



Common Name: SICKLEFIN REDHORSE

Scientific Name: *Moxostoma undescribed species*

Other Commonly Used Names: none

Previously Used Scientific Names: *Moxostoma* sp. cf. *M. macrolepidotum*. Has been misidentified in the literature as *Moxostoma carinatum*, *M. duquesnei*, and *M. macrolepidotum*. NatureServe currently refers to this taxon as *Moxostoma* sp. 2

Family: Catostomidae

Rarity Ranks: G2Q/S1

State Legal Status: Endangered

Federal Legal Status: Candidate

Description: This is a large, distinctive sucker with a sickle-shaped (falcate) dorsal fin that is prominent in both juveniles and adults. Adults may exceed 500 mm (20 inches) total length and females grow larger than males. Both lips are divided into longitudinal sections (plicae); these sections are more deeply divided and branching on the lower lip compared to other redhorse species. The posterior edge of the lower lip is slightly angled to straight. Pharyngeal arch includes both comb-like and molariform teeth. The head and sides are olive-brown or brassy and the lower sides and belly are silvery to white. The ventral fins are dusky and are often tinted yellow or orange. Both juveniles and adults have a red caudal fin that varies in intensity from faintly brown-red to bright red. Breeding males develop prominent tubercles on their anal and caudal fins and the relative length of their anal and inner pelvic fin rays are longer than in females.

Similar Species: Four other redhorse sucker species occur within the range of the sicklefin redhorse in Georgia: silver redhorse (*Moxostoma anisurum*), river redhorse (*M. carinatum*), black redhorse (*M. duquesnei*), and golden redhorse (*M. erythrurum*). Most sicklefin larger than about 4 inches standard length can be readily distinguished from all of these species by their longer dorsal

fin height and greater dorsal fin concavity. Blue Ridge populations of the black redhorse may have a slightly falcate dorsal fin and reddish caudal fin, but these characteristics are much less pronounced than in the sicklefin redhorse. Adult river redhorse may have a brilliant red caudal fin, but this species is easily separated from the sicklefin redhorse using dorsal fin shape and height.

Habitat: Sicklefin redhorse typically occur in swift riffles, runs, and pools in large creeks (about 20 m or 60 feet wide) and small to medium-sized rivers (up to 100 m or 300 feet wide) over relatively silt-free, rocky stream bottoms. Although sicklefin redhorse use a variety of microhabitats throughout their life history, this species primarily utilizes areas with swift currents during feeding and spawning. Juveniles are known from the lower reaches of rivers and reservoirs downstream of spawning habitats.

Diet: The sicklefin redhorse has been observed grazing over rocky substrates, woody debris and within beds of riverweed (*Podostemum ceratophyllum*), an aquatic macrophyte. Their diet is dominated by immature aquatic insects. Its moderately molariform pharyngeal teeth may allow it to feed on snails and mussels as well.

Life History: The sicklefin redhorse has a fascinating and complex life history, which has been recently documented for the Hiwassee River population by Robert E. Jenkins and researchers from the North Carolina Cooperative Wildlife Research Unit. Adults are known to use the mainstem Hiwassee river below Mission Dam, North Carolina for feeding and over-wintering habitat. Males and females reach sexual maturity between ages 5 - 7 and 7 - 8, respectively. The maximum known age is 22 years. Adults migrate into larger tributary streams, including Georgia portions of Brasstown Creek, to spawn in the spring (late April–May) when water temperatures are 10-18 °C (49-64 °F). Spawning typically occurs over large gravel or small cobble in moderate to swift-flowing runs and riffles. Sicklefins typically engage in group spawning where up to 5 males crowd around one female during a single spawning act. Spawning involves intense quivering which results in the displacement of spawning substrate and the burial of at least some of the eggs. Radio-telemetry studies indicate that adult sicklefin redhorse migrate downstream to larger river habitats after spawning. Very little is known about the ecology of larvae and juveniles, but their collection from the lower Hiwassee River and Hiwassee lake suggests that they may drift long-distances downstream from spawning sites. Juveniles have not been collected within Brasstown Creek in Georgia, which is consistent with downstream dispersal of larvae and juveniles.

Survey Recommendations: Because of its restricted distribution and vulnerability to harm by electrofishing, please contact the Nongame Conservation Section before carrying out any electrofishing surveys within Brasstown Creek. With experience, this species can be readily identified by dorsal fin shape while making observations from the stream bank with the naked eye or with polarized binoculars.

Range: The sicklefin redhorse is restricted to Blue Ridge portions of the Hiwassee and Little Tennessee river systems in North Carolina and Georgia. In Georgia, it is only known from Brasstown Creek (Hiwassee River system), downstream of the town of Young Harris in Towns County. It has never been detected in the Nottely or Hiwassee Rivers within Georgia, but could potentially occur there. Check the [Fishes of Georgia Webpage](#) for a watershed-level distribution map.

Threats: Historically, impoundments have destroyed a large amount of adult feeding and breeding habitat throughout the range of the sicklefin redhorse. Impoundments also fragment populations, which eliminates opportunities for gene flow, colonization after local extinction, and migration to upstream spawning habitats. Failure to follow agricultural best-management practices results in sedimentation and bank destabilization in Brasstown Creek. Commercial and residential development in the North Georgia mountains is also a significant threat.

Georgia Conservation Status: This species is known from only a single population in Georgia occurring within a five-mile section of Brasstown Creek just upstream from the North Carolina line. Adult sicklefin redhorses have been observed spawning in Georgia and this population is considered important to the conservation of the species overall. Most of the Brasstown Creek watershed is privately owned, which emphasizes the importance of voluntary conservation efforts.

Conservation and Management Recommendations: Farmers can improve instream habitat by excluding cattle from streams and riparian zones. There are many [technical assistance and cost-sharing programs](#) that can help farmers implement best-management practices to protect streams. Residential landowners can improve water quality for all aquatic species in Brasstown Creek by maintaining or [restoring natural forest cover](#) within riparian zones and by minimizing the use of fertilizers on their lawns. For example, the Brasstown Valley Resort has re-established a 100-foot buffer of native riparian vegetation along the portion of Brasstown Creek that runs through their property. Conservation groups should work cooperatively with developers and local governments to minimize impacts from new home construction and commercial development. Larval and juvenile sicklefin redhorse should also be given proper consideration in reservoir management. Finally, ongoing efforts to monitor sicklefin redhorse populations by the states of North Carolina and Georgia and the U.S. Fish Wildlife Service should be continued.

Selected References:

Jenkins, R.E.J. 1999. Sicklefin redhorse *Moxostoma* sp., undescribed species of sucker (Pisces, Catostomidae) in the upper Tennessee River drainage, North Carolina, and Georgia: description, aspects of biology, habitat, distribution, and population status. Unpublished report to U.S. Fish and Wildlife Service and North Carolina Wildlife Resources Commission, Raleigh.

Favrot, S.D. 2009. Sicklefin redhorse reproductive and habitat ecology in the upper Hiwassee River basin of the Southern Appalachian Mountains. M.S. Thesis, North Carolina State University, Raleigh. 339 pages.

Federal Register, 2005. Candidate notice of review. Volume 70, No. 90. U.S. Department of Interior. Published May 11, 2005.

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