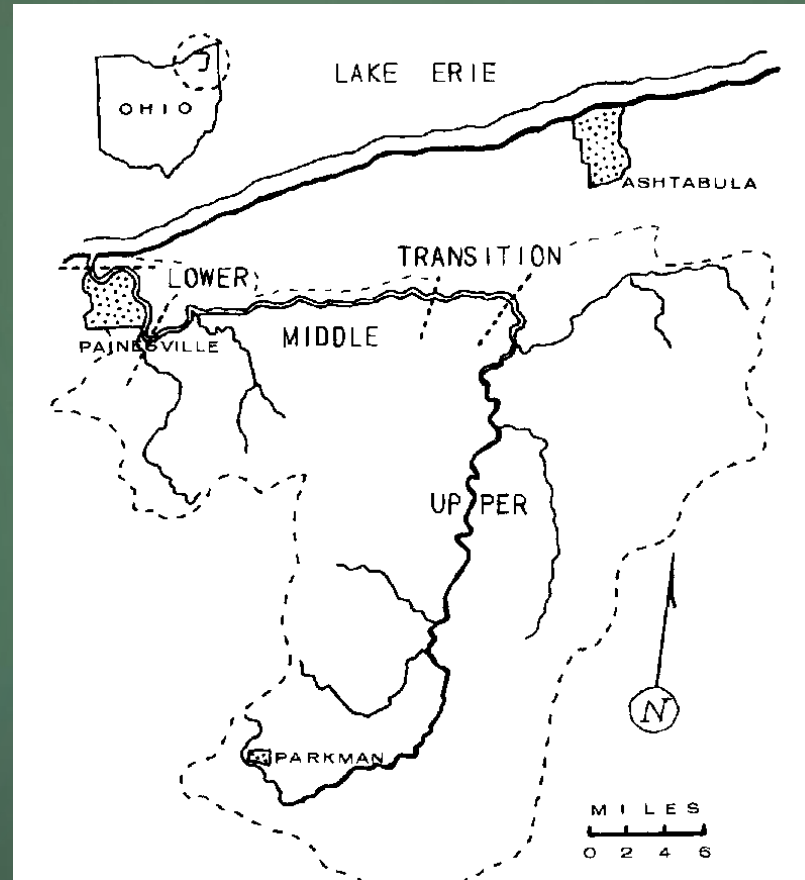
# Grand River Surveys



- ▶ Dragonflies and Damselflies (Odonata) of the Grand River System, Northeastern Ohio, 1974-1978, T.E. Perry, 1981
- ▶ Surveys for The Dragonflies and Damselflies of Ohio, Glotzhober and McShaffrey, 2002 (1990-1997)
- ▶ My surveys from 2004-2018

# T. E. Perry's Grand River Study

## 11 species of clubtails





# Emergence

- ▶ Clubtails are cyclical
- ▶ Rapids, Splendid, Midland, Green-faced clubtails and rusty snaketail are most numerous in odd numbered years
- ▶ The cyclical ones emerge within a day or two in late May-early June with dates ranging from May 20-June 2
- ▶ For the cyclical ones, during off years numbers can range from a handful to none
- ▶ Emergence does not appear to be associated with water temperature
- ▶ Spinylegs, ashy, lancet, and least do not follow this odd year pattern
- ▶ The non-cyclical ones appear to stagger their emergence

# Emergence dates

- ▶ 2018- none noted
- ▶ 2017- May 20
- ▶ 2016- May 26
- ▶ 2015- May 27, Rapids 34
- ▶ 2014- June 2
- ▶ 2013- May 21, Rapids- 57
- ▶ 2012- May 29
- ▶ 2011- May 24, Rapids- 74
- ▶ 2010- May 27
- ▶ 2009- May 27
- ▶ 2008- May 25
- ▶ 2007- May 21, Rapids 45
- ▶ 2006- June 1
- ▶ 2005- May 25, Rapids 58
- ▶ 2004- May 24

# May 24-31, 2011

- ▶ **May 24**

- ▶ Rapids Clubtail- Blair Road- 29, Riverview Park- 112
- ▶ Rusty Snaketail- Blair Road- 43, Riverview Park- 74
- ▶ Splendid Clubtail- Blair Road- 1, Riverview Park- 1
- ▶ Green-faced Clubtail- Blair Road- 0, Riverview Park- 3

- ▶ **May 25**

- ▶ Rapids Clubtail- Blair Road 23
- ▶ Rusty Snaketail- Blair Road- 88
- ▶ Green-faced Clubtail- Blair Road- 1

- ▶ **May 31**

- ▶ Rusty Snaketail- 62



# Rapids Clubtail Chronology- 2011

- ▶ Emerged- May 24 and 25, by 11:00 they could not be found along the stream (3 weeks)
- ▶ May 24-June 14- found away from the river (3 weeks)
- ▶ Returned- June 15, large numbers of clubtails were observed all along the river and there was a steady movement upstream over the river
- ▶ Last noted on July 4 (3 weeks)

# Threats

- ▶ Predators
  - ▶ Emerging
  - ▶ Flying away from the river
  - ▶ Flying from the floodplain to the open fields
- ▶ Weather
  - ▶ Severe flooding with larvae
  - ▶ Heavy rain after emergence, in 2017, 2015, and 2013, all big years, we lost the majority of clubtails and few returned to breed
- ▶ Habitat loss, the further the fields are from the river, the more dangerous
- ▶ Pollution and sedimentation

Emergence- Prefer east-west stretches of river with vegetation to the edge





Preferred habitat away from the river- Open shrubby fields that are surrounded on all four sides by trees





# Huntoon Road, 2.2-acres, 1.5 miles from the Grand River



# Timing

- ▶ Early May- Lancet, dusky, and ashy clubtails
- ▶ Late May- Rapids, splendid, midland, and green-faced clubtails, rusty snaketail
- ▶ Very late May-early June- Eastern least clubtail
- ▶ Early June- black-shouldered spinylegs and dragonhunter, unicorn and lilypad clubtail, riffle snaketail
- ▶ Late July-August- arrow and Laura's clubtails



# Disappearance

- ▶ Early July- last of the May hatching clubtails
- ▶ Late July- least clubtail, dragonhunter, black-shouldered spinylegs, and riffle snaketail
- ▶ Early August- last of the least clubtails and arrow and Laura's clubtail
- ▶ August and later- no clubtails have been observed. By then the sun is lower in the sky and in most areas, sunlight is limited in duration.

# Species accounts

# Lilypad clubtail

## *Agrigomphus villosipes*

- ▶ Abundance- uncommon- rare
- ▶ Perry- no records
- ▶ Current- appears to be very slowly increasing
- ▶ Habitat- small to medium ponds with abundant floating vegetation, usually found on lilypads and other floating vegetation
- ▶ Identification- similar to unicorn clubtail with yellow claspers. Lilypad's point inward and unicorn's are outward. Less clubbed than unicorn, eyes more bluish, and legs are all dark











# Unicorn clubtail

## *Agrigomphus furcifer*

- ▶ Abundance- common
- ▶ Perry- not listed
- ▶ Current- present at small ponds and wetlands throughout
- ▶ Habitat- can usually be found perched along the shoreline
- ▶ Identification- similar to lilypad clubtail with yellow claspers. Unicorn's point outward and lilypad's point inward. More clubbed than lilypad, eyes more bluish-green, and legs have pale streaks.









# Black-shouldered spinylegs

## *Drogomphus spinosus*

- ▶ Abundance- rare, one record
- ▶ Perry- no records
- ▶ Current- Common in the middle and uncommon in the upper
- ▶ Habitat- small ponds with scattered vegetation
- ▶ They usually emerge a week or more after the other rapids clubtails. Their emergence is more staggered where you might see a small number in a day. They tend to spend a lot more time along the river than some of the other species
- ▶ Identification- oval spots on shoulder is the best fieldmark. Long slim clubtail with a moderate club. Yellow stripes on dorsal abdomen all the way down. Spines on legs.









# Flag-tailed spinylegs

## *Drogomphus spoilatus*

- ▶ Abundance- rare, one record
- ▶ Perry- no records
- ▶ Current- no recent records
- ▶ One individual was collected at Indian Point. It is assumed this was a wandering individual.
- ▶ Identification- large dragonfly. Male has a large club that is mostly yellow. Female has a smaller club that is mostly yellow. Yellow markings on abdomen give it a ringed appearance.







# Lancet Clubtail

## *Gomphus exilis*

- ▶ Abundance- Common
- ▶ Perry- It was common in pond areas of the watershed
- ▶ Current- It remains common
- ▶ Habitat- it breeds in ponds and wetlands and can be found in open fields away from the lake, along wetland edges, and along streams
- ▶ Identification- small. Yellow markings run down the entire dorsal surface of the abdomen. Yellow spots on underside of 8 and 9. Moderately clubbed.















# Midland Clubtail

## *Gomphus fraternus*

- ▶ Abundance- uncommon
- ▶ Perry- listed them in the middle zone and the upper transition zone
- ▶ Current- uncommon in the middle and not uncommon in the upper region.
- ▶ Habitat- They breed in the river and emerge with the rapids and others, but in low numbers
- ▶ Notes- I see the most in the upper reaches of the Grand River. In the middle section I see very limited numbers. At the divide between the lower and middle they are again common.
- ▶ Identification- medium to large dragonfly with a large club. Best fieldmark is a small yellow triangle on 8. Sides of thorax with narrow dark stripes.











# Splendid clubtail

## *Gomphus lineatifrons*

- ▶ Abundance- Uncommon
- ▶ Perry- Perry listed them as occurring only in the middle
- ▶ Current- Uncommon, but at times can be common in small areas
- ▶ Habitat- Breeds in the Grand River
- ▶ Notes- a very small number emerge with the rapids. They appear to be from Indian Point and upstream.
- ▶ Identification- Large clubtail with a large club. It lacks the small yellow triangle on 8. On both splendid and midland club is narrower than the thorax. Yellow ring on 7/8.













# Ashy clubtail

## *Gomphus lividus*

- ▶ Abundance- Common
- ▶ Perry- common throughout
- ▶ Current- one of the most common
- ▶ Habitat- sluggish rivers and ponds
- ▶ Notes- Medium sized dragonfly with a small club. Very pale and ashy in color. Very similar to dusky clubtail. Best identified by tooth on cerci of dusky. Some are a bit paler that gives a clue it might be an ashy.













# Rapids clubtail

## *Gomphus quadricolor*

- ▶ Abundance- uncommon
- ▶ Perry- uncommon in the middle section
- ▶ Current- numbers vary highly from year to year. In odd years as many as 100+ have been seen emerging at Riverview Park while in even years they can be rare.
- ▶ Habitat- Fast areas of the Grand River
- ▶ Identification- a small dragonfly with a moderate sized club. The top of the abdomen has yellow markings from 1-7, 8-10 is unmarked. There is yellow spots on the lower sections of 8 and 9. segment 9 is longer than 8.









# Dusky clubtail

## *Gomphus spicatus*

- ▶ Abundance- Uncommon-rare
- ▶ Perry- scattered
- ▶ Current- remains very scattered through the region
- ▶ Habitat- small ponds
- ▶ Identification- Medium sized dragonfly with a small club. Very pale and dusky in color. Very similar to ashy clubtail. Best identified by tooth on cerci of dusky. Some are a bit more dusky in color that gives a clue to take a closer look.











# Green-faced clubtail

## *Gomphus viridifrons*

- ▶ Abundance- rare
- ▶ Perry- rare and in the middle section. Only one specimen
- ▶ Current- This species remains rare. It appears to be slightly more common just below the Harpersfield dam.
- ▶ Habitat-Fast sections of the Grand River
- ▶ Identification- a small dragonfly with a moderate sized club. Pale yellow spots on 1-7, but the spots are much smaller than with rapids which it most closely resembles. Segment 9 is shorter than 8. Club on male slightly larger.















# Dragonhunter

## *Hagenius brevistylus*

- ▶ Abundance- uncommon
- ▶ Perry- uncommon in the upper transitional zone
- ▶ Current- uncommon , numbers vary year to year. Higher numbers are typically in even years
- ▶ Habitat- Grand River, will occasionally be found on the smaller streams
- ▶ Identification- huge size. Large thorax, but with a head that appears small for the body size. Long abdomen with yellow striping 1-8. 9-10 black above and some yellow below. Often perches in small trees and shrubs on the floodplain.













# Riffle snaketail

## *Ophiogomphus carolus*

- ▶ Abundance- uncommon
- ▶ Perry- not reported
- ▶ Current- uncommon, numbers vary annually
- ▶ Habitat- smaller streams, although has been seen on the Grand a couple times. Maybe from larvae that washed out of the streams. I have not found it away from the immediate floodplain. Perches on rocks in rapids.
- ▶ Identification- small dragonfly with a green thorax. Abdomen black with yellow markings on the dorsal surface. Spots on 8 and 9 are small and rectangular. Club is small-medium.















# Rusty snaketail

## *Ophiogomphus rupinsulensis*

- ▶ Abundance- uncommon
- ▶ Perry- Common in the medium section
- ▶ Current- Numbers vary with higher numbers in odd years. They can be nearly absent some even years. They always hatch with rapids and others.
- ▶ Habitat- Grand River
- ▶ Identification- Medium sized clubtail with pale green thorax. Larger in size than riffle. Abdomen is brownish with a rusty brown color on the tail. Yellow striping on the abdomen is indistinct. Club is moderate.















# Eastern least clubtail

## *Stylogomphus albistylus*

- ▶ Abundance- Common
- ▶ Perry- uncommon in middle and transitional zone
- ▶ Current- appears to have become more common. They hatch over a wide period.
- ▶ Habitat- Grand River and small streams. They are more common on the Grand when hatching, but more common on smaller streams later in the summer.
- ▶ Identification- small dragonfly, with long thin abdomen. The claspers on males are white. The spots on the abdomen give a ringed appearance. The immatures are yellow, but become green when breeding. From a distance they can appear very green.















# Laura's clubtail

## *Stylurus laurae*

- ▶ Abundance- Very rare
- ▶ Perry- not reported
- ▶ Current- very rare, only two records along Big Creek
- ▶ Habitat- Sandy streams.
- ▶ Identification- Large clubtail with a heavily striped thorax and a large club. Thoracic stripe 1 very narrow with 2 and 3 wider, but separated. Yellow stripes on top of abdomen. Tail markings golden yellow. Flies later.





Linda Gilbert





Linda Gilbert



# Arrow clubtail

## *Stylurus spiniceps*

- ▶ Abundance- rare
- ▶ Perry- not reported
- ▶ Current- rare with the only records along the lower parts of the river
- ▶ Habitat-sandy bottomed large rivers
- ▶ Identification- large and long clubtail with a moderate club. Two yellow thoracic stripes. Yellow on dorsal of abdomen with markings small on 4-6, broader in 7-8, and absent or reduced on 8-9. Yellow on lower sides of 7-10. Flies later.











# Russet-tipped clubtail

## *Stylurus plagiatus*

- ▶ Abundance- rare
- ▶ Perry- not reported
- ▶ Current- 1 record from near the mouth of the Grand River
- ▶ Habitat-sandy bottomed large rivers
- ▶ Identification- greenish thorax, rusty club





Dan Jackson