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# Threatened Fishes of Arkansas

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## ABSTRACT

Intensive field collecting throughout Arkansas and a survey of literature and museum records revealed 37 fish species and subspecies in Arkansas to be threatened by human activities. Of these 37 threatened forms, seven are considered rare and endangered. One may be extinct. With regard to distribution, 19 threatened forms reside in the White River system and 11 and 10 inhabit the Arkansas and Red River systems, respectively. Nine fishes are considered threatened in the Ouachita River system, four threatened forms are known in the St. Francis drainage, and two are known in the Mississippi River proper.

## INTRODUCTION

Currently there is considerable interest concerning native rare and endangered animal species. As man continues to upset the delicate ecological balance of nature, more and more animal species are threatened with eventual extinction. Thus it is imperative that the status of faunal members be elucidated so that this human encroachment can be minimized or stopped altogether.

Committees within certain scientific societies, notably the Conservation Committee of the American Society of Ichthyologists and Herpetologists and the Endangered Species Committee of the American Fisheries Society, have worked diligently to compile a list of threatened native fishes of the United States. The first concerted effort to protect native fauna resulted in the Endangered Species Preservation Act of 1966. The U.S. Department of the Interior published the Red Book of Rare and Endangered Fish and Wildlife of the United States (1968). The IUCN Red Data Book (Vol. 4, Pisces, 1969) was published to review threatened species on a global basis. McAllister (1970) reviewed the rare and endangered fishes of Canada. Miller (1972) was the first to compile a list of threatened fishes for the 50 United States. Unfortunately, data concerning the status of Arkansas fishes in Miller's paper were minimal and only two species were included for the state. Both species, the Ozark cavefish (*Typhlichthys subterraneus*) and the yellowcheek darter (*Etheostoma moorei*) were given a status of rare.

Because of the paucity of information concerning the status of Arkansas fishes, a more complete discussion of each threatened species was deemed necessary. This paper is an outgrowth of a report prepared by the writer on rare and endangered fishes of Arkansas national forest areas for the U.S. Forest Service and an ichthyofaunal survey of Arkansas which is in progress. This paper is intended to clarify the status of certain fishes in Arkansas which are believed to be threatened. Future changes in status will be documented in subsequent papers. Records of threatened fishes within the state were compiled from extensive field work, literature records and examination of Arkansas fish specimens housed at Tulane University, Oklahoma State University, University of Michigan, Northeast Louisiana University, Arkansas State University and Southern State College.

## TERMINOLOGY

Use of scientific names follows that of Bailey et al. (1970). Definitions for terms describing the status of each species are the same as those used by Miller (1972):

*Endangered* - Actively threatened with extinction.  
Continued survival unlikely without the

implementation of special protective measures.

*Rare* - Not under immediate threat of extinction, but occurring in such small numbers and/or in such a restricted or specialized habitat that it could quickly disappear. Requires careful watching.

## ACKNOWLEDGEMENTS

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## ANNOTATED LIST OF THREATENED FISHES OF ARKANSAS

### Petromyzontidae (Lampreys)

1. *Lampetra aepyptera* (Abbott). Least brook lamprey.  
Arkansas distribution: Known only from Piney Creek (White River system) and Mill Pond Branch (Spring River drainage).  
Remarks: G.L. Harp (pers. comm.) recently discovered this species in the state in Piney Creek (White River system) near Calico Rock and has since taken a specimen from Mill Pond Branch (Spring River drainage). As the three specimens collected are the only known representatives from Arkansas, the least brook lamprey is regarded as rare.  
Status: Rare.
2. *Lampetra lamottei* (Lesueur). American brook lamprey.  
Arkansas distribution: White River system.  
Remarks: The American brook lamprey is given a provisional status of rare based on the paucity of valid records. As lampreys are usually difficult to collect, *L. lamottei* may be removed from this status in the future if additional collecting reveals a greater abundance.  
Status: Rare.

## Acipenseridae (Sturgeons)

3. *Acipenser fulvescens* Rafinesque. Lake sturgeon.  
Arkansas distribution: Mississippi River; a single record from Little Missouri River.

Remarks: A single 135-lb specimen of *A. fulvescens* was taken on hook and line from the Little Missouri River in 1956 (C.B. Burton, pers. comm.) and is mounted in the Game and Fish Commission Building in Little Rock. Though unverified, additional reports of the lake sturgeon come from commercial fishermen from the Mississippi River in northeastern Arkansas. The lake sturgeon has undergone a widespread decline in abundance throughout its range because of pollution and siltation of rivers, which adversely affect spawning sites and food supplies, and construction of dams that restrict access to suitable spawning sites (Cross, 1967).

Status: Rare.

4. *Scaphirhynchus albus* (Forbes and Richardson). Pallid sturgeon.

Arkansas distribution: St. Francis and Mississippi Rivers.

Remarks: Although there are no specimen records for the pallid sturgeon from Arkansas, Buchanan (1973) included it as a member of the state ichthyofauna on the basis of sight records. Primarily a large river species, *S. albus* has become rare throughout most of its range in the Mississippi Valley primarily because of channel modifications.

Status: Rare.

## Hiodontidae (Mooneyes)

5. *Hiodon alosoides* (Rafinesque). Goldeye.

Arkansas distribution: Generally known from larger rivers.

Remarks: Although normally more tolerant of the increasingly turbid waters of the state than the related *H. tergisus*, *H. alosoides* is treated as rare because of the paucity of recent records. Only three collections of the goldeye have been made since 1960 (Buchanan, 1973). Future collecting from the riverine habitats may reveal additional goldeyes, but presently the status of this species is rare.

Status: Rare.

## Umbridae (Mudminnows)

6. *Umbrina limi* (Kirtland). Central mudminnow.

Arkansas distribution: Known only from a single specimen from the St. Francis River drainage.

Remarks: Meek (1896) reported a single specimen of the central mudminnow; however, this species has not been taken subsequently in Arkansas. Meek's record is suspect as Pflieger (1971) did not report *U. limi* from neighboring Missouri. Data switching is a possibility, as misidentification of this distinctive species seems implausible. Such data switching did occur during Meek's collecting trips (W.R. Taylor, pers. comm.).

Status: Rare.

## Catostomidae (Suckers)

7. *Cyplectus elongatus* (Lesueur). Blue sucker.

Arkansas distribution: Scattered records from Red, Arkansas and White river systems.

Remarks: Lack of collecting in the big river habitats in Arkansas possibly explains the scarcity of records of the blue sucker from state waters, although Pflieger (1971) reported a decline in abundance of *C. elongatus* in Missouri from the early 1900's until 1971. Robison et al. (1974) also regarded the blue sucker as rare in neighboring Oklahoma. Coker (1930) noted a decline of this species after construction of a dam in Iowa. Blue suckers require clean-swept substrates for spawning. With increased siltation resulting from continued impoundment of larger streams, abundance of the blue sucker should decline if additional impoundments are constructed.

Status: Rare.

8. *Erimyzon sucetta* (Lacepede). Lake chubsucker.

Arkansas distribution: St. Francis River, White River system, Ouachita River and Red River drainage (Big Creek).

Remarks: Only four recent records of the uncommon lake chubsucker are known although it may be more widespread in lakes, oxbows and quiet pools of rivers than records indicate. Pflieger (1971) reported this species as declining in abundance in Missouri in recent years, and the absence of recent collections in Arkansas may suggest a real decline in abundance, rather than a lack of collecting.

Status: Rare.

9. *Lugochila lacera* Jordan and Brayton. Harelip sucker.

Arkansas distribution: White River system.

Remarks: The harelip sucker is believed to be extinct, having been extirpated in the first part of the century. Jordan and Gilbert (1886) last reported *L. lacera* from the White River near Eureka Springs as *Quassilabia lacera* and noted only that it was "not rare". Siltation resulting from agricultural practices and deforestation possibly explains its disappearance throughout its former range (Ramsey et al., 1973; Trautman, 1957).

Status: Extinct.

10. *Moxostoma anisurum* (Rafinesque). Silver redhorse.

Arkansas distribution: Known from the White River near Batesville and the Current River.

Remarks: Several specimens of the silver redhorse have been collected from the White River near Batesville by N.H. Douglas of Northeast Louisiana University and these, in addition to a single specimen (TU 65974) taken by R.C. Cashner and B. Thompson of Tulane University from the Current River near the Arkansas-Missouri state line, are the only known records of *M. anisurum* from the state. All specimens were identified by Dr. R.E. Jenkins, Roanoke College.

Status: Rare.

11. *Moxostoma macrolepidotum pisolabrum* Trautman and Martin. Pealip redhorse.

Arkansas distribution: White River system and one record from the Illinois River (Arkansas River system). Remarks: Because of a scarcity of records from the state, a status of rare is assigned the pealip redhorse in Arkansas. The paucity of localities may be explained partly by the difficulty of collecting in the big river habitats preferred by *M. m. pisolabrum*.

Status: Rare.

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Cyprinidae (Minnows and Carps)

12. *Hybopsis gracilis* (Richardson). Flathead chub.  
Arkansas distribution: Mississippi River.  
Remarks: This big river chub has been collected only twice from the Mississippi River in the northeastern part of the state. As the larger riverine habitats in Arkansas have been neglected by most investigators, *H. gracilis* may be more abundant than is currently known. However, its status now should be viewed as rare within the state.  
Status: Rare.
13. *Notropis atrocaudalis* Evermann. Blackspot shiner.  
Arkansas distribution: Red River drainage.  
Remarks: Initially, the blackspot shiner was known from southwestern Arkansas from only two specimens (Robison, 1974c). However, more recent collecting has revealed several additional specimens. The *N. atrocaudalis* habitat of clear streams with sand substrates is restricted and widely polluted in that part of the state. As oil field brine runoff has decimated the fish fauna in a considerable number of streams in the southwestern region of the state, the future of *N. atrocaudalis* remains in doubt.  
Status: Rare and endangered.
14. *Notropis bairdi* Hubbs and Ortenburger. Red River shiner.  
Arkansas distribution: Red River.  
Remarks: Only two series of the Red River shiner have been collected in Arkansas. The first (UMMZ 128214) consists of two specimens from the Red River at the ferry on Arkansas Highway 160 on the Lafayette-Miller County line taken on 8 July 1939. The second state collection (UMMZ 170013) was taken on 18 August 1940 at Fulton on the Miller-Hempstead County line and consists of four specimens. Seining at both of these stations has failed to reveal additional specimens. *N. bairdi* possibly exists in Arkansas as a wanderer, being swept down occasionally from Oklahoma by high waters.  
Status: Rare.
15. *Notropis camurus* (Jordan and Meek). Bluntnose shiner.  
Arkansas distribution: Illinois River drainage with additional records from Frog Bayou and Illinois Bayou.  
Remarks: This rare minnow has been collected in small numbers from four locations in clear, continuously flowing, high-gradient, gravel-bottomed streams of the northwestern part of the state. Buchanan's (1973) maps indicate that this species has not been taken since 1960.  
Status: Rare.
16. *Notropis chalybaeus* (Cope). Ironcolor shiner.  
Arkansas distribution: Bayou Dorcheat (Red River drainage) and Big Cypress Creek (White River system).  
Remarks: *Notropis chalybaeus* is an inhabitant of weedy, shallow, backwater areas of sluggish lowland streams of the southern White and Red river drainages. Disjunct populations have been found only in Bayou Dorcheat in the southwestern part of the state and Big Cypress Creek in eastern Arkansas.  
Status: Rare.
17. *Notropis girardi* Hubbs and Ortenburger. Arkansas River shiner.  
Arkansas distribution: Arkansas River.  
Remarks: Known from the state from a single collection taken on 23 July 1939 by J.D. Black in the Arkansas River at the mouth of Piney Creek. *N. girardi* is found in the main channels of large sandy-bottomed rivers and streams directly tributary to the Arkansas River (Miller and Robison, 1973).  
Status: Rare.
18. *Notropis maculatus* (Hay). Taillight shiner.  
Arkansas distribution: Bayou Dorcheat, Saline River (Ouachita River system), St. Francis River and lower White River drainages, and oxbows of the Current River.  
Remarks: This backwater inhabitant of sluggish streams and oxbow lakes of the West Coastal and Mississippi Alluvial plains is a rare member of the cyprinid ichthyofauna known from the state from six scattered records.  
Status: Rare.
19. *Notropis ortenburgeri* Hubbs. Kiamichi shiner.  
Arkansas distribution: Scattered localities in the Little River system, Arkansas and Ouachita river drainages.  
Remarks: Described originally from the Kiamichi River in Oklahoma, *N. ortenburgeri* has been found since in several localities in the Little, Arkansas and Ouachita river drainages in Arkansas. As this shiner is the subject of a present study by the writer, additional comments will be forthcoming.  
Status: Rare.
20. *Notropis perpallidus* Hubbs and Black. Colorless shiner.  
Arkansas distribution: Ouachita River system.  
Remarks: Increasing numbers of impoundments within or very close to the limited geographic range of *N. perpallidus* threaten the preferred habitat of this species, i.e. small and intermediate-size rivers (Snelson and Jenkins, 1973). Already *N. perpallidus* has disappeared from the dam site area of DeGray Reservoir on the Caddo River where it was present prior to impoundment (N.H. Douglas, pers. comm.). Although known in Arkansas only from the Ouachita River system, the colorless shiner should be expected in the Little River system as it is found in this system in Oklahoma.  
Status: Rare.
21. *Notropis spilopterus* (Cope). Spotfin shiner.  
Arkansas distribution: Strawberry River (White River system) and Illinois River (Arkansas River system).  
Remarks: Beadles (1974) first reported the spotfin shiner in Arkansas from the Strawberry River. Later, another specimen was reported to the writer from the Illinois River by T.M. Buchanan (pers. comm.). Gibbs (1957) did not report specimens of *N. spilopterus* from Arkansas in his review of the species. That the populations of this shiner are so widely disjunct presents an extremely interesting zoogeographic problem. Pflieger (1971) does not show this species on his maps as inhabiting any of the streams in Missouri draining southward into Arkansas.  
Status: Rare.
22. *Phenacobius mirabilis* (Girard). Suckermouth minnow.  
Arkansas distribution: Small western tributaries of the Arkansas River.  
Remarks: The suckermouth minnow is extremely tolerant

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of silty waters and thus should be more abundant as siltation rates increase but, in fact, only four collections of this species (all before 1960) have been made in Arkansas; therefore its status is rare.

Status: Rare.

## Ictaluridae (Freshwater Catfishes)

23. *Noturus flavus* Rafinesque. Stonecat.  
Arkansas distribution: Mississippi River.  
Remarks: Buchanan (1973) first reported *N. flavus* in Arkansas from the Mississippi River. That these specimens were not strays or wanderers is substantiated by D.A. Etnier (pers. comm.) who reports populations of the stonecat from the Tennessee side of the Mississippi River.  
Status: Rare.
24. *Noturus lachneri* Taylor. Ouachita madtom.  
Arkansas distribution: Endemic to the headwaters of the Saline River (Ouachita River system).  
Remarks: The Ouachita madtom was recognized formally as a distinct species by Taylor (1969). In its restricted area *N. lachneri* is generally found over gravel and rubble substrates. Because of its restricted distribution and the possibility of impoundment of the Saline River, *N. lachneri* populations should be monitored carefully in the future.  
Status: Rare and endangered.
25. *Noturus phaeus* Taylor. Brown madtom.  
Arkansas distribution: Bayou Dorcheat drainage.  
Remarks: Only three specimens are known from the state, having been first reported from Arkansas by Robison (1974a). The brown madtom is an inhabitant of small sand-bottomed, spring-fed streams (Taylor, 1969). Scarcity of this species in southwestern Arkansas may be due to oil field brine runoff which virtually eliminates aquatic life in these lowland streams.  
Status: Rare.
26. *Noturus taylori* Douglas. Caddo madtom.  
Arkansas distribution: Endemic to the headwaters of the Caddo River.  
Remarks: Douglas (1972) first described *N. taylori* from the Caddo River where it is easily confused with the superficially similar *Noturus miurus*. *N. taylori* seems to be confined to the clear headwaters of the Caddo River and has not been taken below DeGray Lake.  
Status: Rare and endangered.

## Amblyopsidae (Cavefishes)

27. *Amblyopsis rosae* (Eigenmann). Ozark cavefish.  
Arkansas distribution: Caves in northwestern Arkansas.  
Remarks: Four records from caves in northwestern Arkansas constitute the known range of the Ozark cavefish within the state.  
Status: Rare.
28. *Typhlichthys subterraneus* Girard. Southern cavefish.  
Arkansas distribution: Northcentral Arkansas.  
Remarks: Woods and Inger (1957) reported one specimen from a well in Randolph County. Except for this single

specimen, no records are known from the state. Thus this troglobite one of our rarest fishes.

Status: Rare and endangered.

## Percidae (Perches)

29. *Etheostoma fusiforme barratti* (Holbrook). Scaleyhead darter.  
Arkansas distribution: Known from three records in the St. Francis and Arkansas river drainages and the White River Refuge.  
Remarks: Although the scaleyhead darter is known from Tennessee and as far west as McCurtain County, Oklahoma (Collette, 1962), this species has remained elusive in Arkansas where only three localities are known. Generally living in dense vegetation, *E. f. barratti* is found in lowland swamps, backwater areas and oxbow lakes. As more of these lowland areas are investigated the scaleyhead darter should be found with increasing frequency.  
Status: Rare.
30. *Etheostoma microperca* Jordan and Gilbert. Least darter.  
Arkansas distribution: Illinois River (Arkansas River system) and headwaters of the Saline River (Ouachita River system).  
Remarks: The least darter is considered rare because of its limited habitat of small, clear, spring-fed tributaries where it shows a decided preference for aquatic vegetation, mainly watercress. Only eight records are known and show two disjunct populations within the state. Impoundment particularly is a threat to the least darter because of its strict habitat preference.  
Status: Rare.
31. *Etheostoma moorei* Raney and Suttkus. Yellowcheek darter.  
Arkansas distribution: Little Red River system.  
Remarks: The yellowcheek darter is endemic to the Little Red River system. Much of its limited range was impounded and habitat destroyed when Greers Ferry Lake was completed (Raney and Suttkus, 1964). The South Fork and Middle Fork of the Little Red River system today serve as sanctuaries for this colorful species, the only member of the subgenus *Nothonotus* west of the Mississippi River. Because of its specialized riffle habitat and the previous destruction of known populations, the yellowcheek darter must be considered rare and endangered. Additional impoundments on the Little Red River system could eliminate this species completely.  
Status: Rare and endangered.
32. *Etheostoma pallidorsum* Distler and Metcalf. Paleback darter.  
Arkansas distribution: Caddo River and an isolated population in the headwaters of the Ouachita River system (Mayberry Creek).  
Remarks: Until recently the paleback darter was thought to exist as an isolated population in the extreme headwaters of the Caddo River. Robison (1974b) discovered an additional disjunct population in Mayberry Creek, a small tributary of Hallmans Creek which empties into Lake Hamilton (Ouachita River). Habitat typically is small, spring-fed streams in rivulets or shallow pool areas with leaf-litter bottoms. Because of its specialized habitat, *E. pallidorsum* must be considered rare and endangered.  
Status: Rare and endangered.

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33. *Etheostoma spectabile fragi* Distler. Strawberry River darter.

Arkansas distribution: Endemic to the Strawberry River. Remarks: Distler (1968) described this endemic form found in the Strawberry River drainage. Although not uncommon in the drainage, *E.s. fragi* must nevertheless be considered rare because of its localized distribution. Pesticide poisoning, impoundment or other man-made disaster could eliminate this subspecies entirely.

Status: Rare.

34. *Etheostoma whipplei montanus* Hubbs and Black. Mountain redbfin darter.

Arkansas distribution: Endemic to Frog Bayou. Remarks: The Frog Bayou (= Clear Creek) headwater population of *E. whipplei* was recognized as subspecifically distinct by Hubbs and Black (1941). The headwater-dwelling mountain redbfin darter is susceptible to drought, moving to downstream areas when low water is imminent. Because of its localized distribution, *E. w. montanus* should be considered rare.

Status: Rare.

35. *Percina pantherina* (Moore and Reeves). Leopard darter. Arkansas distribution: Little River system.

Remarks: Although recent collecting has revealed a range larger than previously believed, the leopard darter remains rare and endangered because of the continued damming of its native Little River tributaries and destruction of habitat by impounded waters. *P. pantherina* has a very specialized habitat and cannot tolerate habitat alteration.

Status: Rare and endangered.

36. *Percina phoxocephala* (Nelson). Slenderhead darter. Arkansas distribution: Several localities in the White and Arkansas river drainages.

Remarks: Until recently many specimens of *Percina nasuta* were confused with and identified as *P. phoxocephala*, a close relative. Upon reexamination almost all of these have proved to be *P. nasuta* (B. Thompson, pers. comm.). Only three definite localities of *P. phoxocephala* have been recorded from the state (two from the White River system and one from the Petit Jean River). This species should be expected from additional localities in Arkansas, especially the Little River system of southwestern Arkansas as it is present in the Oklahoma part of this system.

Status: Rare.

### Mugilidae (Mulletts)

37. *Mugil cephalus* Linnaeus. Striped mullet.

Arkansas distribution: Lower Arkansas River. Remarks: Buchanan (1973) indicated a single record of the striped mullet in the state; however, *M. cephalus* probably will spread eventually up through the Arkansas River system to become more abundant, thus necessitating a change of status.

Status: Rare.

## DISCUSSION

Presently 186 native fish species are known from Arkansas (Robison, 1974d). Thirty-seven are recognized as threatened in the present study. Seven species are considered rare and endangered. Of the 37 threatened forms, six are endemic to the state: Ouachita madtom (*Noturus lachneri*), Caddo madtom (*Noturus taylori*), yellowcheek darter (*Etheostoma moorei*), paleback darter (*E. pallididorsum*), Strawberry River darter (*E. spectabile fragi*) and mountain redbfin darter (*E. whipplei montanus*). Protection of this part of Arkansas' heritage is of paramount importance.

With regard to distribution, 19 threatened forms reside in the White River system and 11 and 10 inhabit the Arkansas and Red River systems, respectively. Nine fishes are considered threatened in the Ouachita River system, four threatened forms are known from the St. Francis drainage, and two are known from the Mississippi River proper.

Responsibility for the diminution of various fish faunas is shared by several factors including pollution (industrial, agricultural and domestic, including toxic chemicals and pesticides), excessive damming of rivers, deforestation, overgrazing, channelization, excessive removal of ground water and the introduction of exotic species (Miller, 1972). In Arkansas most if not all of these factors are at work and in some cases with extremely deleterious results. If the destruction of our fish fauna is to be stopped, a primary step is the recognition that a species or subspecies is presently threatened. After evaluation of locally threatened forms, appropriate legislative action can be taken for the protection and perpetuation of many of them.

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