

CAECIDOTEA CAROLINENSIS (ISOPODA: ASELLIDAE): FIRST RECORD OF A STYGOBITE FROM SOUTH CAROLINA

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This report of Caecidotea carolinensis, the first stygobitic organism reported from Parlar Cave, South Carolina, USA, extends its known range by 370 km from its only previous collection site in North Carolina. Aquatic fauna from Parlar Cave also included an amphipod, aquatic annelids, aquatic oribatid mites, crayfish, copepods, and ostracods.

A recent summary of cave-inhabiting fauna by Peck (1998) did not list any obligate subterranean organisms for South Carolina because biologists have not studied the state's caves and subterranean streams. South Carolina's limestone caves were well known and reported in the literature by the 1840s, but Lyell (1845), who explored some of the caves of the Santee region, reported no biological data. Other speleologists have not documented biological collections in the Santee region caves, yet similar Coastal Plain caves in Florida and Georgia have been well studied, with numerous endemic stygobitic Crustacea reported (Holsinger & Peck 1971; Franz *et al.* 1994; Peck 1998). Thus, it seemed likely that surveys would reveal the presence of stygobites in South Carolina's Coastal Plain caves.

On 30 March 1999, 4 males and 9 females of *Caecidotea carolinensis* Lewis and Bowman were collected from the subterranean stream of Parlar Cave, Orangeburg County, South Carolina using two techniques. Three specimens were collected in a commercial minnow trap baited with tuna and placed in the cave stream, 2 m from the Big Sink Entrance on 16 March 1999. The remainder of the specimens were collected by lifting rocks and debris upstream of a plankton net. Isopods washed into the plankton net were collected and stored in 90% ethanol for later identification. Other aquatic invertebrates associated with *C. carolinensis* included a potentially stygobitic amphipod *Stygobromus* sp., the annelids *Aeolosoma* sp., *Chaetogaster diaphanous* (Gruithuisen), and *Pristina leidy* Smith and an aquatic oribatid mite *Trhypochthoniellus crassus* Warburton & Pearce. Collections made the same day in Chapel Branch Cave, which is the downstream entrance to the Parlar Cave system, did not produce *C. carolinensis*. The subterranean stream in Chapel Branch Cave receives runoff from a neighboring golf course, which could have had detrimental effects on the population of *C. carolinensis*. Other non-stygobitic Crustacea, including the copepods *Eucyclops agilis* (Koch), *Eucyclops elegans* (Herrick), and *Elaphoidella bidens* (Schmeil) a crayfish, *Cambarus (Puncticambarus) acuminatus* Faxon, and an ostracod tentatively identified as *Cyclocypris* sp. were collected in Chapel Branch Cave on 16 and 30 March and 3 April 1999. According to the distribution records of Reid

and Ishida (1993), this collection of *El. bidens* is a South Carolina record.

Caecidotea carolinensis was known previously only from a small tectonic fissure cave, Bennetts Mill Cave, McDowell Co., North Carolina (Lewis & Bowman 1977). This study's collection in South Carolina was a 370-km range extension and represents the first stygobitic organism identified in the state. Bennetts Mill Cave, in the Piedmont of North Carolina, is geologically separated from Parlar Cave, in the Coastal Plain of South Carolina. Many stygobitic asellids, including several species of *Caecidotea*, live in phreatic waters and move between caves (Steeves 1966; Lewis & Holsinger 1985). Thus, it is likely that *C. carolinensis* is a well-distributed species in the poorly sampled subterranean waters of South Carolina.

Voucher specimens of *C. carolinensis* have been deposited in the United States National Museum and the Clemson University Arthropod Collection.

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