

## PEACOCK SPRINGS CAVE AMPHIPOD

*Crangonyx stinei*



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

**Description:** Like other aquatic cave-dwelling (stygobitic) amphipods, this tiny crustacean is very small (5–6 mm) with a laterally compressed body. In life, the body may be a creamy yellow-orange in color, and the eyes are pigmented and conspicuous. Diagnostic features include posterodistal margins of pereopod 7 deeply serrated in females but only moderately serrated in males; posterodistal corners of epimera 1–3 strongly produced; first epimeral plate with ventral seta; male uropod 1 outer margin of outer ramus without setae; weakly formed comb-spine row on outer ramus of male uropod 2; outer ramus of uropod 2 lacking ventral spines on inner margin and not significantly deflected laterally; and outer ramus of male uropod 3 with seta on inner margin (Sisco and Sawicki 2023). Sisco and Sawicki (2023) provide extensive descriptions of both sexes.

**Similar Species:** This medium-small amphipod is a member of the *Crangonyx floridanus* species complex. Morphologically, *C. stinei* retains epigean (surface-adapted) characteristics (e.g., pigmented body and well developed eyes) versus the more stygomorphic (cave-adapted) features (e.g., loss of pigment and reduced eyes) of *C. manubrium* (Cannizzaro et al. 2019), the only other hypogean member of the complex. Two other amphipods, *C. grandimanus* and *C. parhobbsi*, co-occur with *C. stinei* in the Peacock Springs flooded cave system; both are characterized by highly stygomorphic features (Sisco and Sawicki 2023). Because many amphipods are similar externally, identity should always be confirmed by an expert.

**Habitat:** Although resembling surface-dwelling (epigean) species, *C. stinei* inhabits karst groundwater in limestone caves and springs. Specimens were collected from benthic sediments within the Peacock Slough cave system (Sisco and Sawicki 2023).

**Seasonal Occurrence:** In light of the stable water temperatures of Florida’s aquifers, the species would be expected to inhabit sites year-round. Data are insufficient to describe life cycle or seasonal habitat use fully, although females with sexually

mature brood plates have been collected in April, July, and September, including one with eggs in the latter month (Sisco and Sawicki 2023).

**Florida Distribution:** When described in 2023, this amphipod was documented from only one site, the extensive Peacock Springs cave system at Wes Skiles Peacock Springs State Park, Suwannee County. Additional collecting is needed to determine whether it is distributed more widely in other regional cave systems or nearby epigeal habitats (although sampling efforts in nearby surface waters have thus far failed to capture any; Sisco and Sawicki 2023).

**Range-wide Distribution:** As currently known, this species is restricted to Florida.

**Conservation Status:** Although the only known occurrence is within a state park that is managed to protect the aquatic spring and cave system, this level of security may not extend across the entire landscape that overlies the aquifer in which this amphipod lives. All aquifers within Florida are potentially threatened by pollution and excessive withdrawal for various human uses. Long-term viability of hypogean populations under such circumstances is uncertain.

**Protection and Management:** Protection of contiguous and proximate undeveloped private lands around Peacock Springs State Park, by fee simple or less-than-fee simple legal measures, is appropriate. As with all freshwater systems, efforts to reduce or eliminate the entry of pollutants are important to protecting biodiversity; land managers can facilitate this by retaining natural vegetation and avoiding use of chemical pesticides and herbicides within at least 50 m of recorded sites, including associated subterranean conduits. Additionally, groundwater pumping should be monitored and regulated to assure that it does not negatively affect local aquifer level. Recreational use of the Peacock Springs cave system, a popular diving site, should continue to be monitored and regulated to prevent over-use and habitat degradation. Finally, the Peacock Springs population of *Crangonyx stinei*, in addition to water quality, should be regularly monitored.

**References:** Cannizzaro et al. 2019, Sisco and Sawicki 2023.

