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Thomas M. Buchanan
University of Arkansas at Fort Smith, tom.buchanan@uafs.edu

Robert L. Limbird
Arkansas Game and Fish Commission

Frank J. Leone
Arkansas Game and Fish Commission

First Arkansas Records for White Perch, *Morone americana* (Gmelin), (Teleostei: Moronidae)

THOMAS M. BUCHANAN[1,3], ROBERT L. LIMBIRD[2], AND FRANK J. LEONE[2]

[1]*Department of Biology, University of Arkansas – Fort Smith, Fort Smith, AR 72913*
[2]*Arkansas Game and Fish Commission, 2 Natural Resources Drive, Little Rock, AR 72205*

[3]Correspondence: tbuchana@uafortsmith.edu

Adult white perch, *Morone americana,* were collected with gill nets from the Arkansas River (Dardanelle Reservoir) below Ozark Lock and Dam (Sec 12, T 9N, R 27W) in Franklin County, Arkansas, on 22 February 2006. The specimens, 212, 216, and 220 mm in total length (TL), were deposited in the Zoology Collection of the University of Arkansas – Fort Smith (UAFS-1889). One 175 mm TL specimen (UAFS-1898) was taken with rotenone from the Cabin Creek arm of Dardanelle Reservoir (Sec 23, T9N, R 23W) in Johnson County on 6 September 2006.

Morone americana is native to freshwater coastal drainages and estuaries of the Atlantic Coast of North America from Quebec to the Pee Dee River of South Carolina, where it typically ascends large rivers from April to June to spawn (Page and Burr 1991). Some landlocked populations also occur within its native range, and it has been accidentally and intentionally introduced in several areas of the United States (Fuller et al. 1999). White perch were first found in Lake Ontario in the 1940s and subsequently spread throughout the other Great Lakes, occurring in Lake Michigan by 1988. White perch were collected in 1993 from the Mississippi River of Missouri approximately 160 km north of the Arkansas state line (Pflieger 1997). It is not clear whether those Missouri specimens gained access to the Mississippi River from the Great Lakes or from the Missouri River system. White perch were introduced to Nebraska in 1964 and gained access to the Missouri River by 1971 (Hergenrader 1980, Hergenrader and Bliss 1971).

The Arkansas specimens of *M. americana* are probably the result of downstream movement from populations established in Oklahoma since 2000. Information on the establishment of white perch in Oklahoma was provided by Brent Gordon (pers. comm.) of the Oklahoma Department of Wildlife Conservation. White perch inadvertently included in a shipment of striped bass (*M. saxatilis*) from Virginia were intentionally stocked in Cheney and Wilson reservoirs in Kansas in 1996. They moved downstream from Cheney Reservoir into the Arkansas River and were first discovered in Oklahoma in Kaw Reservoir in 2000. White perch were reported in Keystone Lake near Tulsa in fall gill-net samples in 2004 and greatly increased in numbers in gill-net samples taken from that reservoir in 2005 and 2006.

We began examining *Morone* specimens from the Arkansas River of Arkansas in 2003 to determine if *M. americana* had moved into Arkansas. In 2005, 1,748 *Morone* specimens were examined from Arkansas Game & Fish Commission (AGFC) rotenone population samples from Pool 13, Ozark Pool, Dardanelle Reservoir, Pool 9, and Pool 8 of the Arkansas River. In 2006, 236 *Morone* specimens were examined from Pool 13. Three *Morone* species were found in those samples, but *M. americana* was not present.

With the recent confirmation of *M. americana* from the Arkansas River, all 4 North American species of *Morone* now occur in Arkansas. Table 1 (updated from Robison and Buchanan 1988) presents a key to the 4 *Morone* species and 1 commonly found hybrid combination. The striped bass x white bass hybrid was included in the key because that hybrid is commonly stocked by the AGFC in several Arkansas reservoirs. Juvenile *Morone* specimens are sometimes difficult to identify, but adults are more easily distinguished.

Based on its past establishment in areas where it has been introduced, it is probable that *M. americana* will establish breeding populations in the Arkansas River of Arkansas. Its possible effects on native fish populations are uncertain. Outside its native range, the white perch typically does not attain a large size (220-250 mm TL) and, therefore, provides only a marginal fishery (Hergenrader and Bliss 1971, Pflieger 1997). It sometimes feeds on the eggs of sport fishes such as walleye and white bass, and it also feeds heavily on minnows (Schaeffer and Margraf 1987). Hybridization between *M. americana* and *M. chrysops* has been reported at several localities in the Great Lakes (Todd 1986). Future monitoring of the population dynamics of the 4 *Morone* species in the Arkansas River should be conducted.

ACKNOWLEDGMENTS.—We are grateful to Jeff Quinn who first made us aware of the presence of white perch in the Arkansas River of Oklahoma and the need to search for that species in Arkansas. We also thank Brent Gordon of the Oklahoma Department of Wildlife Conservation for providing details of the establishment and spread of white perch in Oklahoma. The following AGFC biologists (in addition to coauthors RLL and FJL) carried out the Arkansas River sampling: Carl Perrin, Tom Bly, Jeff Quinn, Ron Moore, Stephen Brown, and Dustin Opine.

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Table 1. Key to the temperate basses (Moronidae) of Arkansas.

1A First and second dorsal fins slightly connected by a membrane; no tooth patches on back of tongue; anal rays 8 or 9; second anal spine thickened, as long as (or almost as long as) third spine.....2

1B First and second dorsal fins separate, not connected by membrane; one or two tooth patches on back of tongue; anal rays 10-13; second anal spine not noticeably thickened and distinctly shorter than third spine.....3

2A Lateral stripes absent, or if present, faint and not sharply offset on lower side in front of anal fin; greatest body depth occurring just in front of first dorsal fin; color in life silvery.....*Morone americana* (White perch)

2B Lateral stripes dark, distinct and sharply offset on lower side in front of anal fin; greatest body depth occurring below first dorsal fin, the depth remaining fairly uniform below the entire fin; color in life brassy yellow.....*Morone mississippiensis* (Yellow bass)

3A Some of the lateral stripes are interrupted or broken.....*Morone saxatilis* x *Morone chrysops* hybrid.

3B Lateral stripes well developed but none are interrupted or broken.....4

4A Body depth going into standard length less than 3 times; teeth on back of tongue in a single patch; body depth greater than head length.....*Morone chrysops* (White bass)

4B Body depth going into standard length more than 3 times; teeth on back of tongue in 2 parallel patches; body depth less than head length.....*Morone saxatilis* (Striped bass)