COASTAL LOWLAND CAVE CRAYFISH
Procambarus leitheuseri

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

Description: This is a small to moderately sized, white to translucent cave crayfish with reduced eyes lacking facets but with black pigmented eye spots. Body length (cephalothorax plus abdomen) is typically 37 to >49 mm (ca. 1.5 to 2 in or longer). Specific identification is based on fine morphological features (described and illustrated by Franz and Hobbs 1983), including structure and ornamentation of the first pleopods of reproductive (form I) males. Characteristics include: areola less than 10 times as long as wide, and first pleopod of form I male with caudal process obsolete and lacking hump at cephalic base of cephalic process (Franz and Hobbs 1983, Deyrup and Franz 1994).

Similar Species: *Procambarus leitheuseri* is one of several stygobitic (groundwater-dwelling) species in the subgenus *Ortmannicus* and is considered a member of the *P. lucifugus* complex. It is distinguished from all other stygobitic *Procambarus* in Florida by a combination of dark eye spots, shape of the areola, and the terminal structure of the first pleopod of form I males. The areola of both *P. pallidus* and *P. l. lucifugus* is more than 20 times as long as wide (Franz and Hobbs 1983). *P. leitheuseri* can co-occur with *Troglocambarus maclanei*, a small (to 35 mm/1.3 in., never more than 50 mm/2 in.), slender cave crayfish characterized by extremely long, spider-like legs and other unique features (see species account). Because of similarities among Florida's many species of crayfishes, identification should be confirmed by an expert.

Habitat: This stygobitic crayfish is associated with subterranean fresh waters in limestone bedrock, typically accessed at vertical sinkholes, although at least one site is a freshwater lens within a salt marsh. Specimens have been taken at depths of 17 to 70 m (230 ft) and are often associated with silt on cave floors. Although most inhabited sinks show some tidal influence, crayfish appear not to enter the salt water zone beneath overlying fresh waters (Deyrup and Franz 1994).

Seasonal Occurrence: Although nothing is known of the species' life history,

specimens have been collected from at least September to February and are presumably present year-round.

Florida Distribution: *Procambarus leitheuseri* is known only from a series of aquatic caves in western Hernando and Pasco counties along the central Gulf Coast north of Tampa Bay (Franz and Hobbs 1983).

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

Conservation Status: 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. Since the species' discovery around 1980, the Gulf Coast region north of Tampa Bay has experienced tremendous growth accompanied by extensive residential and business development. In addition to negative human pressures on the quantity and quality of groundwater resources, salt water intrusion associated with global sea level rise poses an ever-increasing threat. Population data for this species are non-existent and virtually impossible to obtain given that most of the species' primary habitat is inaccessible. Thus, population declines, though thus far unreported, would likely go unnoticed. Three of eight sites lie within conservation lands, although this does not assure protection of the species' subterranean microhabitat.

Protection and Management: Because of its limited geographic range and vulnerable habitat, this crayfish and regional groundwaters merit continued monitoring and attention. Land managers should retain natural vegetation and avoid use of chemical pesticides and herbicides within at least 50 m of all known sites. Although three of eight sites appear to be within conservation lands (Chassahowitzka Wildlife Management Area, Weeki Wachee Springs State Park, and Weekiwachee Preserve), conservation of the subterranean aquifer and associated species is not a major focus of management; establishing formal goals in this direction would be appropriate. Because several sites that support *P. leitheuseri* are popular for human recreation, all activities must be regularly monitored to assure that they do not suffer from disturbance such as erosion and degraded water quality. Efforts should be made to secure protection via fee-simple or less-than-fee-simple measures for all sites currently in private ownership. Potential state and/or federal listing as threatened merits consideration.

References: Deyrup and Franz 1994, Franz et al. 1994, Franz and Hobbs 1983.