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# A Distributional Survey of the Fishes of Ten Mile Creek in Southeastern Arkansas

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## ABSTRACT

A survey of the fishes of Ten Mile Creek was conducted during 1976 to 1979. The ichthyofauna of Ten Mile Creek is typical of lowland drainage systems in southeastern Arkansas. Fifty-three species representing 13 families and 23 genera were collected. *Etheostoma parvipinne* was locally abundant in the headwaters, and other vulnerable or rare species included *Notropis maculatus*, *Fundulus notti*, *Fundulus chrysotus*, *Erimyzon sucetta*, *Moxostoma poecilurum*, and *Lepomis punctatus*. Eight specimens of *Notropis hubbsi* were collected.

## INTRODUCTION

During the past decade extensive surveys of the fishes of the lower Ouachita River system including its two principal tributaries, the Saline River and Bayou Bartholomew have been conducted. Reynolds (1971) conducted a survey of the fishes of the Saline River, and Thomas (1976) completed a study of the fishes of Bayou Bartholomew. Investigations at Northeast Louisiana University and Southern Arkansas University of the fishes of the Ouachita River system are in the final stages of completion. Robison (1975) reported on new distributional records from the lower Ouachita River system.

A survey of the fishes of the Saline River by Reynolds (1971) did not include any sampling within the Ten Mile Creek drainage. Discovery of the largest known population of goldstripe darters *Etheostoma parvipinne* in the headwaters in 1976, and designation of the Warren Prairie Site located within the drainage basin as a Natural Area by the Arkansas Natural Heritage Commission necessitated a more intensive survey of the fishes of Ten Mile Creek. Also, additional data on the distributions and abundances of rare or vulnerable species in Arkansas including *Fundulus chrysotus*, *Fundulus notti*, *Erimyzon sucetta*, *Lepomis punctatus*, *Lepomis marginatus*, *Lepomis symmetricus*, *Moxostoma poecilurum*, *Notropis maculatus*, and *Etheostoma parvipinne* were needed to ascertain their status in Arkansas.

## MATERIALS AND METHODS

Eleven sampling stations were established at representative areas along Ten Mile Creek (Fig. 1) and were designated as: Station 1 (S27, T12S, R7W), Station 2 (S13, T13S, R8W), Station 3 (S12, T13S, R8W), Station 4 (S16, T13S, R8W), Station 5 (S7, T13S, R8W), Station 6 (S5, T13S, R8W), Station 7 (S12, T13S, R9W), Station 8 (S32, T12S, R8W), Station 9 (S1, T13S, R9W), Station 10 (S14, T13S, R9W), and Station 11 (S24, T13S, R9W). Twenty-eight collections were taken with 10-ft and 20-ft ¼ inch mesh seines, an 1100 watt generator, and aquatic dip nets. Specimens were identified with the keys of Pflieger (1975), Miller and Robison (1973), Douglas (1974), and Buchanan (1973). The use of common and scientific names is in accordance with Bailey et al. (1970). A total of 1,548 specimens was retained and is housed in the UAM Collection of Vertebrates in the Turner Neal Museum of Natural History. Many specimens of the most abundant species were not retained.

## DESCRIPTION OF THE DRAINAGE BASIN

Ten Mile Creek, a small tributary to the Saline River, is located in Drew and Bradley Counties, Arkansas. The principal branch of Ten Mile Creek is 19 miles long, and 57.6 miles of tributaries drain approximately 60 square miles of predominantly commercial pine and hardwoods timberland. The headwaters are located at 270 ft

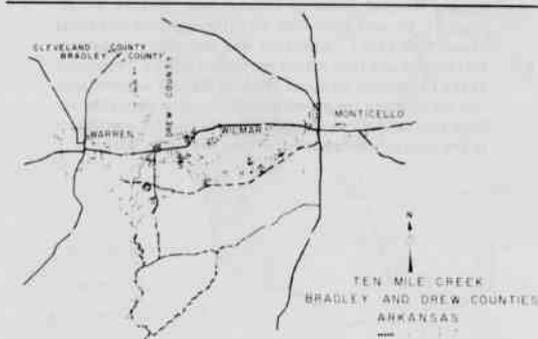


Figure 1. Map of Ten Mile Creek showing sampling stations.

above mean sea level (msl), and the elevation at the confluence of Ten Mile Creek and the Saline River is 100 ft above msl, representing an average gradient change of about 20 ft per mile.

Stream width varies from 4.0 to 30.0 ft, but it is typically less than 10.0 ft wide except in some of the larger pools in the lower sections which are periodically flooded by the Saline River. Water depth is typically less than 3.0 ft except in the larger pools at Station 9 and in some other areas during the winter and spring floods. During late summer and early fall Ten Mile Creek is usually intermittent with the larger pools being found at Station 9. Sand is the predominant substrate type in the headwaters, but silt and clay are more prevalent in the lower regions. Shallow and deep pools also contain substantial amounts of leaves and decaying debris. There is a limited diversity of habitats throughout the drainage, and stream velocities approach zero except during late winter and spring. The typical riffle areas characteristic of high stream gradient system are absent from Ten Mile Creek. Numerous shallow pools with luxuriant growths of aquatic vascular plants along the Warren Prairie are habitats for uncommon or rare species of Arkansas fishes.

## RESULTS AND DISCUSSION

Fifty-three species representing 13 families and 23 genera were collected in Ten Mile Creek. A species list and the occurrence of each species at the sampling stations are shown in Table 1. The number of individuals of the uncommon or rare and endangered species is included in the discussion of the ichthyofauna. The most common species in Ten Mile Creek included *Gambusia affinis*, *Notropis atherinoides*, *Lepomis macrochirus*, *Notemigonus crysoleucas*, *Centrarchus macropterus*, *Lepomis gulosus*, *Elassoma zonatum*,

*Lepomis marginatus*, *Fundulus olivaceus*, *Pomoxis nigromaculatus*, and *Aphredoderus sayanus*. Vulnerable or rare species included *Fundulus notti*, *Fundulus chrysotus*, *Etheostoma parvipinne*, *Erimyzon sucetta*, *Lepomis punctatus*, *Notropis maculatus*, and *Moxostoma poecilurum*. Relative abundance and distribution of each of these unique species are discussed. Eight specimens of *Notropis hubbsi* were collected and represent a new distributional record for the Saline River.

#### *Fundulus notti* (Agassiz). Starhead topminnow

Forty-two specimens were collected in the weed-choked pools scattered throughout the Warren Prairie in the lower regions of Ten Mile Creek at Stations 7, 9, and 10. Reynolds (1971) reported only two specimens from the entire Saline River drainage. Buchanan (1973) listed only four localities in Arkansas. The Warren Prairie site is one of the best known habitats for *Fundulus notti*, and it is locally abundant in the area. Robison (1975) collected 79 specimens from Hazel Creek on Hwy. 8, five miles south of the junction of State Hwys. 8 and 4. These data verify that *Fundulus notti* is a common inhabitant of the Saline River drainage.

#### *Fundulus chrysotus* (Günther) Golden topminnow

Five specimens of *Fundulus chrysotus* were collected at Station 7. Reynolds (1971) did not report *Fundulus chrysotus* from the Saline River drainage, but Robison (1975) reported four specimens from Hazel Creek, a tributary to the Saline River that is approximately two miles south of the Ten Mile Creek drainage basin. These are the only known specimens from the Saline River system and establish *Fundulus chrysotus* as a rare inhabitant in the drainage. Buchanan (1973) listed five other localities in Arkansas, and Robison (1975) reported five other localities in the Ouachita River system.

#### *Etheostoma parvipinne* Gilbert and Swain. Goldstripe darter

Prior to 1971 *Etheostoma parvipinne* was known in Arkansas only from two records reported by Black (1940). Robison (1977) described the typical habitat as being small, spring-fed, shallow streams with low to moderate gradient surrounded by riparian vegetation and with sandy substrates. Twenty-six localities and 41 specimens have been reported for Arkansas (Robison 1977). Thirty-seven of these individuals were collected from the Ouachita River system. The goldstripe darter was locally abundant at Station 1 in Ten Mile Creek where 19 specimens have been collected since 1976. One individual was collected from a shallow pool in the Warren Prairie near Station 10. Nine specimens have been collected from Clear Creek, a tributary to the Saline River, and Reynolds (1971) had reported a single specimen from Clear Creek in his survey of fishes of the Saline River. A population of goldstripe darters was discovered in a shallow farm pond on the UAM campus in 1979 by Tim Scott, John Loose, and Steve Shores. A total of 20 specimens was collected from the pond, and several specimens were left in the pond for observations of the life history. The total population in the pond will probably exceed 50 individuals. This is the first record of *Etheostoma parvipinne* from a pond, and specimens collected from the pond are more heavily pigmented than those collected from Ten Mile Creek and Clear Creek. A study of meristic variations and temperature tolerances of the pond population has been initiated. It can be concluded that *Etheostoma parvipinne* is locally abundant in Drew County where more specimens have been collected than in all other counties in Arkansas combined.

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

The lake chubsucker was a rare inhabitant in Ten Mile Creek, and only one specimen was reported at Station 9. Reynolds (1971) did not find *Erimyzon sucetta* in the Saline River, but Robison (1975) reported two specimens from Hazel Creek. The authors collected six specimens from a roadside pool adjacent to the Saline River along Hwy. 8 one mile east of Warren.

#### *Lepomis punctatus* (Valenciennes). Spotted sunfish

Reynolds (1971) collected 35 individuals in the Saline River system. Buchanan (1973) cited 24 localities from which the spotted sunfish

has been collected. *Lepomis punctatus* was collected at Station 9 in Ten Mile Creek where three specimens were taken from a weed-choked pool. Two additional specimens were collected at Station 7. The spotted sunfish was considered an uncommon inhabitant of the Ten Mile Creek drainage.

#### *Lepomis marginatus* (Holbrook). Dollar sunfish

The dollar sunfish was one of the most common sunfishes in Ten Mile Creek, and 46 individuals were collected at Stations 3, 5, 7, and 9. *Lepomis marginatus* was most common at Station 7. Reynolds (1971) did not report the dollar sunfish from the Saline River system. The authors also collected six specimens from a roadside pool along Hwy. 8 approximately one mile east of Warren near the Saline River bridge. Robison (1975) found *Lepomis marginatus* in Hazel Creek and considered the species to be an uncommon inhabitant of the lower Ouachita River system. Based on this study, the dollar sunfish is much more common than previously recognized, probably because of the confusion with *Lepomis megalotis*.

#### *Notropis maculatus* (Hay). Taillight shiner

Robison (1974) and Buchanan (1974) regarded the taillight shiner to be rare in Arkansas. Black (1940) reported two specimens from the Saline River, but Reynolds (1971) did not collect any *Notropis maculatus* in a more intensive survey of the fishes of the Saline River. One specimen was collected in the Saline River by the authors at Hwy. 172 (S14, T14S, R9W) in 1976. Nine specimens were collected at Station 9 in Ten Mile Creek in a shallow pool beneath the Hwy. 8 bridge (S1, T13S, R9W). *Notropis maculatus* was an uncommon inhabitant in Ten Mile Creek.

#### *Moxostoma poecilurum* (Jordan). Blacktail redhorse

Five specimens of *Moxostoma poecilurum* were collected in the deep pools at Station 9 in Ten Mile Creek. Reynolds (1971) collected 20 individuals in the lower Saline River. The blacktail redhorse is common at Station 9 in Ten Mile Creek because numerous other individuals have been observed but were not collected. Buchanan (1974) considered *Moxostoma poecilurum* to be rare in Arkansas.

#### *Notropis hubbsi* Bailey and Robison. Bluehead shiner

Bailey and Robison (1978) described the habitat and summarized the distribution of *Notropis hubbsi*. Numerous localities for the bluehead shiner were cited in the Ouachita River system, including two localities from Bayou Bartholomew. *Notropis hubbsi* was not reported from the Saline River area, and Reynolds (1971) did not collect any specimens. Eight specimens were collected in the vicinity of Station 7 in Ten Mile Creek. A single specimen was collected in the flooded backwaters along Hwy. 8 near the Hwy. 4 intersection in April 1975. Seven additional specimens were collected in March 1979 at the first concrete bridge on Hwy. 8 (S12, T13S, R9W). These are the first known records of *Notropis hubbsi* from the Saline River drainage.

## ACKNOWLEDGEMENTS

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Table 1. Species list and distributions of the fishes in Ten Mile Creek, Drew County, Arkansas.

Scientific Name	1	2	3	4	5	6	7	8	9	10	11	TOTALS
<i>Lepisoosteus oculatus</i>									1			1
<i>Lepisoosteus osseus</i>	1								5			6
<i>Lepisoosteus platostomus</i>									1			1
<i>Amia calva</i>									4			4
<i>Dorosoma cepedianum</i>									1			1
<i>Esox americanus</i>				1	1				1			5
<i>Esox niger</i>							2		4			4
<i>Notemigonus crysoleucas</i>		5	15		1		9		7	1	2	40
<i>Notropis atherinoides</i>					2		42		112	1		157
<i>Notropis boops</i>							1		6			7
<i>Notropis emiliae</i>			10									10
<i>Notropis hubbsi</i>							7		1			8
<i>Notropis maculatus</i>									9			9
<i>Notropis umbratilis</i>	1			2	3		4		18			28
<i>Notropis venustus</i>							1		12			13
<i>Notropis whipplei</i>				2					14			16
<i>Semotilus atromaculatus</i>	6											6
<i>Erimyzon oblongus</i>	2											2
<i>Erimyzon suetta</i>									1			1
<i>Minytrema melanops</i>							1					1
<i>Moxostoma poecilurum</i>									5			5
<i>Ictalurus melas</i>	1			1	2							4
<i>Ictalurus natalis</i>				1					3			4
<i>Noturus gyrinus</i>							1		1			2
<i>Aphredoderus sayanus</i>	1			4	2		5		22			34
<i>Fundulus chrysotus</i>									5			5
<i>Fundulus notatus</i>				1			21		12			34
<i>Fundulus notti</i>							38		2	2		42
<i>Fundulus olivaceus</i>		3	12		1		22		20			58
<i>Gambusia affinis</i>	47	49	16	1	2	11	91	61	65			343
<i>Labidesthes sicculus</i>							8		4			12
<i>Centrarchus macropterus</i>							15		50			65
<i>Etheostoma zonatum</i>		4	1		1		16		17	2		41
<i>Lepomis cyanellus</i>	2				1		3		1			7
<i>Lepomis gulosus</i>	1			1	1		16		26			45
<i>Lepomis humilis</i>			1				1			1		3
<i>Lepomis macrochirus</i>	1	7	25	1		2	91		138	5	1	271
<i>Lepomis marginatus</i>			9		3		32		2			46
<i>Lepomis megalotis</i>	3						19				1	23
<i>Lepomis microlophus</i>							9					9
<i>Lepomis punctatus</i>						1	2		3			5
<i>Micropterus salmoides</i>			2		2	1	5		15			25
<i>Pomoxis annularis</i>							1					1
<i>Pomoxis nigromaculatus</i>	1						11		37			49
<i>Etheostoma asprigene</i>	1											1
<i>Etheostoma chlorosomum</i>		2	3				9			1		15
<i>Etheostoma collettei</i>							7		1			8
<i>Etheostoma gracile</i>		3			1	1	5		13	2		25
<i>Etheostoma parvipinne</i>	19									1		20
<i>Etheostoma proellare</i>					1		11					12
<i>Etheostoma stigmaeum</i>											1	1
<i>Etheostoma whipplei</i>				1	1	10						12
<i>Percina maculata</i>							1					1
												1548