



Photo by Bob Chandler

Common Name: HIWASSEE HEADWATER CRAYFISH

Scientific Name: *Cambarus (Puncticambarus) parrishi* Hobbs

Other Commonly Used Names: none

Previously Used Scientific Names: none

Family: Cambaridae

Rarity Ranks: G2G3/S1

State Legal Status: Endangered

Federal Legal Status: none

Description: The overall color of the Hiwassee headwater crayfish is a brownish-green with dark mottling. The areola is wide and the rostrum gradually narrows anteriorly and has two very small tubercles on either side near the tip. This species reaches a maximum total body length of about 75 mm (3 inches).

Habitat: This species is a stream dweller and is usually collected from beneath large rocks in flowing water, usually near riffles. Occasionally they can be found in packs of leaf litter.

Similar Species: The Hiwassee headwaters crayfish occurs with the similar common crayfish (*Cambarus bartonii bartonii*). The rostrum of the latter is short and tapers abruptly. The rostrum of the Hiwassee headwater crayfish tapers, but is longer and has small lateral tubercles near the tip. Furthermore, the claws of the Hiwassee headwater crayfish have two rows of tubercles along the mesial margin of the palm, while that of common crayfish has a single row.

Diet: No studies of the Hiwassee headwater crayfish are known. Crayfishes are considered opportunistic omnivores and are likely to feed on live and decaying vegetation, aquatic insect larvae, small fishes, and dead animal matter.

Life History: Stream dwelling crayfishes typically hide during the day and come out at night to feed. Reproduction usually occurs during the spring and fall, but males in reproductive condition may be found at any time during the year. When female crayfish are ready to lay eggs, they usually find a secure hiding place and hence are rarely encountered. When the eggs are released, the female attaches them to her swimmerets and is said to be “in berry.” Upon hatching, the juvenile crayfish are attached to the mother by a thread. After the juveniles molt for the second time, they are free of the mother, but stay close and will hold on to her for some time. Eventually they move off on their own. Crayfishes molt 6 or 7 times during their first year of life and most are probably able to reproduce by the end of that year. They molt once or twice a year for the remainder of their lives and live about 3 years. Male Hiwassee headwater crayfish in reproductive condition have been collected in January, April, May, August, October, and November and females carrying eggs were found in April and June. Numbers of eggs ranged from 38-112 with diameters of 2.2-2.6 mm (about $\frac{1}{8}$ inch).

Survey Recommendations: Since this species is usually found in flowing water, it is most easily collected by holding a net perpendicular to the current downstream of a large rock, then lifting the rock and disturbing the substrate beneath it. If a crayfish is hiding underneath the rock, it will likely move into the net. Shocking downstream into a seine net with a backpack electroshocker is also effective. Collections in spring or fall are more likely to produce males in reproductive condition, which can be helpful with identifications.

Range: The Hiwassee headwater crayfish is known only from the extreme headwater portions of the Hiwassee River system in Tennessee and Georgia in the Blue Ridge physiographic province. In Georgia, the species is restricted to the Hiwassee River system upstream of Blairsville in Towns County.

Threats: The small range of this species and the high development rates within that range are significant threats to the Hiwassee headwater crayfish. Heavy sedimentation resulting from poor development and land management practices may cover substrates

and other daytime hiding place on which crayfishes rely to avoid predation. The introduction of non-native crayfishes is a threat to all native crayfishes.

Georgia Conservation Status: Portions of this species range are on US Forest Service land.

Specific Management Recommendations: Conserving populations of the Hiwassee headwater crayfish will require general watershed level protection measures, including the protection of riparian zones, control of sediment and nutrient runoff from farms and construction sites, and limiting the amount of impervious cover (e.g., pavement) within occupied watersheds. Non-native crayfishes should never be used for bait. Instead, anglers should use crayfishes collected from the river system they will be fishing in and should never release unused bait crayfish back into Georgia waters.

Selected References:

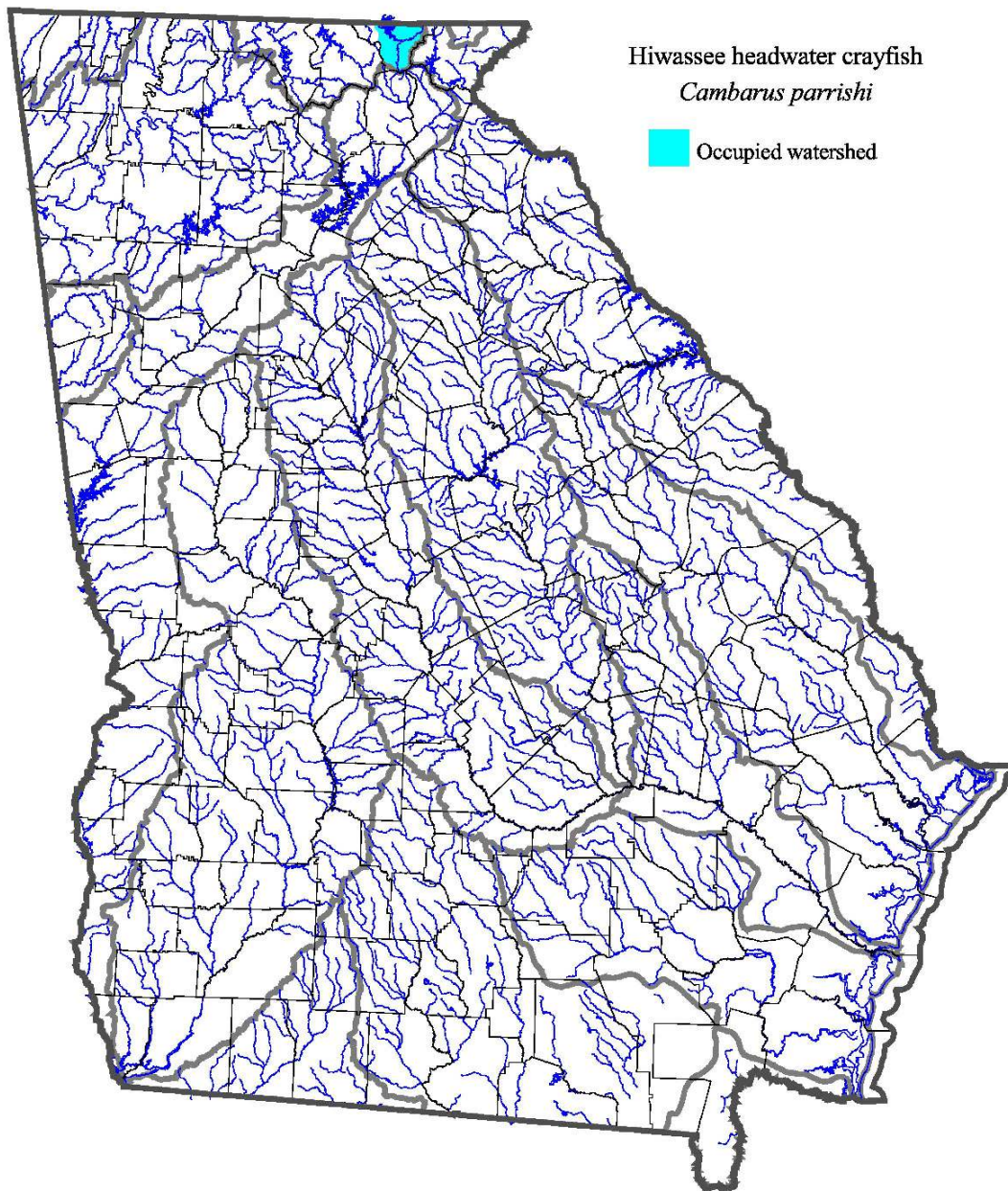
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Watersheds (Huc 10) with known occurrences. Streams, county lines, and major river basin boundaries are also shown. Map generated from GADNR (Nongame Conservation Section) data on December 18, 2008.