FLORIDA PANHANDLE CAVE AMPHIPOD
Stygobromus floridanus

Order: Amphipoda
Family: Crangonyctidae
FNAI Ranks: G1G2/S1S2
U.S. Status: none
FL Status: none

Description: Like other stygobiont (groundwater-dwelling) amphipods, this crustacean is quite small, although relatively large for a cave-dwelling amphipod, and white to translucent, with a laterally compressed body. The species was described based solely on females, which reach body lengths to 15.7 mm. Diagnostic characters include absence of eyes; large and robust propodi of gnathopods 1 and 2 (modified thoracic appendages) with numerous spines (suggesting carnivory); relatively long antennae (ca. 60% of body length), pereopods, and uropods 1 and 2; and an elongated telson (body part posterior to last abdominal segment) that tapers distally and bears six relatively robust, terminal spines (Holsinger and Sawicki 2016, Cannizzaro et al. 2019b). Holsinger and Sawicki (2016) describe and illustrate additional key morphological features.

Similar Species: *Stygobromus floridanus* co-occurs with another morphologically similar (but genetically and morphometrically distinguishable) stygomorphic (adapted to life in water-filled caves) amphipod in the same genus, *S. doughertyensis* (described subsequently in 2019). Of the more than 140 members of the genus, these are the only two known from the Floridan aquifer (Cannizzaro et al. 2019b). *S. floridanus* reaches larger size than *S. doughertyensis*, the largest known female of which is 9.2 mm (males to 6.5 mm). The former also has longer first antennae with more flagellar segments (19-32 vs. 10-16), sternal gills on somites 3-6 (absent in *S. doughertyensis*), and differences in several other body parts (Cannizzaro et al. 2019b). Both species appear to be adapted for carnivory based on structures of gnathopods. The pair also co-occur with the stygobitic amphipod *Crangonyx manubrium* (Cannizzaro et al. 2019a), which has vestigial eyes and less robust gnathopods more suited to shredding of allochthonous detritus (Cannizzaro et al. 2019b). Because many amphipods are similar externally, identity should always be confirmed by an expert.

Habitat: This is a fully stygobitic species that inhabits karst groundwaters accessed via submerged limestone caves (Holsinger and Sawicki 2016, Cannizzaro et al. 2019b).

Seasonal Occurrence: Data are insufficient to describe life cycle or seasonal habitat use. The species would be expected to inhabit sites year-round, although populations likely fluctuate.

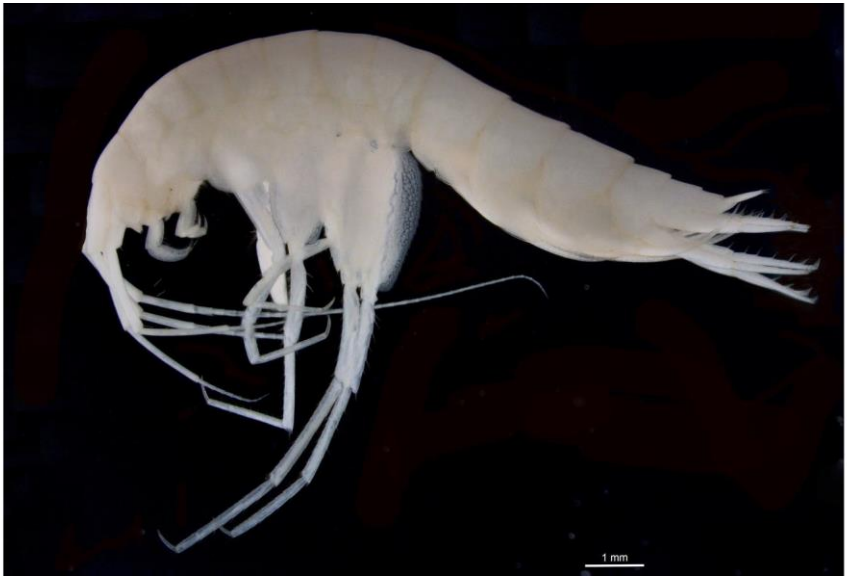
Florida Distribution: As of 2019, this amphipod was known from five caves within two submerged cave systems in adjacent counties in northwestern Florida; these are along Holmes Creek in Washington County, and beneath an impounded tributary of the Chipola River (Dougherty Karst Plain) in Jackson County (Holsinger and Sawicki 2016, Cannizzaro et al. 2019). In the latter, *S. floridanus* occurs syntopically with two other stygomorphic amphipods, *S. doughertyensis* and *Crangonyx manubrium* (Cannizzaro et al. 2019b).

Range-wide Distribution: Because both inhabited drainages and aquifers extend northward, there is a possibility that *S. floridanus* may occur in Alabama and/or Georgia as well, but until such documentation is available, it will be considered endemic to Florida.

Conservation Status: As a stygobitic species, *S. floridanus* is probably quite fragile and sensitive to changes in habitat, especially water quality. The Dougherty Karst Plain in Jackson County lies within a region where agricultural, industrial, and residential uses are likely to contribute pollutants to and make unsustainable use of the aquifer.

Protection and Management: It is critical to protect land around all karst features (sinks, caves, springs) within the range of this species. This is especially true in the Dougherty Plain, which supports one of the highest diversities of stygobitic crustaceans known. Land managers should retain natural vegetation and avoid use of chemical pesticides and herbicides within at least 50 m of recorded sites, including associated subterranean conduits. Entrances to caves may be gated or fenced as needed at sites where human visitation is unduly disturbing natural resources. Populations of amphipods and other associated cave crustaceans, in addition to groundwater quality, should be regularly monitored at sites known to support this species.

References: Cannizzaro et al. 2019a,b; Holsinger and Sawicki 2016.



Female, 12.73 mm, Jackson County, Florida. Scale bar = 1 mm. © Andrew G. Cannizzaro.