High Conservation Priority – Big River Species

Quillback *Carpiodes cyprinus*
"Carolina" Redhorse *Moxostoma sp.*

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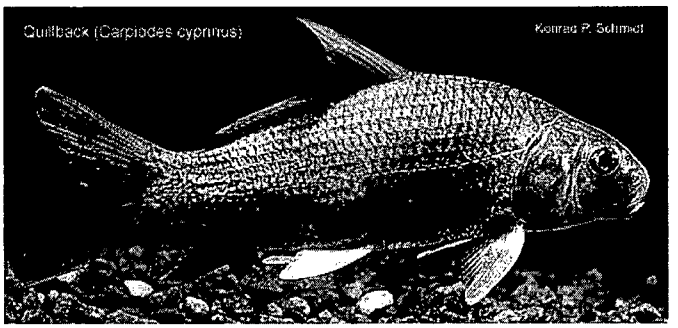
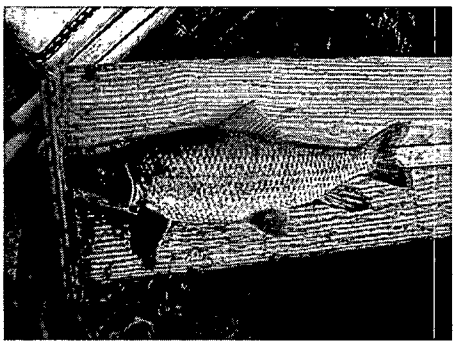
DESCRIPTION



Taxonomy and Basic Description

Both the quillback and the "Carolina" redhorse are members of the family Catostomidae, which is represented by eight genera and 25 species in the mid-Atlantic region (Rohde et al. 1994). This family is characterized by soft-rayed fins, a mouth located on the underside of the head, thick fleshy distensible lips and paired fins attached low on the body (Rohde et al. 1994).

Current taxonomic and genetic work indicates that Atlantic slope quillback-type fish that is found in South Carolina may represent an undescribed species. Quillback are high bodied, laterally compressed fish that range in length from 300 to 660 mm (11.8 to 25.9 inches). They have a long, falcate dorsal fin with 23 to 30 rays, a small conical head, a silver to golden body, large conspicuous scales about twice as high as wide and a lateral line that runs the length of the body. Quillback lack mouth barbels and dorsal and anal fin spines. The quillback's first long dorsal ray does not usually reach the full length of the dorsal fin base, while the first dorsal ray of the similar highfin carpsucker typically is as long as the fin (Rohde et al. 1994; Jenkins and Burkhead 1993). Quillback feed on insect larvae and other benthic organisms. They are spring spawners that can attain an age of at least 11 years (Jenkins and Burkhead 1993).



The "Carolina" redhorse is an undescribed member of the catostomid family. When officially described, the "Carolina" redhorse will be in the genus *Moxostoma*. Currently, there are approximately ten species in this genus known as the "typical redhorses" (Jenkins and Burkhead 1993); one or two of these have not been described. "Carolina" redhorse is most similar to the golden redhorse (*M. erythrurum*).

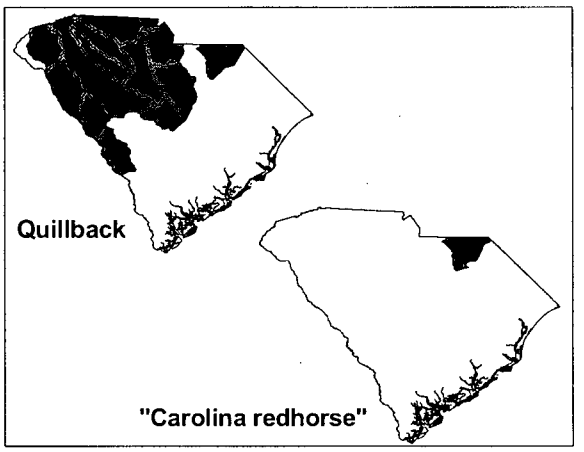
Status

Quillback populations are considered to be stable by Warren et al. (2000) and common, widespread and abundant by NatureServe (2004). The status of quillback in South Carolina is under review and will likely change if the quillback-type fish on the southern Atlantic slope are described as a new species.

The "Carolina" redhorse was identified as endangered in a recent assessment of southeastern freshwater fishes (Warren et al. 2000). It is not listed in South Carolina or North Carolina, but is

considered critically imperiled in North Carolina (NatureServe 2004), the only other state where it occurs.

POPULATION DISTRIBUTION AND SIZE



Distribution

In the broad sense, the quillback is distributed from the Great Lakes region in the St. Lawrence River, Hudson Bay and Mississippi River basins from Quebec to Alberta, Canada; south to Louisiana and west to Wyoming in the United States. It also occurs on the Atlantic slope from the Delaware River, New York, to the Altamaha River, Georgia. In gulf slope drainages, it occurs from the Apalachicola River in Florida and Georgia to the Pearl River in Louisiana (Page and Burr 1991). The southern Atlantic slope populations in South Carolina are reported in the upper portions of the three major South Carolina drainages: the Pee Dee, Santee, and Savannah. Fish from these populations are likely distinct form those of the interior basin and gulf slope drainages (Nature Serve 2004).

The "Carolina" redhorse is restricted to the Pee Dee and Cape Fear River drainages in North Carolina and South Carolina. In South Carolina, this form is only found in the Pee Dee River within 15 to 20 miles of the North Carolina Sate line (W. Starnes, pers. comm.).

Population Size and Trend

The quillback is commonly encountered during non-directed sampling efforts. Populations with abundant numbers are observed in the upper Santee and Savannah River drainages while quillback are rare in the Pee Dee (SCDNR unpublished data). Population declines in the Pee Dee River may be related to introduced non-native species, like buffalo.

The "Carolina" redhorse is in severe decline in both North Carolina and South Carolina. In South Carolina, this fish is very rarely collected despite tremendous amounts of sampling effort directed at their habitats. Because it is found so rarely, the South Carolina population of "Carolina" redhorse is in danger of extirpation (W. Starnes, pers. comm.)

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

The quillback is found in warm, low- to moderate-gradient reaches of most major rivers, including upper portions of associated reservoirs (Rohde et al. 1994; Jenkins and Burkhead 1993). Quillback occur over varied substrates in rivers, but seldom over mud. They tend to occupy calm water; however, quillback may shift to swifter and deeper depths during low water. Quillback reportedly spawn in riffles, calm stream reaches and in floodplain bayous, laying eggs on gravel, sand, mud and organic mater (Scott and Crossman 1973; Jenkins and Burkhead 1994). Specific habitat requirements for "Carolina" redhorse are not well known. This fish occupies

medium sized rivers with moderate gradient (NatureServe 2004) and prefers the deep pool areas along shore that contain woody debris (W. Starnes, pers. comm.).

CHALLENGES

Quillback populations are likely stable throughout their range. However, habitat degradation from deforestation and urbanization remains as much a challenge to this native species as it does most other riverine animal species. The population of "Carolina" redhorse is limited to one short section of the Pee Dee River in South Carolina. Even small alterations to that river reach or to the upstream reaches in North Carolina could lead to the extirpation of the species from South Carolina.

CONSERVATION ACCOMPLISHMENTS

There are currently no conservation accomplishments known at this time for these species.

CONSERVATION RECOMMENDATIONS

- Identify the full range of quillback in South Carolina through incorporation of existing and future observations.
- Resolve taxonomic relationships of Atlantic slope, interior basin and gulf slope quillback populations.
- Continue to survey for "Carolina" redhorse in the upper reaches of the Pee Dee River. Protect any populations discovered.
- Continue to advocate for responsible development and the adoption of best management practices in timber and agricultural land use, especially in the upper Pee Dee system.

MEASURES OF SUCCESS

Determining the distribution, life history, habitat needs and southeastern population structure and trends would represent a measure of success for these species. Methods that protect water quality are also likely to protect most of these species. In the event that more protective BMPs are implemented, population studies of these fish could assist in determining the effectiveness of those measures.