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New Arkansas Records for Two Nonindigenous Fish Species, With a Summary of Previous Introductions of Nonnative Fishes in Arkansas

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GENERAL NOTES

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Fish sampling with the chemical toxicant rotenone in 1998 and 1999 produced the first vouchered specimens from Arkansas of two nonindigenous fish species. The specimens were deposited in the Westark Zoology Collection (WZC) of Westark College. On 11 August 1998, two blue tilapia, *Oreochromis aureus* (Steindachner) (WZC-1601), 190 and 193 mm total length (TL), were collected from Pool 2 of the Arkansas River in Jefferson Co., AR, 3.2 km downstream from Dam 3 (Sec 34, T6S, R6W). The identity of these specimens was confirmed by Pam Fuller, Leo Nico, and William Smith-Vaniz of the Nonindigenous Aquatic Species Program of the U.S. Fish and Wildlife Service. The blue tilapia, family Cichlidae, is native to tropical and subtropical Africa and the Middle East and has been reported from thirteen states in the United States (Fuller et al., 1999). It is considered locally established or possibly established in ten states including Oklahoma and Texas. The blue tilapia is a potential competitor with native fishes for food and spawning sites, and Courtenay and Robins (1973) reported that in Florida streams where this species was abundant, most of the vegetation and nearly all native fishes disappeared. The introduction source of our specimens of *O. aureus* is not known; however, the blue tilapia is commonly sold for bait and raised in farm ponds for food in Arkansas (A. Carter, Arkansas Game & Fish Commission, pers. comm.).

One specimen (WZC-1611) of yellow perch, *Perca flavescens* (Mitchill), 72 mm TL, was collected from the Trimble Creek arm of Bull Shoals Lake in Marion Co., AR (Sec 28, T21N, R17W) on 26 August 1999. This northern and eastern North American member of the family Percidae is native to the Atlantic, Arctic, Great Lakes, and upper Mississippi River basins south to Missouri and has been widely stocked throughout the United States as a food and sport fish (Fuller et al., 1999). The yellow perch was reportedly stocked in Arkansas in 1918 (O'Malley, 1920), but there have been no subsequent reports of its capture in this state until now. This species has become established in most areas of the United States where it has been introduced. The source of our *P. flavescens* specimen is not known, but there have been no intentional recent introductions of this species

in Arkansas by state or federal agencies.

Table 1 lists the currently known nonnative fishes that have been either intentionally or accidentally introduced into Arkansas. Robison and Buchanan (1988) reported 18 nonnative fish species and later added Arkansas records for an additional species, the rudd, *Scardinius erythrophthalmus* (Robison and Buchanan, 1993). In 1995 a redbellied pacu, *Piaractus brachipomus*, family Characidae, was caught in a cemetery pond in Fayetteville, Washington Co., AR (Wright, 1995a; 1995b). There have been additional reports of unidentified pacus taken in Arkansas in the 1990s from Lake Valencia (Pulaski Co.), the Arkansas River near Little Rock, and Beaver Lake (Fuller et al., 1999). All pacu records probably represent aquarium releases because the pacu is a commonly kept aquarium fish. Additional early unsuccessful attempts were made in the 1800s to establish the American shad, *Alosa sapidissima*, and the tench, *Tinca tinca*, in Arkansas (Baird, 1878; Baughman, 1947). Buchanan (1973) reported the capture of one kokanee salmon, *Oncorhynchus nerka*, from Bull Shoals Lake in 1969. That specimen probably came from Missouri because the Missouri Department of Conservation introduced kokanee salmon into Lake Taneycomo, a White River impoundment just upstream from Bull Shoals Lake, in the mid 1960s.

Our records for blue tilapia and yellow perch bring the known number of nonnative fish species introduced into Arkansas to 25. We did not include any of the known introduced hybrid combinations in this report. Twelve of the introduced species are considered established in Arkansas because they maintain reproducing populations in the state or because they are continually restocked, e.g., the five established trout species. Eight of the introduced species are considered extirpated from Arkansas, and four of the species are of undetermined status.

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Table 1. Nonnative fishes introduced into Arkansas, with the native range and current Arkansas status listed for each species.

Taxon	Native range	Arkansas status
Family Clupeidae - Herrings and Shad		
1. <i>Alosa sapidissima</i> American shad	North America: Atlantic Coast	Extirpated
Family Cyprinidae - Minnows and Carps		
2. <i>Carassius auratus</i> Goldfish	Eastern Asia	Established
3. <i>Ctenopharyngodon idella</i> Grass carp	Eastern Asia	Established
4. <i>Cyprinus carpio</i> Common carp	Eurasia	Established
5. <i>Hypophthalmichthys molitrix</i> Silver carp	Eastern Asia	Established
6. <i>Hypophthalmichthys nobilis</i> Bighead carp	Eastern Asia	Established
7. <i>Scardinius erythrophthalmus</i> Rudd	Western Europe	Unknown
8. <i>Tinca tinca</i> Tench	Europe and Western Asia	Extirpated
Family Characidae - Characins		
9. <i>Piaractus brachyomus</i> Redbellied pacu	South America: Orinoco and Amazon River basins	Aquarium release
Family Ictaluridae - Bullhead catfishes		
10. <i>Ameiurus catus</i> White catfish	North America: Atlantic and Gulf Slope drainages	Extirpated
Family Esocidae - Pikes		
11. <i>Esox lucius</i> Northern pike	Northern North America	Extirpated
12. <i>Esox masquinongy</i> Muskellunge	Northern North America	Extirpated
Family Osmeridae - Smelts		
13. <i>Osmerus mordax</i> Rainbow smelt	North America: Great Lakes, Arctic, and Pacific drainages	Unknown

Table 1. Continued:

Family Salmonidae - Trouts		
14. <i>Oncorhynchus clarki</i> Cutthroat trout	North America: Pacific Coast drainages	Established*
15. <i>Oncorhynchus mykiss</i> Rainbow trout	North America: Pacific Slope drainages	Established*
16. <i>Oncorhynchus nerka</i> Kokanee salmon	North America: Pacific Slope drainages	Extirpated
17. <i>Salmo trutta</i> Brown trout	Europe, northern Africa, western Asia	Established*
18. <i>Salvelinus fontinalis</i> Brook trout	North America: Atlantic, Great Lakes, and upper Mississippi River basins	Established*
19. <i>Salvelinus namaycush</i> Lake trout	Northern North America	Established*
Family Moronidae - Temperate basses		
20. <i>Morone saxatilis</i> Striped bass	North America: Atlantic and Gulf Slope drainages	Established
Family Centrarchidae - Sunfishes		
21. <i>Ambloplites rupestris</i> Rock bass	North America: Atlantic, Great Lakes, and upper Mississippi River basins	Established
22. <i>Lepomis auritus</i> Redbreast sunfish	North America: Atlantic and Gulf Slope drainages	Extirpated
23. <i>Micropterus coosae</i> Redeye bass	North America: North Carolina and Tennessee to Alabama and Georgia	Extirpated
Family Percidae - Perches		
24. <i>Perca flavescens</i> Yellow perch	North America: Atlantic, Arctic, Great Lakes, and upper Mississippi River basins	Unknown
Family Cichlidae - Cichlids		
25. <i>Oreochromis aureus</i> Blue tilapia	Africa and the Middle East	Unknown

* A species maintained in Arkansas by frequent stocking.