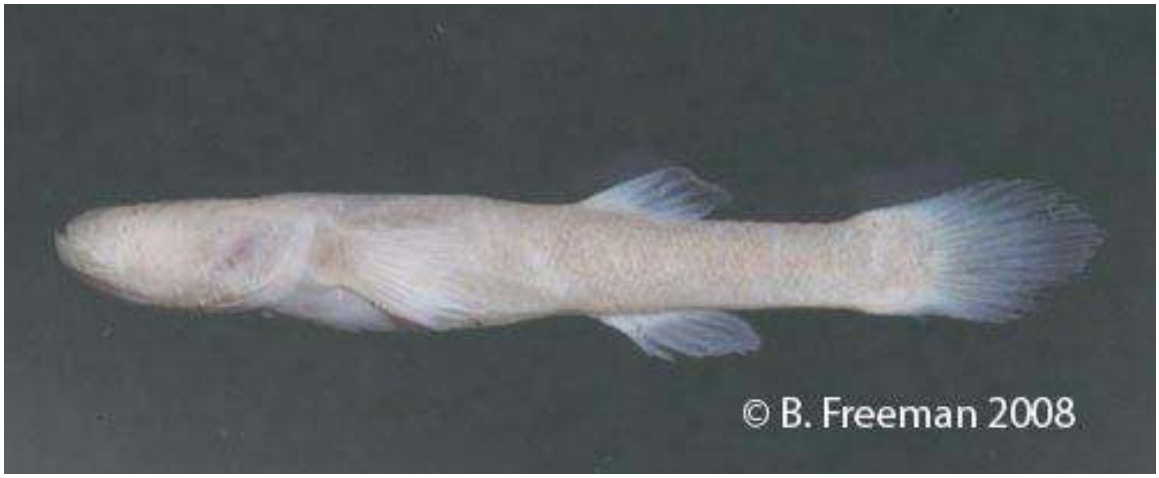

Common Name: SOUTHERN CAVEFISH

Scientific Name: *Typhlichthys subterraneus* Girard

Other Common Names: none

Previously Used Scientific Names: none

Family: Amblyopsidae

Rarity Ranks: G4/S1

State Legal Status: Endangered

Federal Legal Status: none

Description: The southern cavefish is a small, elongate fish noticeably lacking eyes and with reduced pigmentation. The head is long and flat with a slightly oblique and terminal to slightly superior mouth. The lower jaw protrudes past the upper jaw. Adults can reach 75 mm (3.0 in) standard length although most Georgia specimens are considerably smaller. The eyes are vestigial and often with fat bodies in the eye socket. The nares are prominent and tubular. The single dorsal and anal fins are similar in size, shape, and length, but the origin of the dorsal fin is slightly anterior to the anal fin. Pelvic fins are absent. Pectoral fins are long and pointed at the tips. The caudal fin is relatively narrow, typically not incised or forked, and has two rows of sensory papillae on each half. Dorsal fin rays 6–7, anal fin rays 7–9, pectoral fin rays 9–11, and caudal fin rays 11–17. Scales are minute and embedded and there are numerous supraocular sensory papillae and neuromast ridges on the head and along the body. Color is pale pinkish to white, although individuals exposed to light reveal punctate and small, pigmented melanophores. About 10 short and blunt gill rakers are present.

Similar Species: The southern cavefish with its vestigial eyes and nearly absent pigmentation cannot be confused with any other fish species in Georgia.

Habitat: Southern cavefish inhabit subterranean aquatic (stygobitic) habitats at or near the water table in caves and karst systems within limestone regions. Cavefish can be found in streams and pools with low flow and stable water temperatures between 10-14 ºC (50-57º F). Individuals are often observed in very shallow water and underneath cover (e.g.., rocks).

Diet: The diet consists mainly of small aquatic invertebrates including copepods, amphipods, and isopods.

Life History: The southern cavefish has a life span of about 16–24 years (perhaps older), reaching sexual maturity after 2–4 years. Spawning probably occurs during springtime flooding of caves. Fecundity is low with females producing fewer than 60 eggs on average. Females do not reproduce every year. Southern cavefish have low metabolic rates and can go for long periods of time without feeding. Cavefish detect their prey in the darkness of caves using sensory papillae to detect vibrations. Few cavefish are observed during most field surveys, although surveys yielding 50 or more fish are not uncommon. However, surveys observing such numbers are not typical in Georgia.

Survey Recommendations: Southern cavefish are difficult to collect because of their rarity and the habitat in which they live (e.g., underground in cave streams and pools). The most effective methods are visual encounter surveys using small nets to capture fish. Other active sampling techniques, such as seining and electrofishing, are difficult in cave habitats. Passive sampling techniques, such as minnow trapping, are ineffective as cavefish seldom actively enter traps.

Range: The southern cavefish is found in two discontinuous regions: west of the Mississippi River in the Ozark Plateau of southern Missouri and northeast Arkansas and east of the Mississippi River from south-central Kentucky southward into northern Alabama and northwest Georgia. In Georgia, this species is known only from three caves in Dade County. Southern cavefish are also known from caves in the Coosa River system in Alabama, but no confirmed records exist for the Coosa River system in Georgia. Check the Fishes of Georgia Webpage for a watershed-level distribution map.

Threats: Caves are extremely sensitive environments. They are impacted by groundwater pollution and groundwater manipulation (pumping from wells). Because of the hydrologic connectivity of subterranean waters, impacts can be generated in areas distant from the cave. Cavefish population sizes vary considerably over time and some populations may fluctuate to extinction under natural circumstances. Furthermore, caves are nutrient poor environments. Disturbances to natural energy sources (e.g., bat droppings) could negatively impact cavefish populations. Overall, the fragility of cave habitats, the life history of the cavefish, and the small number of populations in Georgia interact to make the southern cavefish extremely vulnerable to extirpation from the state. Additionally, over-collection for academic and hobbyist purposes also is a potential threat given the restricted distribution and putative small population sizes.

Georgia Conservation Status: Southern cavefish are known from just three caves in Dade County and few individuals have been observed during surveys of these cave systems. Indeed, one population may have been extirpated because of groundwater pollution. Although this species may be more widely distributed in northwest Georgia, considerable work has been conducted in caves throughout this region in the past several years and no additional localities have been confirmed.

Conservation and Management Recommendations: Conservation of cave-dwelling animals, and especially aquatic species including the southern cavefish, depends on protecting subterranean stream systems from inputs of fertilizers, pesticides, and other toxic chemicals as well as from excessive water withdrawal. Care should be taken to prevent groundwater pollution, especially in areas with extensive limestone formations that allow contaminants to percolate easily into underground stream systems. Likewise, collection of cavefish for academic and hobbyist purposes should be closely monitored.

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Author of Account: Byron J. Freeman and Matthew L. Niemiller

Date Compiled or Updated:
B. Freeman, 1999: original account
K. Owers, Jan 2009: Updated status and ranks, added fish atlas link, converted to new format, minor edits to text
M.L. Niemiller, Aug 2009: general update of entire account

Z. Abouhamdan, April 2016: updated link