

## Calvert's Emerald

### *Somatochlora calverti*

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#### DESCRIPTION

#### Taxonomy and Basic Description

Calvert's Emerald was first described by Williamson and Gloyd (1933). It is in the suborder Anisoptera, family Libellulidae, and subfamily Corduliinae.



Photo unavailable. *Somatochlora tenebosa* is pictured, by W. Worthen.

Like all dragonflies, the aquatic larvae and the aerial adults are predators. Eggs are laid in summer, and then the larvae proceed through a series of molts over the course of the next year (or few years). Each larva crawls from the water to the bank or surrounding vegetation to molt, and the adult emerges. Several hours are needed for the complete expansion and hardening of the wings; during this period the dragonfly is referred to as a 'teneral', and the wings are often pliable and somewhat iridescent.

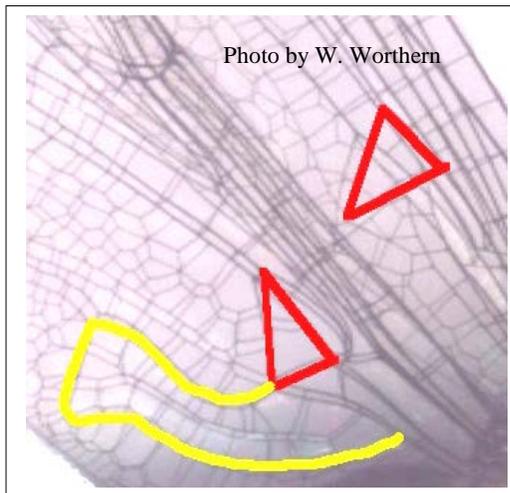


Photo by W. Worthen

As with all libellulids, the triangle of the forewing is farther from the arculus than the triangle of the hindwing (triangles in red, in photo to the left). In addition, the long axis of the forewing triangle is perpendicular to the long axis of the wing, whereas the long axis of the hindwing triangle is parallel with the long axis of the wing. There is a distinct anal loop but without a distinct "toe" (anal loop in yellow in photo); this is typical of the subfamily Corduliinae. The thorax has a strong blue-green metallic sheen.

Like many species of *Somatochlora*, the females have a "thorn-like" subgenital plate that projects ventrally, (see area circled in photo at right) perpendicular to the axis of the abdomen. Males have a large, pale dorsal spot on abdominal segment 10 and long setae on the cerci, whereas females have brown streaks on their wings between the costa and radius, from the nodus to the pterostigma (Needham et al. 2000).

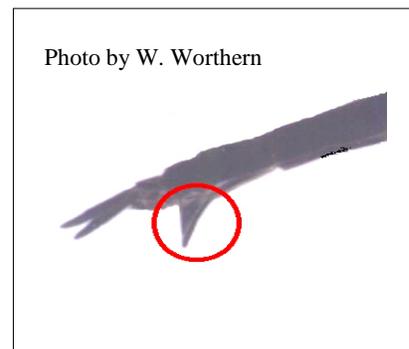


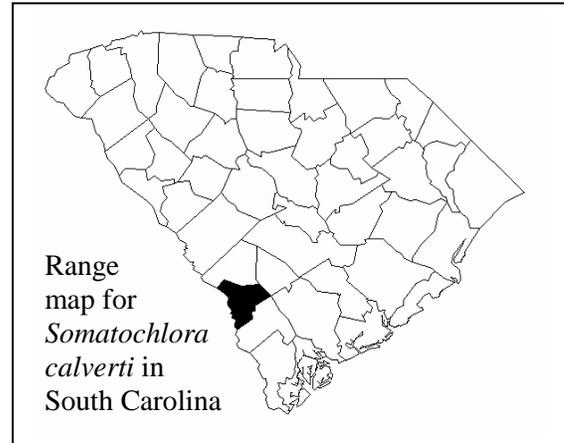
Photo by W. Worthen

## Status

This species is classified in the Natural Heritage designations as vulnerable (G3) and described as 'rare' and 'without threat' (Bick 2003). This designation specifies 12 to 100 occurrences nationally.

## POPULATION SIZE AND DISTRIBUTION

This species is recorded from southeastern Alabama, the panhandle of Florida, and South Carolina (Needham et al. 2000). Range maps include a narrow band through central Georgia to connect the Florida and South Carolina populations (Dunkle 2000), but the species has not been collected from Georgia. In South Carolina, the species was collected in Allendale County on August 19, 1977, from a small unnamed pond on SC Highway 641, 1.6 km (1 mi.) east of Sycamore, South Carolina by T.R. White and P.H. Carlson (White et al. 1980). Calvert's Emerald was reliably identified by K.J. Tennessen (White et al. 1980).



## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The larval habitat is unknown, but most authorities suggest boggy forest seepages (Needham et al. 2001). The thorn-like ovipositor suggests that females may lay eggs in wet sand, mud, or algae in or near very shallow water (Huggins and Brigham 1982). Adults forage on midges and small insects along roads in forests, or high above treetops in open areas between tree crowns (Dunkle 2000). The flight season for Calvert's Emerald is mid-June to late August (Dunkle 2000).

## CHALLENGES

Although no specific challenges can be defined for this species, there are several general activities that can affect dragonfly populations (Dunkle 2004). The primary impact to terrestrial habitats lies in habitat conversion. For this forest dwelling species, land clearing, and development represent the most significant challenge.

Again, the specific larval habitat is unknown for this species, but forest seepage areas are implicated. These habitats are particularly sensitive to changes in aboveground vegetative cover that can have a profound effect on water temperature, flow rates, and sediment type. So again, land clearing and development represent the primary challenge to the aquatic habitats that may contain Calvert's Emerald larvae.

## CONSERVATION ACCOMPLISHMENTS

There are no known conservation accomplishments specifically for Calvert's Emerald.

## CONSERVATION RECOMMENDATIONS

- Conduct surveys to determine the distribution of Calvert's emerald in South Carolina. Initiate intensive, yet non-destructive sampling efforts at the location in Allendale County where the state's only specimen has been collected.
- Explore the need to list Calvert's emerald in South Carolina, based on survey results.
- Identify and protect critical habitats for Calvert's emerald from future development and further habitat degradation by following best management practices and protecting and purchasing riparian areas.
- Promote land stewardship practices through educational programs, both within critical habitats with healthy populations and other areas that contain available habitat for Calvert's emerald.
- Encourage responsible land use planning.
- Consider species needs when participating in the environmental permit review process.

## MEASURES OF SUCCESS

Determination of the range and preferred habitat for the Calvert's emerald would indicate a measure of success for this species.

## LITERATURE CITED

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