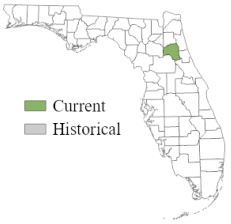
PUTNAM COUNTY CAVE CRAYFISH
Procambarus morrisi



Order: Decapoda
Family: Cambaridae
FNAI Ranks: G1/S1
U.S. Status: none
FL Status: none

Description: This is a medium-small (body length to 50 mm/2 in.), white to translucent cave crayfish (though sometimes stained from rusty colored water) with reduced eyes that lack pigment spots. Specific identification is based on fine morphological features, including structure and ornamentation of the first pleopods of reproductive (form I) males. *P. morrisi* is the only albinistic crayfish in which there is no mesial process on the first pleopod (swimmeret modified for sperm transfer) of males. Hobbs and Franz (1991) provide detailed descriptions of both sexes.

Similar Species: Morphologically, *P. morrisi* is most similar to the only other member of the subgenus *Lonnbergius*, *P. acherontis*, from central Florida. This distinctive group seems to be relatively distantly related to other crayfishes of the genus *Proambarus*. *Proambarus morrisi* is distinguished from *P. acherontis* by the well developed cephalic process on the first pleopods of form I males, and the looped sculpturing on the annulus ventralis of females (Hobbs and Franz 1991). Because of similarities among Florida's many species of crayfishes, identification should be confirmed by an expert.

Habitat: This species is associated with subterranean fresh waters in limestone bedrock. Crayfish were found at a water depth greater than 30 m (100 ft) in a small cave at the bottom of a deep sinkhole with a surface diameter of 30 m (Hobbs and Franz 1991, Deyrup and Franz, 1994).

Seasonal Occurrence: Crayfish are presumably present year-round. Reproductive (form I) males were found in March, but no females bearing eggs or young have been recorded (Hobbs and Franz 1991).

Florida Distribution: *P. morrisi* is known only from the locality where it was discovered, Devil's Sink in western Putnam County (Deyrup and Franz 1994, Franz et al. 1994).

Range-wide Distribution: This species is endemic to Florida.

Conservation Status: This may be one of the most endangered species of

troglobites in Florida (Morris 2006). The only known locality, Devil's Sink, lies on unprotected private land that in the past has supported extensive illegal dumping (including vehicles leaking oil) and uncontrolled recreational use by swimmers and divers. Relatively recent surveys have observed high levels of erosion and siltation that have blocked the former cave entrance and precluded opportunities to determine current status of the population, which has not been observed since 2003. In general, subterranean fresh waters, such as inhabited by this crayfish, face a variety of potential threats; these include chemical pollution and excessive water withdrawal to support human consumption, agriculture, and industry. Population data for this species are non-existent and virtually impossible to obtain given that most of its primary habitat is inaccessible. Thus, population declines, though possibly having occurred in the last three decades, are difficult to observe and may go unnoticed.

Protection and Management: As for all cave-inhabiting crustaceans, protection of groundwater quality and quantity must be the primary focus of conservation, management, and monitoring. It is critical to acquire legal protection, by acquisition and/or perpetual conservation easement, of Devil's Sink, including a substantial buffer area to minimize adverse hydrological impacts. Essential management actions include retention of natural vegetation, avoidance of chemical pesticide and herbicide use within at least 50 m of the sink, and control and repair of erosion on sinkhole sidewalls. The current landowner restricts access to the site, and there is a wooden stairway that permits occasional SCUBA divers to descend to the water without further damaging sinkhole walls. Potential state and federal listing as endangered merit strong consideration.

References: Deyrup and Franz 1994, Franz et al. 1994, Hobbs and Franz 1991, Morris 2006.

No photograph is available for this species.