NORTH FLORIDA SPIDER CAVE CRAYFISH

Troglocambarus maclanei

Order: Decapoda
Family: Cambaridae
FNAI Ranks: G1G2/S1S2
U.S. Status: none
FL Status: none

Description: This is a small (to 35 mm/1.3 in., never more than 50 mm/2 in.), nearly transparent troglobitic (obligate cave-adapted) crayfish. The first pleopod of first form (reproductive) males terminates in four distinct parts. As described by Hobbs (1942b), the mesial and cephalic processes are somewhat spiniform and non-corneous; the caudal process and central projection are corneous and somewhat blade-like, with the latter being pointed at the tip. Eyes are reduced and unpigmented. The third maxilliped is greatly enlarged, reaching well beyond the apex of the rostrum and lacking teeth (but bearing setae) along the inner margin of the ischiopodite. All of the legs, including the first chelae (claws), are quite slender. There can be a prominent pouch-like protrusion on the anterioventral surface of the branchiostegites (gill covers) (Hobbs 1942 a, b; Hobbs et al. 1977; Deyrup and Franz 1994).

Similar Species: The only other potential member of the genus *Troglocambarus* is a presumably undescribed but nonetheless distinguishable species known from a single immature specimen from a spring in Orange County. In aquatic caves where it is found, *T. maclanei* is substantially smaller than adults of co-occuring troglobitic crayfish species, which include five species of *Procambarus;* otherwise, the first pleopods of form I males can be similar, but the greatly enlarged third maxilliped of *Troglocambarus* is highly distinctive.

Habitat: This crayfish occupies subterranean pools in karst habitats, where individuals typically cling ventral-side-up to submerged limestone ceilings. Sites commonly are near sources of detrital input, including bat roosts. Waters are typically clear and cool, ca. 20–21°C. Pool bottoms may be covered by fine silt, sometimes with interspersed leaf litter and dead wood (Hobbs 1942a,b; Hobbs et

al. 1977).

Seasonal Occurrence: Crayfish are present year-round although there is potential for localized movements. Hobbs et al. (1977) noted that first form males reportedly have been collected in March, July, August, and September, but that females carrying eggs or young have not been observed. Deyrup and Franz (1994) recorded observations of copulation from June–August, and enlarged ovarian eggs in a single female collected in July.

Florida Distribution: *Troglocambarus maclanei* is endemic to the northwestern part of the Florida peninsula. Most occurrences lie along an arc about 135 km (80 miles) long and extending from Suwannee County to Hernando County. Although this constitutes a relatively small global range, the species nonetheless may be the most widely distributed troglobitic crayfish in Florida (Barr and Holsinger 1985). All localities are within the Gulf versant, in contrast to a presumably undescribed species of *Troglocambarus* from the Atlantic versant.

Range-wide Distribution: This species is endemic to Florida

Conservation Status: This small troglobitic crayfish is endemic to but not uncommon within a narrow range in northern peninsular Florida. There are nearly two dozen known localities (with unknown degree of interconnection), some of which are subject to threats from habitat quality decline and destruction from urban development, agriculture, groundwater use, pollution, and human recreational use. Population information generally is not available or is old. Further research is required to determine abundances at all caves, whether there are additional sites, and the survival status of populations within the aquifer if openings to the surface are destroyed.

Protection and Management: Where possible, currently unprotected private sites, including substantial terrestrial buffers around karst openings, should be secured by fee simple or less-than-fee simple legal measures through a conservation entity or public agency. Whether public or private, it is critical to protect land around all karst features (sinks, caves, springs) within the range of this species. 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 and sinks may be gated or fenced as needed at sites

where human visitation is unduly disturbing natural resources. Populations of cave crustaceans, in addition to groundwater quality and quantity, should be regularly monitored at sites known to support this species. Protective species listing and restrictions on collecting may merit future consideration depending on threats and population status.To address potential management decisions, research is needed on the species' life history, precise environmental needs, and population responses to disturbances such as pollution of groundwater and alterations in surface water and detrital flow.

References: Barr and Holsinger 1985; Deyrup and Franz 1994; Franz et al. 1994; Hobbs 1942a,b,1989; Hobbs et al. 1977.