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A Novel Habitat for Larvae of the Fishfly *Chauliodes pectinicornis* (Megaloptera: Corydalidae)

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The fishfly *Chauliodes pectinicornis* (Linnaeus) is widely distributed, having been reported from 26 eastern states as well as Quebec (Dolin & Tarter, 1981). The larvae, commonly called hellgrammites, are strong, active predators (Neunzig & Baker, 1991) restricted to lentic habitats with little water movement (Cuyler, 1958). Larvae have been recorded most commonly from woodland pools and shaded swamps, but occasional records from open ponds and pools exist (Neunzig & Baker, 1991). That the larvae are well adapted to such oxygen-poor habitats as woodland pools is attested by the fact that they possess a pair of long, contractile, caudal respiratory tubes which enable them to reach the air/water interface for gas exchange. The present paper reports the collection of this species from a water-filled treehole, a habitat not unlike a woodland pond. It is the first published record for a megalopteran from this habitat.

As part of an ongoing study of the acarine inhabitants of water-filled treeholes, I collected water, leaves, and debris as well as the associated fauna from a treehole near Williamsburg, Virginia, in early July of 1990. The sample was placed in a finger bowl, covered with a petri dish lid to impede evaporation, and used as a source of mites for experimentation. While examining the sample in September, I noted a respiratory tube extending to the air-water interface from beneath a piece of submerged bark. On closer examination I found the tube belonged to a fishfly larva approximately 35 mm in length (Fig. 1). With the use of keys to larval Megaloptera (Chandler, 1956; Cuyler, 1958) it was identified as *Chauliodes pectinicornis*.

The larvae of a number of insect species are common and often obligate inhabitants of water-filled treeholes in eastern North America, including those of several species of flies (Psychodidae, Syrphidae, Ceratopogonidae, Culicidae) and beetles (Scirtidae) (Fashing, 1975). A thorough examination of the culture dish revealed mites to be the only arthropods remaining with the fishfly larva, their small size allowing them to escape predation. It is presumed that insect larvae present at the time of collection had been consumed. Fishfly larvae are fiercely predacious, eating almost anything they can subdue (Chandler, 1956). Scirtid larvae were therefore collected from water-filled treeholes and used as a food source for the fishfly larva. The specimen remained concealed in the debris consuming scirtid larvae until 29 March 1991, when it was observed moving about on top of the debris. On 1 April it metamorphosed to a pupa which remained partially submerged with its head and prothorax above the water line until it eclosed to an adult on 11 April. If the pupa was removed from its submerged position and placed atop the debris, it would move back into the water. In nature, *Chauliodes* larvae construct pupal cells under the bark of soft and moist rotting logs lying in the water or along the water's edge, with cell construction being above the water level if the log is in the water (Neunzig & Baker, 1991). Although the observation of more individuals is necessary for corroboration, it appears that if soft, moist logs are not available, the preferred pupation site is the water rather than debris above the water line.

Although several authors have hypothesized the life cycle for the genus *Chauliodes* to vary between two and three years (Neunzig & Baker, 1991), a study by Dolin & Tarter (1981) revealed a univoltine cycle based on head widths from monthly field collections. It is therefore likely that my individual was collected as an egg or first instar larva, and grew rapidly until it was large enough to be noticed. Dolin & Tarter (1981) report that larvae of *C. pectinicornis* show the greatest growth in the field from July to October and from April to June, with adults emerging from field collected pupae in late June and throughout July. The early adult emergence (11 April) of my individual is explained by the fact that larval growth was not interrupted by the cold and lack of food experienced by field individuals during the winter months.