

Status of the Say's Spiketail (*Cordulegaster sayi*) in Georgia

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Photo of a *Cordulegaster sayi* larva from Atkinson County, Georgia (Kevin M. Stohlgren)

METHODS

From March, 2013–April, 2014. I conducted surveys for the Say’s Spiketail (*Cordulegaster sayi*) in Georgia. Adult and larval surveys were conducted as described in Stevenson et al. (2009). One known site (Fort Stewart, Evans County) was surveyed in March, 2012. *Cordulegaster* sp. larvae collected during my surveys were preserved and identified as in Stevenson et al. (2009). These specimens are currently in my personal collection; ultimately, they will be deposited at GMNH.

Prior to this effort, *Cordulegaster sayi* had been recorded from 18 sites in 12 Georgia counties (Stevenson et al. 2009; see Table 1). This total includes an old record for a Thomas County, GA, site with missing/vague locality data (this site has never been precisely mapped or re-confirmed; nor, has any potentially suitable habitat been located in this part of Georgia) and a Coffee County, GA site (Gaskins Springs, discovered by myself in 1996) which is no longer accessible. Thus, I surveyed 16 known sites for *C. sayi*; Additionally, I surveyed 20 other sites in southern Georgia an effort to discover new populations of this imperiled dragonfly.

In the Table summaries of my efforts (Table 1 and Table 2) I mention other *Cordulegaster* species found during my surveys. I also include observations of Gray Petaltails (*Tachopteryx thoreyi*) and *Pseudotriton* sp. (Red Salamanders and Mud Salamanders) as all of these taxa are characteristic associates of *C. sayi* larval habitats (Stevenson et al. 2009).

RESULTS and DISCUSSION

I found *C. sayi* (larvae and/or adults) at 10 of 16 known CSAYI sites, and at four new (all on private lands) sites (Table 1). *Cordulegaster sayi* populations are strongly suspected to occur at a minimum of 3-4 sites where I did not find the species (see paragraph below). Adults were observed on 15 March 2012; 8-13 April 2013, and on 10 April 2014. My impression is that the coldish wet winter/spring of 2014 resulted in a late and abbreviated flight period for the species in Georgia.

The six sites where I did not find *C. sayi* merit further discussion: 1) I couldn’t locate suitable seepage habitat at Coffee County/Hopkins (historic record here is based on the 2000 collection of an adult) but I suspect the species is extant on-site, and that suitable seepages are present in the bay swamps on the east side of 17-Mile Creek (additionally, during this survey I found new site for *C. sayi* a short distance to the North, see Table 1); 2) My unsuccessful surveys notwithstanding, based on the presence of intact habitat I suspect that *C. sayi* is also extant at Oohoopee Dunes: Covena Tract (Emanuel County), the 15-Mile Conservation Easement Tract (Candler County), and the Oohoopee Tract: Hwy. 147 south of Reidsville (Tattnall County, this population first discovered 2008); 3) The Emanuel County: Oohoopee Dunes Natural Area (TNC/GA DNR, species discovered here in 1996 and not observed since) is enigmatic—this extensive sandhill/bay swamp region on the NE side of the Little Oohoopee River is ideal for the species in many respects—but attempts by myself and Giff Beaton to find true perennial seeps occupied by *C. sayi* larvae have been unsuccessful; 4) At Gordonia–Alatamaha State Park (Tattnall County), where collecting dates for *C. sayi* span from 1985–2008, a known larval seep has been significantly degraded—currently, the ponded/dammed waters of a 3rd order stream subsume *C. sayi* seepages here during high water conditions. Giff Beaton found very few larvae here in 2008, and I couldn’t find any despite determined efforts; interestingly, larval of *Pseudotriton ruber* (Red Salamander) remain abundant here.

Efforts to find new *C. sayi* populations at Georgia sites outside the currently perceived range were unsuccessful (Table 2). However, I did locate a new *C. sayi* site (and the southernmost for the species along the Alapaha River) close to the Lanier County line. The newly discovered sites in Candler County and in Coffee County, sandhill seeps along 15-Mile Creek and 17-Mile Creek, respectively. These are not surprising locations but are still noteworthy as habitat at the Candler County Tract is well-managed, and the north-most of the new Coffee County sites seems extraordinary—just downslope of a powerful spring here I encountered exceptionally large numbers of *C. sayi* larvae (see Figure 3).

Generally, habitat conditions (both adult and larval) at the *Cordulegaster sayi* sites known for Georgia are good and have not changed significantly during the period (1996–2014) that I’ve monitored the species. During this survey, I noted wild pig (*Sus scrofa*) damage to CSAYI seeps at two sites (Wayne County, Penholoway WMA East Site 2; Camden County, Bailey Property, in this case impacts were limited). Also, wild pig excavations were extensive in the sandhills close to the Tattall County, Hwy. 147 South tract, making it likely that larval habitat here has also been affected. At the Liberty County site (Fort Stewart) some hardwood forest canopy trees near the *C. sayi* seeps have been killed by recent military firing exercises (from a bluff above the seeps), and future loss of trees here should be prevented and/or carefully evaluated.

I recommend continued periodic monitoring and study of *Cordulegaster sayi* populations in Georgia, and additional inventory efforts in an effort to locate additional sites for the species. I advise continued State-listing Status as “THREATENED” by the Georgia Department of Natural Resources because of the species local occurrence, limited distribution and, potentially, small population size at some/many of the known sites.

LITERATURE CITED

Stevenson, D.J., G. Beaton, and M.J. Elliott. 2009. Distribution, status and ecology of *Cordulegaster sayi* Selys in Georgia, USA (Odonata:Cordulegastridae). *Bulletin of American Odonatology* 11(1):20–25.



Figure 1. *Cordulegaster sayi* adult from Georgia (D. Stevenson).



Figure 2. *Cordulegaster sayi* larva from Atkinson County, Georgia (Kevin M. Stohlgren).



Figure 3. Newly discovered (2013) seepage in Coffee County, GA; larval site for *C. sayi* (D. Stevenson).



Figure 4. *Cordulegaster sayi* larvae from Coffee County, Georgia (D. Stevenson).

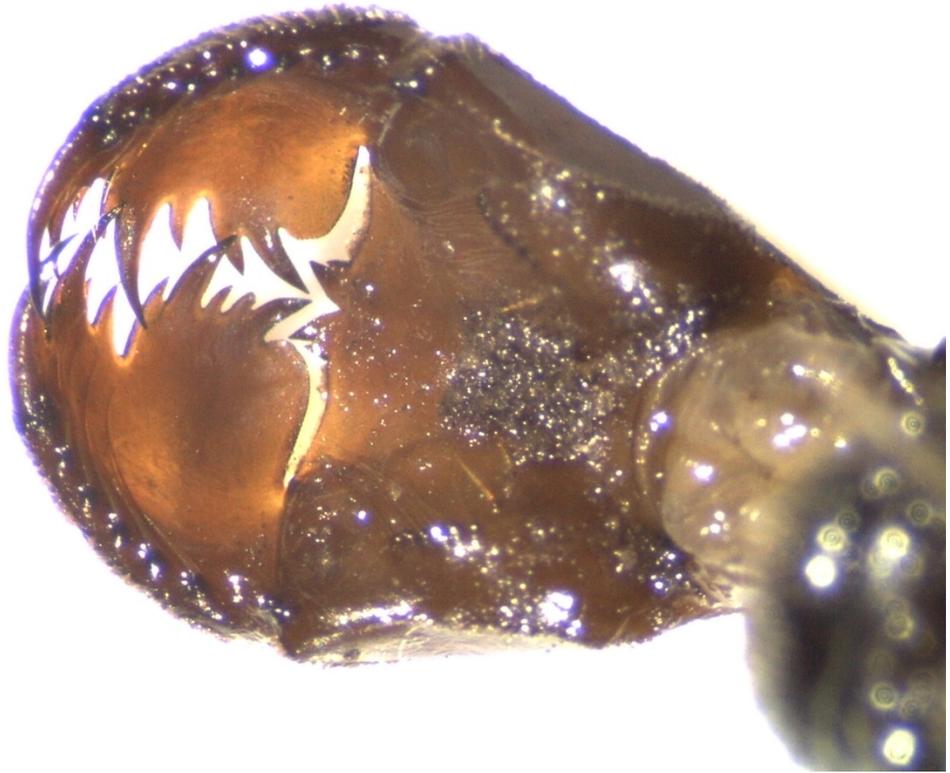


Figure 5. Labium of *Cordulegaster sayi* larva (Lance McBrayer).



Figure 6. Adult *Tachopteryx thoreyi* (Gray Petaltail) from Wayne County, Georgia (D. Stevenson).



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Figure 7. Larva of *Tachopteryx thoreyi* (Gray Petaltail) (from Internet).



Figure 8. Mucky seepage (larval habitat for *C. sayi*) on Fort Stewart, Georgia (D. Stevenson).