

GEOLOGICAL SURVEY OF ALABAMA

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**SURVEY OF THE ELK RIVER SYSTEM IN ALABAMA
FOR FISH SPECIES OF MODERATE TO
HIGHEST CONSERVATION CONCERN:
REPORT OF RESULTS FOR 2004**

OPEN-FILE REPORT 0506

by

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Stuart W. McGregor, and Maurice F. Mettee

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Conservation and Natural Resources

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ABSTRACT

In 2004, 56 fish samples were collected at 47 stations in the Elk River system to determine the present distribution and abundance of 13 species of moderate to highest conservation concern in Alabama. Sampling produced 91 species including 12 of 13 species of conservation concern historically known to occur in the system. New tributary records were found for five of these species including a population of the boulder darter which was found in Shoal Creek upstream of the embayment of Wheeler Reservoir. New tributary records were also found for the streamline chub, the highlands stonecat, the skygazing minnow, and the highland shiner. This report also documents the invasion of the Elk River system by the Mississippi silverside.

ACKNOWLEDGMENTS

The Wildlife and Freshwater Fisheries Division (WFFD) of the Alabama Department of Conservation and Natural Resources (ADCNR) provided funding to conduct this research. The ADCNR and Tennessee Wildlife Resources Agency issued scientific collecting permits for Alabama and Tennessee, respectively. The United States Fish and Wildlife Service office in Atlanta, Georgia, issued an endangered species permit to conduct this project. Field assistance was provided by Bob Baker, Marlon Cook, Blakeney Gillett, and Neil Moss of the Geological Survey of Alabama (GSA). Keith Floyd of WFFD allowed us to store equipment at the WFFD district fisheries office in Decatur while we were working in the area. Dr. Bernard R. Kuhajda provided information on recent fish collections in the Elk River system in Alabama by

University of Alabama (UA) personnel and on material housed at the University of Alabama Ichthyological Collection.

INTRODUCTION

A recent conference of biologists was convened in 2002 to determine the conservation status of Alabama's vertebrates and freshwater mollusks (Mirarchi and others, 2004). The fish committee at the conference determined that of 296 native freshwater and estuarine/marine fishes known to inhabit the state, 22 were of highest conservation concern, 25 were of high conservation concern, 33 were of moderate conservation concern, and the other 216 species were of low or lowest concern (Mettee, 2004a). An unusually large number of fish species of moderate to highest conservation concern are known to occur in the Alabama segment of the Elk River system (Smith-Vaniz, 1968; Jandebeur, 1972; Mettee and others, 1996; Mettee and others, 2002, Boschung and Mayden, 2004a). In the Elk River system in Alabama, there are four species of moderate concern (skipjack herring, *Alosa chrysochloris*; blotched chub, *Erimystax insignis*; highland shiner, *Notropis micropteryx*; and silver shiner, *N. photogenis*), eight species of high concern (streamline chub, *Erimystax dissimilis*; shoal chub, *Macrhybopsis hyostoma*; ghost shiner, *N. buchanani*; stargazing minnow, *Phenacobius uranops*; mountain madtom, *Noturus eleutherus*; highlands stonecat, *N. sp. cf. flavus*; bluebreast darter, *Etheostoma camurum*; and gilt darter, *Percina evides*), and one species of highest conservation concern (boulder darter, *Etheostoma wapiti*) which is also federally listed as an endangered species. Striped bass (*Morone saxatilis*) are also a species of moderate conservation concern in Alabama and occur in the Elk River system as an introduced species. There are two species that are known from the Elk River system in Tennessee but which are thought to be extirpated in Alabama. These are the popeye shiner, *Notropis ariommus*, and the ashy darter, *Etheostoma cinereum*.

Jandebeur (1972) conducted a fish survey of the entire Elk River system between 1967 and 1971 and documented the occurrence of 104 species. Subsequent collections in the system in Alabama have produced new distributional records for a number of species. Some examples are the bluebreast darter, *Etheostoma camurum*,

and mountain madtom, *Noturus eleutherus*, which were first found in Alabama state waters in the Elk River by GSA biologists in 1993 (Mettee and others, 1996; Mettee and others, 2002). The ghost shiner, *Notropis buchanani*, and river darter, *Percina shumardi*, were also only recently discovered in the Elk River in Alabama by biologists with UA (B.R. Kuhajda, pers. comm.; Boschung and Mayden, 2004a). For the most part, recent collection efforts have been restricted to a few easily accessible localities, and a thorough survey has not been conducted in the Elk River system since Jandebeur's (1972) work.

While the Elk River system provides habitat for a large number of sensitive and uncommon fish species, it is not a pristine river and has been significantly impacted by nonpoint--source pollution and irregular pulsed flows from hydroelectric generation at Tims Ford Dam about 100 river miles upstream of the Alabama state line in Tennessee. Extensive agriculture in the lower portions of the watershed has produced heavy sediment loads in the main channel. Peaking flows from Tims Ford Dam can lead to daily water level fluctuations of over 5 feet in the main channel at the Alabama state line.

The Geological Survey of Alabama was funded by ADCNR in 2004 to investigate the status of fish species of conservation concern in the Elk River system in Alabama. The objective of this study is to accurately determine the current distribution and relative abundance of these species and to attempt to identify impacts to the system that may be adversely affecting their populations.

STUDY AREA

The Elk River is a large tributary of the Tennessee River draining an area of about 2,250 square miles in north-central Alabama and south-central Tennessee (fig 1). The river extends for about 200 miles from its headwaters in Grundy County, Tennessee, to the mouth at the borders of Limestone, Lauderdale, and Lawrence Counties in Alabama (Jandebeur, 1972). Elevations range from over 1,900 feet in the headwaters to about 550 feet at the embayment of Wheeler Reservoir near the mouth. Major tributaries in Alabama are Anderson Creek, Big Creek, Sugar Creek, Sulphur Creek, and Shoal Creek.

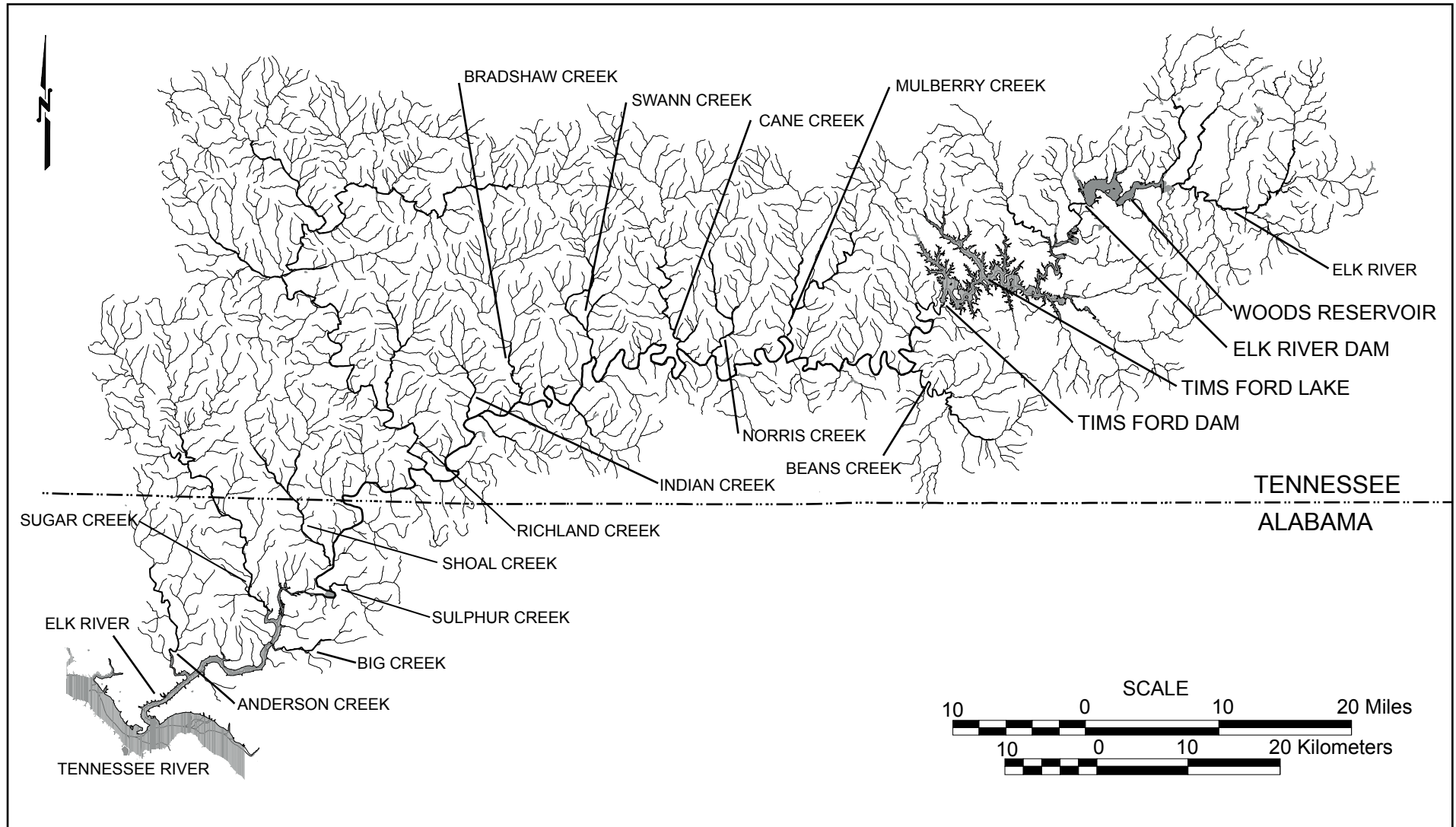


Figure 1. The Elk River system in Alabama and Tennessee.

The majority of the Elk River watershed and all of the drainage in Alabama flows through the Tennessee Valley district of the Highland Rim physiographic region (Sapp and Emplaincourt, 1975). The region is composed of Mississippian chert and limestone and Ordovician limestone and shale (Osborne and others, 1989). Streams in the Highland Rim are characterized by moderate gradients with low to moderately productive clear waters and substrates of chert gravel, sand, and bedrock (Etnier and Starnes, 1993). Etnier and Starnes (1993) noted that the Highland Rim harbors one of the most diverse fish faunas of any area of comparable size in North America due to its geologic complexity and many drainage systems.

The lower portion of the Elk River is impounded by the embayment of Wheeler Reservoir for about 28 miles upstream to near Gallus Island. The downstream portions of Anderson, Big, Sugar, Sulphur, and Shoal Creeks are also within the embayment of the reservoir. Wheeler Dam is a Tennessee Valley Authority (TVA) facility on the Tennessee River near Rogersville, Alabama, which was completed in 1936 and impounds an area of over 67,000 surface acres. Other major impoundments in the Elk River system are Tims Ford Lake near Tullahoma, Tennessee, about 100 river miles upstream of the Alabama state line, and Woods Reservoir also on the main stem of Elk River several river miles upstream of the Tims Ford embayment. Woods Reservoir is a water supply reservoir completed in 1952 by the U.S. Army Corps of Engineers with a surface area of about 3,900 acres. Tims Ford Reservoir was completed by TVA in 1970 as a hydroelectric/multipurpose facility. The reservoir area encompasses about 10,700 surface acres and extends for 34 river miles upstream of the dam. Cold water discharge from the dam supports a recreational fishery for stocked trout downstream of the dam. TVA has installed compressors to aerate waters downstream of the dam and a small turbine to produce minimum flows when there is no power generation. Pulsed flows from Tims Ford Dam have a major influence on water levels and flow rates in the flowing section of the Elk River in Alabama. Water levels can rise over 5 feet between minimum flows and maximum turbine operation at the dam. Bank structure is also degraded due to the scouring effects of peaking flows.

Land use in the watershed in Alabama is dominated by row crops and pastureland. The cities of Fayetteville, Pulaski, Tullahoma, and Winchester are located in the watershed in Tennessee. The city of Athens, Alabama, uses the Elk River as a water supply and has a water intake located just upstream of Mason Island.

METHODS

Fifty-seven samples were collected from 47 stations in the Elk River system in 2004 to determine the presence and relative abundance of species of conservation concern (table 1, fig. 2, app. A, B). Twenty-four stations were on the main stem of the Elk River and 23 were in tributaries. Collections in wadeable shoals were conducted using nylon minnow seines from 6 to 20 feet in length depending on the stream size. A portable backpack electrofishing unit was used in conjunction with the seine at many stations to facilitate effective sampling. Techniques consisted of seining pools, setting the net below shallow stream riffles and electrofishing through the rubble while kicking and overturning the substrate, following the person operating the shocking unit with a seine, and operation of the electrofisher in deeper waters and around larger obstacles in the stream and netting stunned fish with a dip net. A 14-foot electrofishing boat was used to sample in the impounded section of the river and in pools in the flowing section that were too deep to sample effectively with the seine and backpack electrofisher. Gill nets were used in the impounded sections of the Elk River in an attempt to capture larger riverine fishes of conservation concern such as blue suckers, *Cycorephus elongatus*, and walleye, *Sander vitreus*, which could potentially occur in the Elk River. The gill nets were multifilament, 200 feet long and 6 feet deep with a 2-inch bar mesh.

RESULTS AND DISCUSSION

Collection efforts in the Elk River system in 2004 produced 91 fish species and a few hybrid sunfish (table 2). Sampling produced 12 of 13 species of moderate to highest conservation concern known to occur in the Elk River system in Alabama on at least one occasion. New localities were found for seven of these species including new tributary records for the boulder darter, the streamline chub, the stargazing minnow, the highlands stonecat, and the highland shiner. A single large (approximately 2.5 foot TL)

Table 1. Summary information on sampling stations in the Elk River system, 2004.

Station	Location	County, State	TRS	Coordinates	Date	Time	Techniques
ER-1	Elk River about .25 mi. upstream of mouth	Limestone/ Lauderdale, AL	sec. 21, T. 3 S., R. 7 W.	34°46'55.9"N 87°16'44.6"W	11 Aug. 2004	1130-1400	5-200 ft. gill nets
ER-2	Elk River @ slough S. of Poplar Springs Branch	Limestone, AL	sec. 15, T. 3 S., R. 7 W.	34°47' 12.5"N 87°15'02.9"W	11 Aug. 2004	1345-1525	electrofishing boat
ER-3	Elk River N. of Dells Vista Shores (slough)	Lauderdale, AL	sec. 16, T. 3 S., R. 7 W.	34°46'59.2"N 87°16'57.2"W	11 Aug. 2004	1135-1300	electrofishing boat
ER-4	Elk River just up and downstream of U.S. Hwy. 72	Limestone/ Lauderdale, AL	sec. 12, T. 3 S., R. 7 W.	34°48'25.7"N 87°13'51.8"W	11 Aug. 2004	1430-1700	5-200 ft. gill nets
ER-5	Elk River @ cliffs upstream of Anderson Creek mouth	Lauderdale, AL	sec. 31, T. 2 S., R. 6 W.	34°49' 50.4"N 87°12' 24.0"W	11 Aug. 2004	1615-1650	electrofishing boat
ER-6	Elk River @ mouth of Maple Swamp Branch	Limestone, AL	sec. 32, T. 2 S., R. 6 W.	34°49'46.3"N 87°11'1.4"W	12 Aug. 2004	0915-1130	5-200 ft. gill nets
ER-7	Elk River @ slough downstream of Shanghai landing	Limestone, AL	sec. 25, T. 2 S., R. 6 W.	34°50'00.6"N 87 °07'27.1"W	12 Aug. 2004	0845-0930	electrofishing boat
ER-8	Elk River @ slough across from mouth of Sugar Creek	Limestone, AL	sec. 24, T. 2 S., R. 6 W.	34°51'59.8"N 87°06'17.0"W	12 Aug. 2004	1035-1135	electrofishing boat
ER-9	Elk River just upstream of Twin Springs	Limestone, AL	sec. 13, T. 2 S., R. 6 W.	34°52'42"N 87°6'18.4"W	12 Aug. 2004	1615-1800	3-200 ft. gill nets
ER-10	Elk River @ slough 2 mi. S. of Salem	Limestone, AL	sec. 1, T. 2 S., R. 6 W.	34°54'20.7"N 87°06' 28.5"W	12 Aug. 2004	1215-1240	electrofishing boat
ER-11	Elk River @ river mile 19	Limestone, AL	sec. 1, T. 2 S., R. 6 W.	34°54'17.8"N 87°06'23.6"W	12 Aug. 2004	1300-1510	5-200 ft. gill nets
ER-12	Elk River upstream of Buck Island	Limestone, AL	sec. 41, T. 2 S., R. 5 W.	34°53'55.9"N 87°3'39.8"W	12-13 Aug. 2004	1600-0830	2-200 ft. gill nets (overnight set)
ER-13	Elk River @ water intake	Limestone, AL	sec. 3, T. 2 S., R. 5 W.	87°06'28.5"N 87°03'03.4"W	12 Aug. 2004	1525-1600	electrofishing boat
ER-14	Elk River between hatchery and Easter Ferry Bridge	Limestone, AL	sec. 33, T. 1 S., R. 5 W.	34°54'20.5"N 87°03'28.2"W	12 Aug. 2004	1435-1455	electrofishing boat
ER-15	Elk River @ Easter Ferry Bridge	Limestone, AL	sec. 27/43, T. 1 S., R. 5 W.	34°55'19.9"N 87°03'05.4"W	12 Aug. 2004	1350-1430	electrofishing boat

Table 1. Summary information on sampling stations in the Elk River system, 2004—continued

Station	Location	County, State	TRS	Coordinates	Date	Time	Techniques
ER-16	Elk River @ lower end of Gallus Island	Limestone, AL	sec. 22, T. 1 S., R. 5 W.	34°56'20.1"N 87°02'27.6"W	13 Aug. 2004	0930-1245	3-200 ft. gill nets
ER-17	Elk River @ Gallus Island	Limestone, AL	sec. 22, T. 1 S., R. 5 W.	34°56'36.4"N 87°02'33.8"W	13 Aug. 2004	0900-1120	electrofishing boat
ER-18a	Elk River @ upper end of Gallus Island	Limestone, AL	sec. 22, T. 1 S., R. 5 W.	34°56'44.5"N 87°02'30.6"W	3 Aug. 2004	1425-1500	10 ft. seine
ER-18b					17 Aug. 2004	1340-1400	8 ft. seine
ER-19a	Elk River upstream of Gallus Island, river mile 28.5	Limestone, AL	sec. 22, T. 1 S., R. 5 W.	34°57'2.3"N 87°02'32.6"W	13 Aug. 2004	0935-1205	2-200 ft. gill nets
ER-19b					17 Aug. 2004	1530-1615	electrofishing boat
ER-20	Elk River @ river mile 29	Limestone, AL	sec. 15, T. 1 S. R. 5 W.	34°57'31.8"N 87°02'10.7"W	17 Aug. 2004	1450-1525	electrofishing boat
ER-21a	Elk River @ Mason Island	Limestone, AL	sec. 12, T. 1 S., R. 5 W.	34°58'27.5"N 87°00'23.7"W	29 July 2004	1515-1540	10 ft. seine
ER-21b					2 Aug. 2004	1240-1310	10 ft. seine
ER-21c					17 Aug. 2004	1115-1230	20 ft. seine, backpack shocker
ER-22a	Elk River @ Fishtrap Ford, river mile 32.5	Limestone, AL	sec. 1, T. 1 S., R. 5 W.,	34°59'19.6"N 87°00'44.1"W	29 July 2004	1350-1450	10 ft. seine, backpack shocker, electrofishing boat
ER-22b					2 Aug. 2004	1345-1445	10 ft. seine, backpack shocker
ER-22c					17 Aug. 2004	0900-1040	10 ft. seine, backpack shocker
ER-23a	Elk River @ Winding Stair Bluff, river mile 34	Giles, TN		34°59'57.6"N 87°01'47.8"W	29 July 2004	1230-1250	10 ft. seine
ER-23b					16 Aug. 2004	1515-1630	10 ft. seine, backpack shocker

Table 1. Summary information on sampling stations in the Elk River system, 2004–continued

Station	Location	County, State	TRS	Coordinates	Date	Time	Techniques
ER-24a	Elk River @ shoal, river mile 34.5	Giles, TN		35°00'1.0"N 87°01'31.1"W	29 July 2004	0915-1115	10 ft. seine, backpack shocker, electrofishing boat
ER-24b					2 Aug. 2004	1530-1615	10 ft. seine, backpack shocker
ER-24c					16 Aug. 2004	1215-1445	10 ft. seine, backpack shocker
AC-1	Planter Branch @ Snake Road	Lauderdale, AL	sec. 24, T. 2 S., R. 7 W.	34°50'57.2"N 87°16'07.0"W	27 Feb. 2004	1215-1230	6 ft. seine
AC-2a	Anderson Creek @ first flowing shoal upstream of Wheeler Lake	Lauderdale, AL	sec. 26, T. 2 S., R. 7 W.	34°50'35.5"N 87°14'19.7"W	22 July 2004	1140-1230	10 ft. seine, electrofishing boat
AC-2b					5 Aug. 2004	0855-1015	10 ft. seine, backpack shocker
AC-3	Unnamed tributary to Dement Creek @ County Hwy. 117	Lauderdale, AL	sec. 24, T. 2 S., R. 7 W.,	34°51'42.8"N 87°13'28.8"W	27 Feb. 2004	1115-1130	8 ft. seine
AC-4	Deerlick Branch @ County Hwy. 156	Lauderdale, AL	sec. 36, T. 1 S., R. 7 W.	34°55'20.5"N 87°13'26.2"W	27 Feb. 2004	0945-1000	6 ft. seine
AC-5	East Fork Anderson Creek @ County Hwy. 526	Lauderdale, AL	sec. 14, T. 1 S., R. 7 W.,	34°56'31.9"N 87°14'17.0"W	26 Feb. 2004	0945-1010	6 ft. seine
AC-6	East Fork Anderson Creek @ Alabama Hwy. 64	Lauderdale, AL	sec. 12, T. 1 S., R. 7 W.	34°58'37.3"N 87°13'26.9"W	26 Feb. 2004	1100-1122	6 ft. seine
AC-7	Middle Fork Anderson Creek @ County Hwy. 181	Lauderdale, AL	sec. 3, T. 1 S., R. 7 W.,	34°59'12.1"N 87°15'52.7"W	26 Feb. 2004	1150-1205	6 ft. seine
AC-8	Birch Branch @ Bonnertown-Appleton Road	Lawrence, TN		35°00'32.8"N 87°16'19.9"W	26 Feb. 2004	1300-1320	6 ft. seine
BC-1	Big Creek @ first flowing shoal upstream of Wheeler Lake	Limestone, AL	sec. 30, T. 2 S., R. 5 W.,	34°50'29.4"N 87°6'4.3"W	27 July 2004	1540-1750	10 ft. seine, backpack shocker, electrofishing boat
SC-1	Sugar Creek @ power line	Limestone, AL	sec. 11, T. 2 S., R. 6 W.	34°52'54.8"N 87°7'26.5"W	28 July 2004	1645-1705	electrofishing boat

Table 1. Summary information on sampling stations in the Elk River system, 2004–continued

Station	Location	County, State	TRS	Coordinates	Date	Time	Techniques
SC-2	Sugar Creek @ river mile 3	Limestone, AL	sec. 11, T. 2 S., R. 6 W.	34°53'30.14"N 87°08'4.3"W	28 July 2004	1450-1620	10 ft. seine, backpack shocker, electrofishing boat
SC-3	Sugar Creek @ shoal .5 mi. SSW Band Mill Springs, river mile 4	Limestone, AL	sec. 3, T. 2 S., R. 6 W.	34°53' 49.5"N 87°08'41.0"W	28 Jul 2004	1015-1415	10 ft. seine, backpack shocker, electrofishing boat
SC-4	Dobbins Branch @ County Hwy. 98	Limestone, AL	sec. 13, T. 1 S., R. 7 W.	34°57'45.4"N 87°13'02.7"W	27 Feb. 2004	0915-0930	6 ft. seine
SC-5	Mechanic Branch @ Alabama Hwy. 99	Limestone, AL	sec. 26, T. 1 S., R. 6 W.	34°56'25.6"N 87°07'39.7"W	26 Feb. 2004	1600-1615	6 ft. seine
SC-6	Sugar Creek @ shoal upstream of Alabama Hwy 99	Limestone, AL	sec. 22, T. 1 S., R. 6 W.	34°56'39.9"N 87°09'21.2"W	4 Aug. 2004	1024-1130	10 ft. seine, backpack shocker
SC-7	West Fork Sugar Creek @ Appleton Road	Lawrence, TN		35°01'56.2"N 87°13'29.5"W	4 Aug. 2004	1345-1500	10 ft. seine, backpack shocker
SC-8	West Fork Sugar Creek @ Dunn Road	Lawrence, TN		35°09'39.2"N 87°19'42.7"W	25 Feb. 2004	0945-1015	backpack shocker, dip net
SC-9	East Fork Sugar Creek @ Fall River Road	Lawrence, TN		35°08'38.2"N 87°14'51.9"W	25 Feb. 2004	1245-1300	6 ft. seine
SU-1	Sulphur Creek @ first shoal upstream of Wheeler Lake	Limestone, AL	sec. 3, T. 2 S., R. 5 W.	34°54'25.8"N 87°02'41.1"W	30 July 2004	0930-1145	10 ft. seine, backpack shocker, electrofishing boat
SH-1	Shoal Creek upstream of mouth	Limestone, AL	sec. 27, T. 2 S., R. 5 W.	34°55'48.8"N 87°02'33.9"W	13 Aug. 2004	1130-1200	electrofishing boat
SH-2	Shoal Creek about 1 mi. downstream of first flowing shoal	Limestone, AL	sec. 27, T. 2 S., R. 5 W.	34°55'48.3"N 87°02'47.3"W	3 Aug. 2004	1325-1350	electrofishing boat
SH-3	Shoal Creek @ first flowing shoal upstream of Wheeler Lake	Limestone, AL	sec. 27, T. 2 S., R. 5 W.	34°56'10.1"N 87°02'52.7"W	3 Aug. 2004	1040-1210	10 ft. seine, backpack shocker
SH-4	Shoal Creek @ Leggtown Road	Limestone, AL	sec. 16, T. 1 S., R. 5 W.	34°57'9.0"N 87°4'1.8"W	18 Aug. 2004	0900-1125	10 ft. seine, backpack shocker

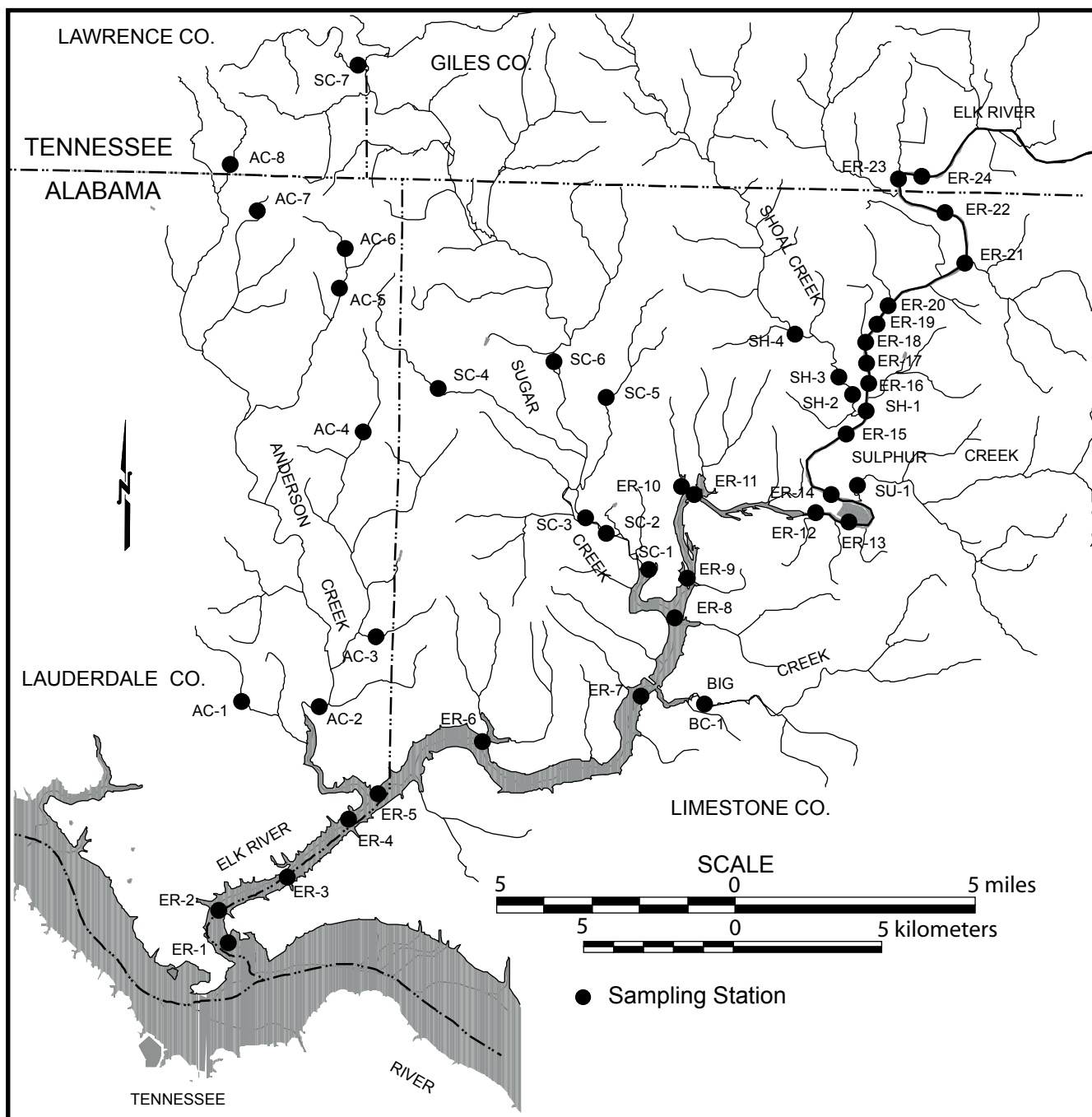


Figure 2. Sampling stations in the Elk River system, 2004
 (station numbers and descriptions are in table 1).

Table 2. Fish species collected in the Elk River system, 2004.

Species	Common name	Number of specimens	Percent of total catch
Petromyzontidae			
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	3	0.0
Lepisosteidae			
<i>Lepisosteus oculatus</i>	spotted gar	132	0.8
<i>Lepisosteus osseus</i>	longnose gar	16	0.1
Amiidae			
<i>Amia calva</i>	bowfin	1	0.0
Clupeidae			
<i>Alosa chrysochloris</i>	skipjack herring	12	0.1
<i>Dorosoma cepedianum</i>	gizzard shad	1,055	6.4
<i>Dorosoma petenense</i>	threadfin shad	2,804	17.0
Cyprinidae			
<i>Campostoma oligolepis</i>	largescale stoneroller	2,931	17.8
<i>Cinostomus funduloides</i>	rosyside dace	4	0.0
<i>Cyprinella galactura</i>	whitetail shiner	193	1.2
<i>Cyprinella spiloptera</i>	spotfin shiner	335	2.0
<i>Cyprinella whipplei</i>	steelcolor shiner	36	0.2
<i>Cyprinus carpio</i>	common carp	2	0.0
<i>Erimystax dissimilis</i>	streamline chub	32	0.2
<i>Erimystax insignis</i>	blotched chub	141	0.9
<i>Hemitremia flammea</i>	flame chub	2	0.0
<i>Hybopsis amblops</i>	bigeye chub	361	2.2
<i>Luxilus chrysocephalus</i>	striped shiner	1,126	6.8
<i>Lythrurus fasciolaris</i>	scarlet shiner	177	1.1
<i>Macrhybopsis hyostoma</i>	shoal chub	1	0.0
<i>Notemigonus crysoleucas</i>	golden shiner	22	0.1
<i>Notropis atherinoides</i>	emerald shiner	54	0.3
<i>Notropis micropteryx</i>	highland shiner	207	1.3
<i>Notropis photogenis</i>	silver shiner	52	0.3
<i>Notropis telescopus</i>	telescope shiner	98	0.6
<i>Notropis volucellus</i>	mimic shiner	737	4.5
<i>Phenacobius uranops</i>	stargazing minnow	28	0.2
<i>Pimephales notatus</i>	bluntnose minnow	5	0.0
<i>Pimephales vigilax</i>	bullhead minnow	13	0.1
<i>Rhinichthys atratulus</i>	blacknose dace	6	0.0
<i>Semotilus atromaculatus</i>	creek chub	11	0.1
Catostomidae			
<i>Carpiodes carpio</i>	river carpsucker	1	0.0
<i>Carpiodes velifer</i>	highfin carpsucker	12	0.1
<i>Erimyzon oblongus</i>	creek chubsucker	1	0.0
<i>Hypentelium nigricans</i>	northern hog sucker	175	1.1
<i>Ictiobus bubalus</i>	smallmouth buffalo	181	1.1
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	1	0.0
<i>Minytrema melanops</i>	spotted sucker	133	0.8
<i>Moxostoma anisurum</i>	silver redhorse	49	0.3
<i>Moxostoma breviceps</i>	smallmouth redhorse	18	0.1
<i>Moxostoma carinatum</i>	river redhorse	10	0.1
<i>Moxostoma duquesnei</i>	black redhorse	92	0.6
<i>Moxostoma erythrurum</i>	golden redhorse	178	1.1

Table 2. Fish species collected in the Elk River system, 2004.

Species	Common name	Number of specimens	Percent of total catch
Ictaluridae			
<i>Ictalurus furcatus</i>	blue catfish	7	0.0
<i>Ictalurus punctatus</i>	channel catfish	39	0.2
<i>Noturus eleutherus</i>	mountain madtom	68	0.4
<i>Noturus exilis</i>	slender madtom	8	0.0
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	30	0.2
<i>Pylodictis olivaris</i>	flathead catfish	3	0.0
Atherinopsidae			
<i>Labidesthes sicculus</i>	brook silverside	19	0.1
<i>Menidia audens</i>	Mississippi silverside	188	1.1
Fundulidae			
<i>Fundulus catenatus</i>	northern studfish	42	0.3
<i>Fundulus olivaceus</i>	blackspotted topminnow	27	0.2
<i>Fundulus notatus</i>	blackstripe topminnow	1	0.0
Poeciliidae			
<i>Gambusia affinis</i>	mosquitofish	23	0.1
Cottidae			
<i>Cottus carolinae</i>	banded sculpin	253	1.5
Moronidae			
<i>Morone chrysops</i>	white bass	8	0.0
<i>Morone mississippiensis</i>	yellow bass	13	0.1
<i>Morone saxatilis</i>	striped bass	1	0.0
Centrarchidae			
<i>Ambloplites rupestris</i>	rock bass	45	0.3
<i>Lepomis cyanellus</i>	green sunfish	72	0.4
<i>Lepomis gulosus</i>	warmouth	13	0.1
<i>Lepomis humilis</i>	orangespotted sunfish	15	0.1
<i>Lepomis macrochirus</i>	bluegill	792	4.8
<i>Lepomis marginatus</i>	dollar sunfish	1	0.0
<i>Lepomis megalotis</i>	longear sunfish	272	1.6
<i>Lepomis microlophus</i>	reardear sunfish	65	0.4
<i>Lepomis</i> hybrids	sunfish hybrids	3	0.0
<i>Micropterus dolomieu</i>	smallmouth bass	37	0.2
<i>Micropterus punctulatus</i>	spotted bass	48	0.3
<i>Micropterus salmoides</i>	largemouth bass	278	1.7
<i>Pomoxis annularis</i>	white crappie	3	0.0
<i>Pomoxis nigromaculatus</i>	black crappie	2	0.0

Table 2. Fish species collected in the Elk River system, 2004.

Species	Common name	Number of specimens	Percent of total catch
Percidae			
<i>Etheostoma blennioides</i>	greenside darter	136	0.8
<i>Etheostoma caeruleum</i>	rainbow darter	87	0.5
<i>Etheostoma camurum</i>	bluebreast darter	33	0.2
<i>Etheostoma duryi</i>	blackside snubnose darter	83	0.5
<i>Etheostoma flabellare</i>	fantail darter	11	0.1
<i>Etheostoma jessiae</i>	blueside darter	8	0.0
<i>Etheostoma nigripinne</i>	blackfin darter	10	0.1
<i>Etheostoma rufilineatum</i>	redline darter	1,320	8.0
<i>Etheostoma simoterum</i>	snubnose darter	238	1.4
<i>Etheostoma wapiti</i>	boulder darter	20	0.1
<i>Etheostoma zonale</i>	banded darter	212	1.3
<i>Perca flavescens</i>	yellow perch	11	0.1
<i>Percina caprodes</i>	logperch	305	1.8
<i>Percina evides</i>	gilt darter	94	0.6
<i>Percina sciera</i>	dusky darter	3	0.0
<i>Percina shumardi</i>	river darter	3	0.0
<i>Sander canadense</i>	sauger	1	0.0
Sciaenidae			
<i>Aplodinotus grunniens</i>	freshwater drum	100	0.6
Total		16,499	

striped bass was captured at station ER-13 in the Wheeler Lake embayment. Striped bass are not native to the Tennessee River drainage and there is apparently no natural reproduction in the population. The following are brief accounts of collection results for each of the species of conservation concern that were encountered.

BOULDER DARTER, *Etheostoma wapiti*, highest conservation concern and federally endangered. Boulder darters were found at five stations in this study (fig. 3, app. A, B). Three of the stations were within the known range of the species in the main channel of the Elk River in shoals at river miles 32.5 (ER-22), 34 (ER-23), and 34.5 (ER-24). The boulder darter is known from 60 river miles of the main channel of the Elk River from just upstream of the embayment of Wheeler Reservoir upstream to near Fayetteville, Tennessee. It historically occurred in Shoal Creek in Lauderdale County, Alabama, but that population is thought to be extirpated (Etnier and Starnes, 1993; Shute, 2004). In 1993, boulder darters were found at Fishtrap Ford (ER-22), Mason Island (ER-21), and at a deep boulder shoal just upstream of Alabama Highway 127 (Mettee and others, 2002). Collections at Mason Island did not produce the species during this study and the boulder shoal near highway 127 was not sampled. Boulder darters were uncommon at Fishtrap Ford and at river mile 34.5; however, they were more common in a boulder shoal composed of boulder/rubble over bedrock at the base of Winding Stair Bluff at river mile 34 (ER-23). One small (approximately 30 mm SL) juvenile was found on a gravel shoal at the head of Gallus Island (ER-18). The individual was presumably a waif from more suitable habitat upstream. Two adults were collected from Shoal Creek in a boulder shoal upstream of the embayment of Wheeler Reservoir (SH-3). This collection represents a new tributary record for the species. Although boulder darters are associated with large stream habitats such as the main stem of Elk River, they are also known from the downstream reaches of two other Elk River tributaries, Richland and Indian Creeks in Tennessee (Etnier and Starnes, 1993). Shoal Creek at station SH-3 is a small stream only about 40 feet wide. Since Shoal Creek is separated from the flowing section of Elk River by Wheeler Reservoir, it is likely that the Shoal Creek specimens represent a reproducing population. A collection at station SH-4, several miles upstream of this shoal, failed to produce boulder

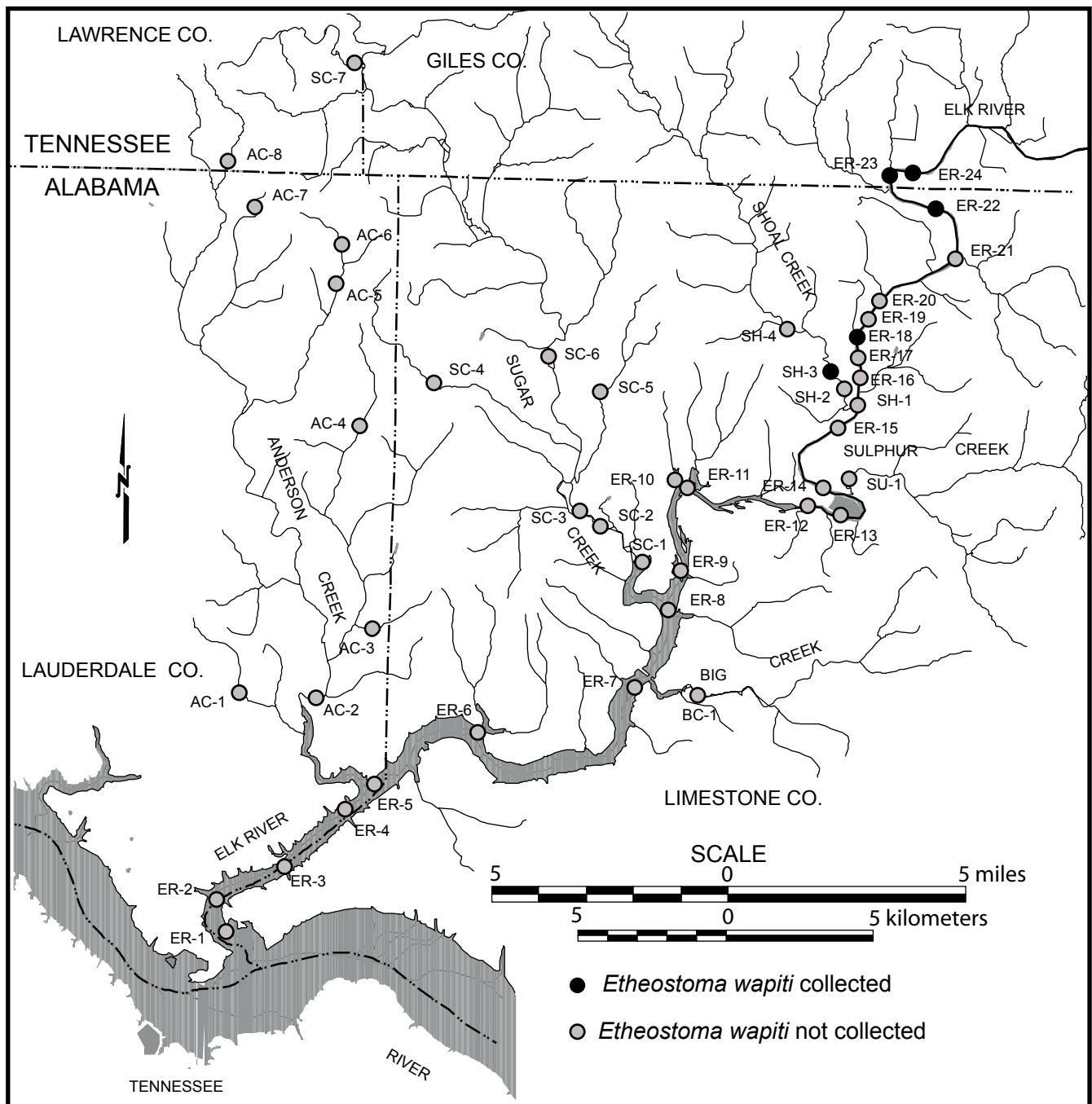


Figure 3. Sampling stations where the boulder darter, *Etheostoma wapiti*, was collected in the Elk River system, 2004.

arters although there was suitable slab-boulder habitat available at the station.

STREAMLINE CHUB, *Erimystax dissimilis*, high conservation concern.

Streamline chubs were collected in nine samples at seven stations (fig. 4, app. A, B). Within the Elk River system in Alabama, the species was previously known from only one locality in Sugar Creek (Mettee and others, 2002, Mettee, 2004b). In this study, streamline chubs were found in Big, Sulphur, and Sugar Creeks and at two stations in the main stem at the upper end of Gallus Island and river mile 34.5. Although uncommon at most stations, collections at stations SC-2, SC-3, and SC-6 in Sugar Creek produced from six to nine individuals (app. A, B). Collections in Big and Sulphur Creeks are new tributary records, and the collections at Gallus Island are new downstream range extensions in the main stem of the Elk River. Discovery of these new localities in the system is probably more related to lack of previous collection effort at the stations than to a range expansion by the species in recent years. Most of the new localities are accessible mainly by boat and had not been frequently sampled, if at all, in the past. Etnier and Starnes (1993) reported numerous localities for streamline chubs in the Elk River upstream of the Alabama state line. Streamline chubs are also found in the Shoal Creek and Paint Rock River systems in Alabama (Mettee and others, 1996; Mettee and others, 2002; Boschung and Mayden, 2004a). The overall distribution of the species is in the Tennessee, Cumberland, and upper Ohio River drainages (Harris, 1980).

SHOAL CHUB, *Macrhybopsis hyostoma*, high conservation concern. Our collection efforts produced only a single specimen of the shoal chub, which was collected over a gravel shoal at river mile 34.5 just across the state line in Tennessee (ER-24) (fig. 5, app. A, B). In Alabama, the species is known from only a few localities from the main channel of the Elk River from Mason Island upstream to near the Alabama-Tennessee state line (Mettee and others, 1996; Etnier and Starnes, 1993; Mettee and others, 2002; B.R. Kuhajda, pers. comm.; Boschung and Mayden, 2004a, b). Boschung and Mayden (2004b) reported their belief that the population in the Elk River is in danger of extirpation in Alabama. Results of this study support that opinion.

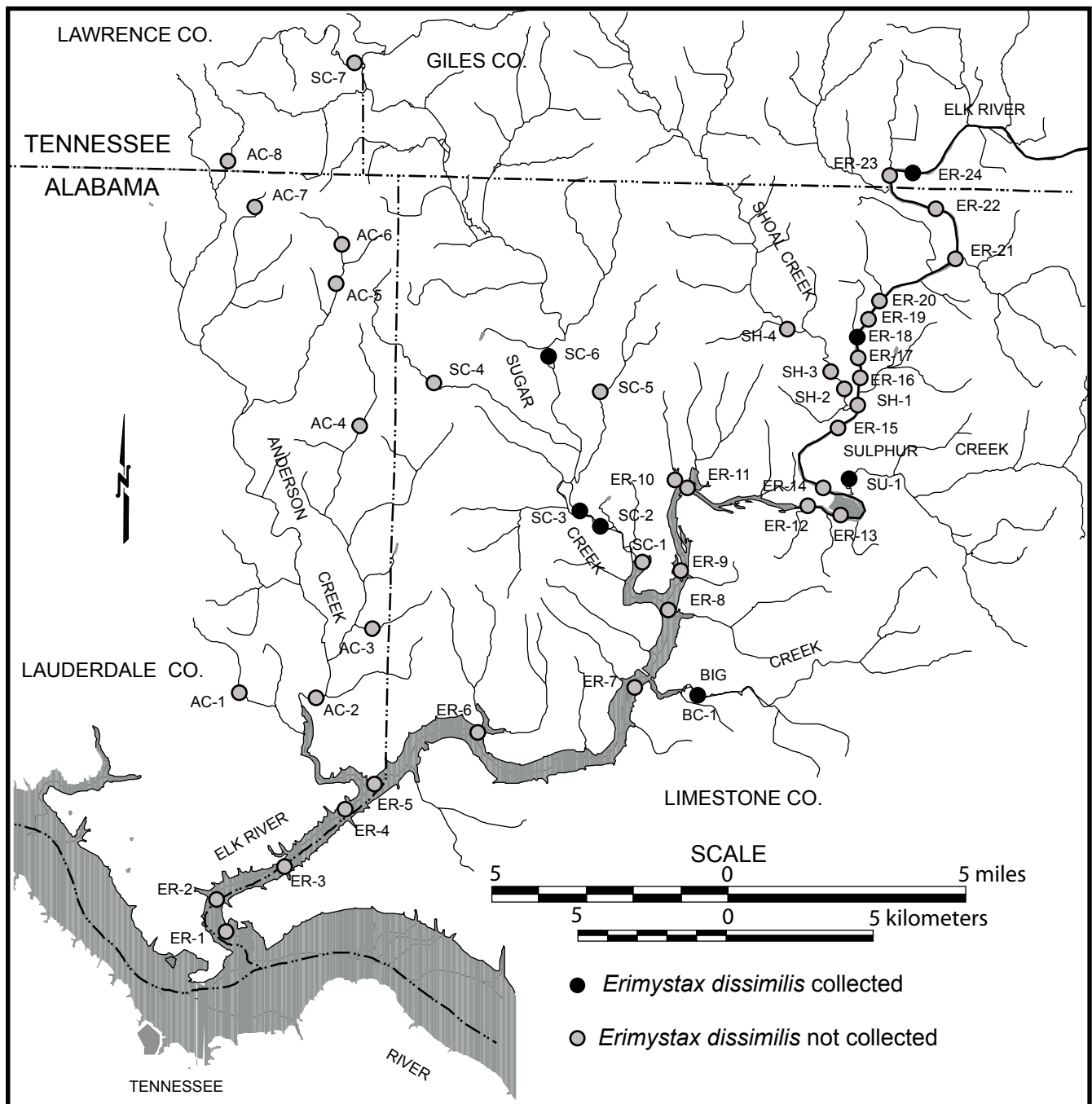


Figure 4. Sampling stations where the streamline chub, *Erimystax dissimilis*, was collected in the Elk River system, 2004.

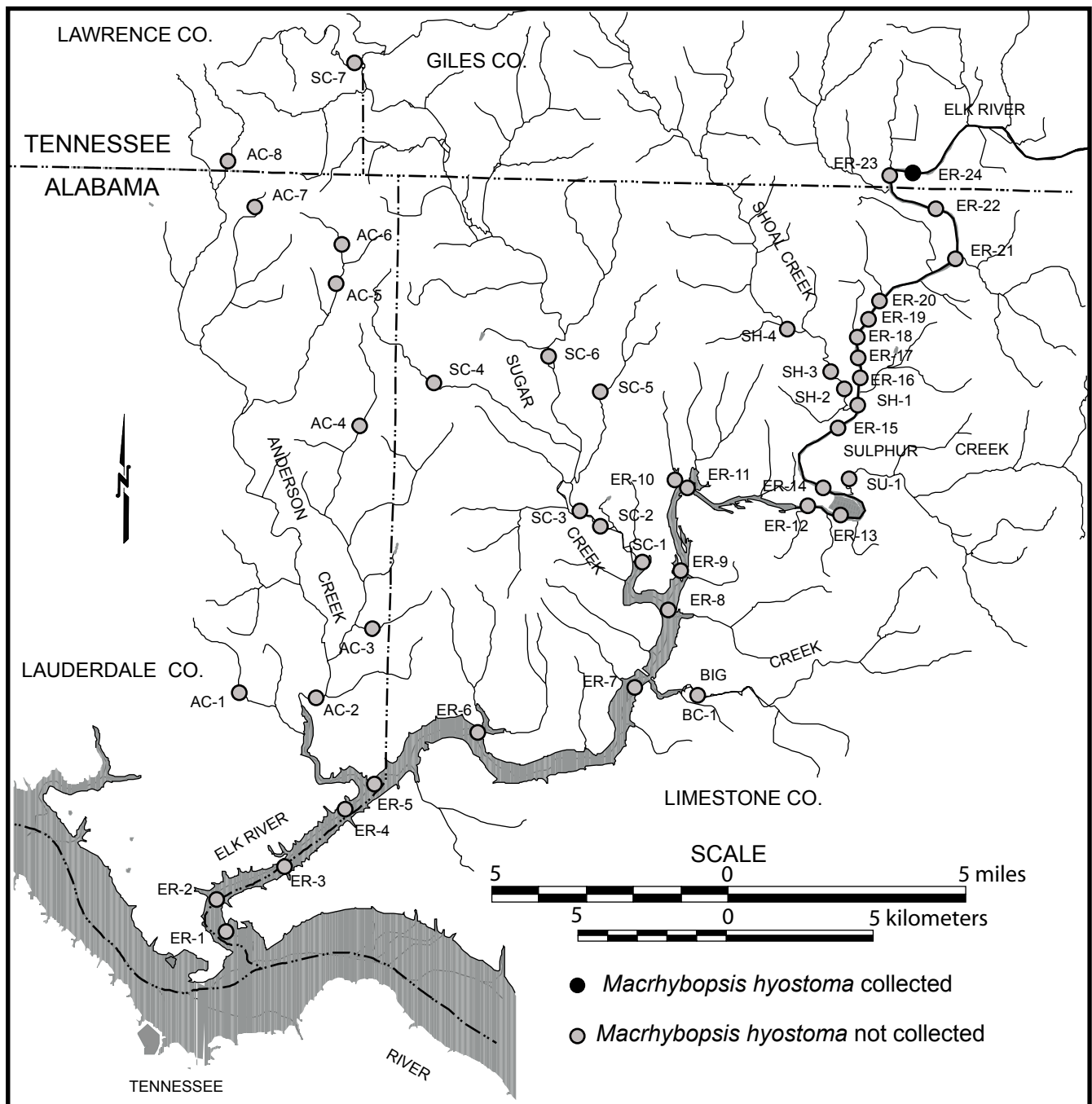


Figure 5. Sampling station where the shoal chub, *Macrhybopsis hyostoma*, was collected in the Elk River system, 2004.

The species has been extirpated in many parts of its former range in the Cumberland and Tennessee River systems (Etnier and Starnes, 1993). Boschung and Mayden (2004a) recommend that the shoal chub be considered for endangered species status. Based on this year's sampling results, consideration should also be given to raising the shoal chub from high (P2) to highest (P1) conservation concern in Alabama.

STARGAZING MINNOW, *Phenacobius uranops*, high conservation concern. Sampling produced stargazing minnows in 10 collections at eight stations (fig. 6, app. A, B). In the main channel of the Elk River, the species was collected at the head of Gallus Island (ER-18), Fishtrap Ford (ER-22), and at river miles 34 and 34.5 (ER-23, ER-24). Three stations in Sugar Creek (SC-2, SC-3, and SC-6) and the first upstream shoal in Big Creek (BC-1) also produced stargazing minnows, but they were uncommon at these stations. Our highest catch was 5 individuals in collections from Big Creek and also from Elk River at river mile 34.5. Jandebeur (1972) reported the species from only a single station in Sugar Creek for the Elk River system within Alabama although he found it at several other stations in Tennessee. The species has recently been collected at several additional localities in the Elk River near Mason Island in Alabama (B.R. Kuhajda, pers. comm.; Boschung and Mayden, 2004a). The collection in Big Creek is a new tributary record. Etnier and Starnes (1993) show numerous localities in the Elk River and tributaries in Tennessee. Stargazing minnows are also found in the flowing sections of the Shoal Creek system in Alabama (Mettee and others, 1996). The species is apparently extirpated in the Cypress Creek system (Mettee and others, 2002; Mettee, 2004c). The overall range of the species includes the Cumberland, Tennessee, and Green River drainages (Jenkins, 1980).

MOUNTAIN MADTOM, *Noturus eleutherus*, high conservation concern. Mountain madtoms were collected at only two stations: Fishtrap Ford (ER-22) and river mile 34.5 (ER-24) across the state line in Tennessee (fig. 7, app. A, B). This species was first collected in Alabama by GSA biologists in 1993 at Fishtrap Ford (Mettee and others 1996), which is the only known locality in the state. Etnier and Starnes (1993) also reported records in the Elk River in Tennessee near the state line. The species was common in the cobble/gravel riffles at the two stations from which they were

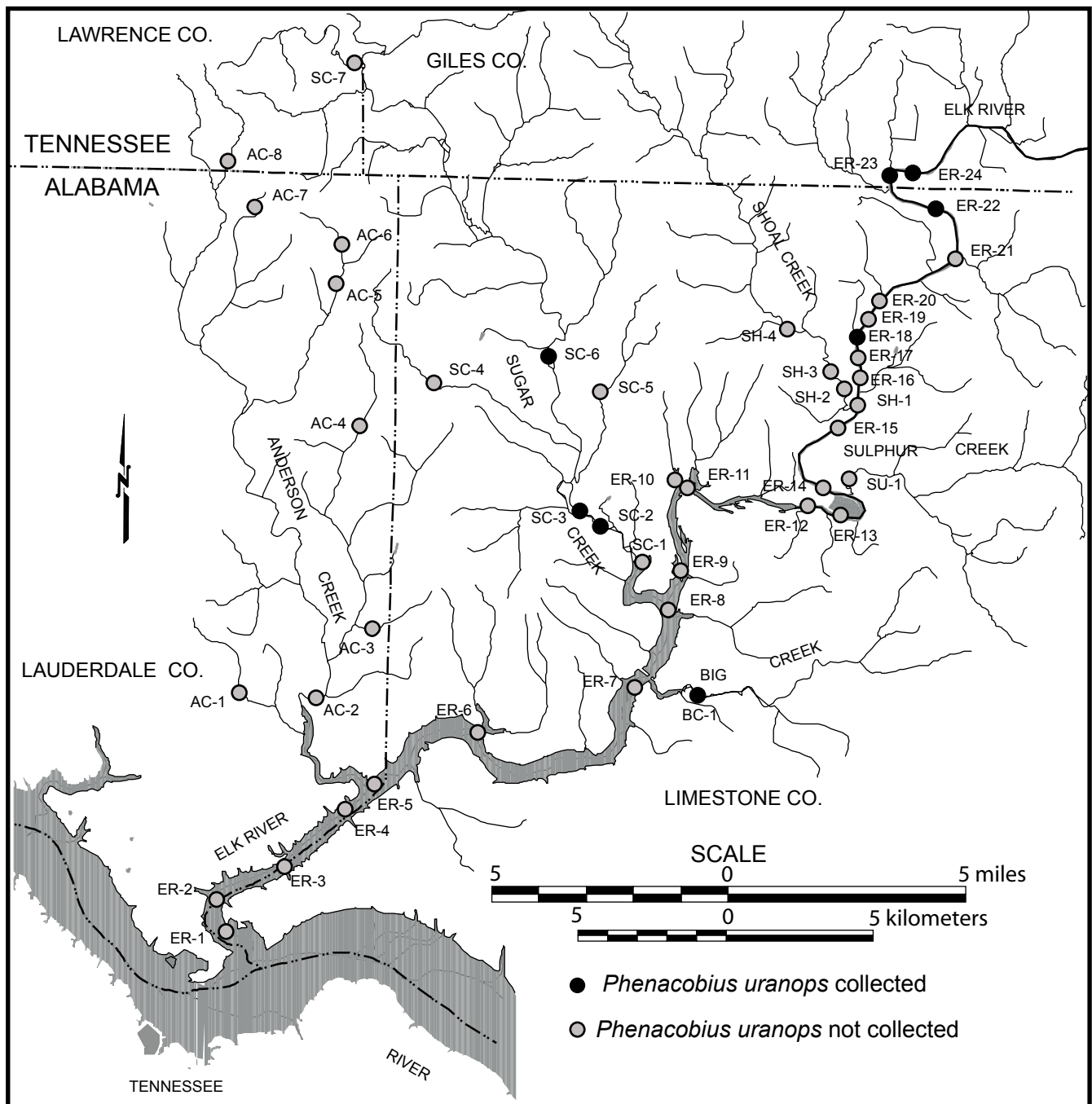


Figure 6. Sampling stations where the stargazing minnow, *Phenacobius uranops*, was collected in the Elk River system, 2004.

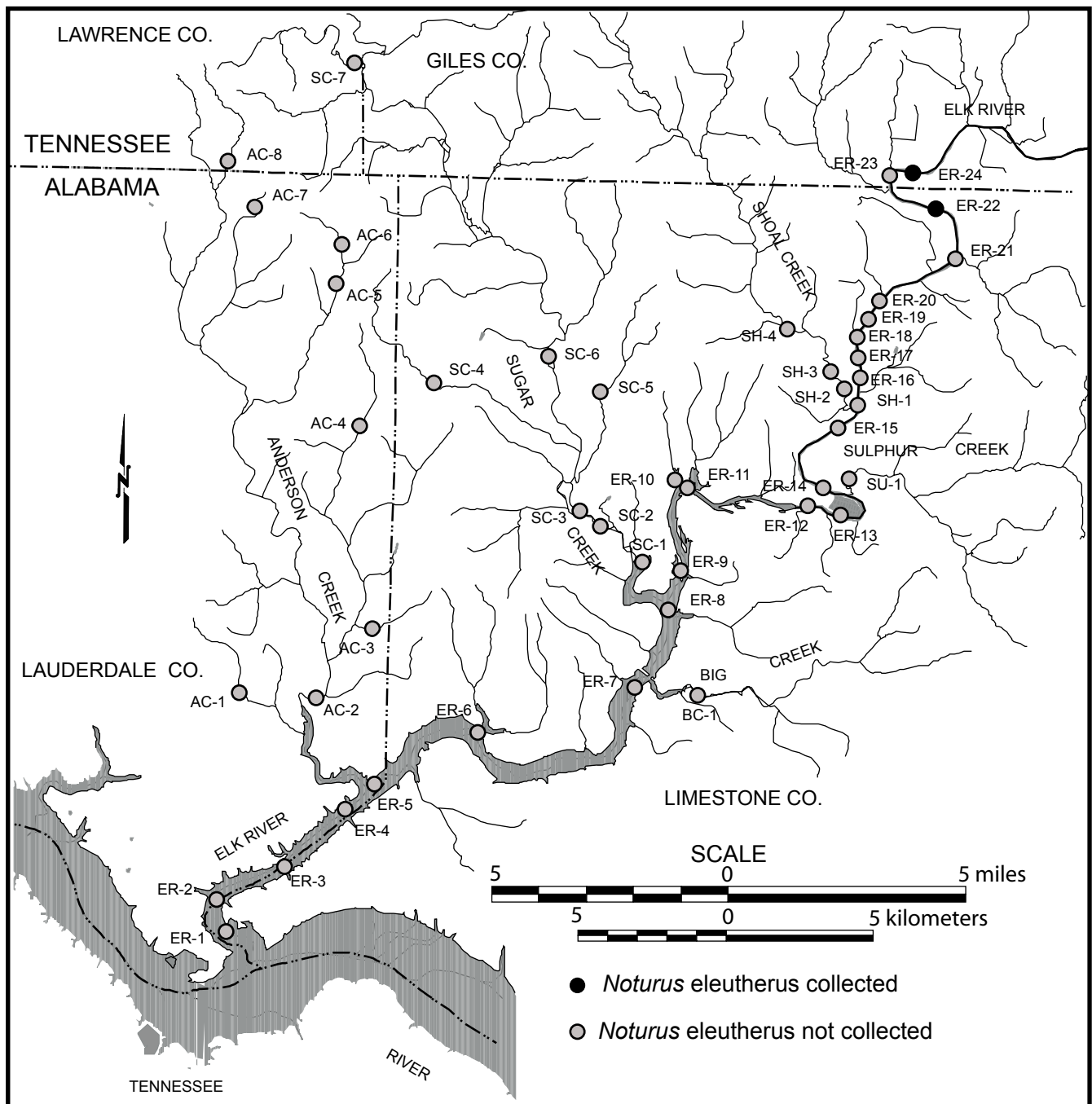


Figure 7. Sampling stations where the mountain madtom, *Noturus eleutherus*, was collected in the Elk River system, 2004.

collected. The largest collection was 28 individuals at river mile 34.5. Fishtrap Ford may offer the only suitable habitat in the Elk River in Alabama for this peripheral species. Within the main channel, there is not another shoal upstream of Fishtrap Ford until river mile 34 in Tennessee. Downstream, Mason and Gallus Islands do not appear to present the shallow cobble/gravel shoals inhabited by mountain madtoms. The species does not occur in any other river system in Alabama. Outside of Alabama, the species is widespread in the Tennessee, Cumberland, Ohio, White, Red, and Quachita River systems (Mettee, 2004d).

HIGHLANDS STONECAT, *Noturus* sp. cf. *flavus*, high conservation concern. The highlands stonecat was collected in six samples at three stations (fig. 8, app. A, B). Two of the stations were in the main channel of the Elk River at Fishtrap Ford (ER-22) and at river mile 34.5 (ER-24). A single individual was collected in Sulphur Creek at the first shoal upstream of the embayment of Wheeler Reservoir (SU-1), which is a new locality and tributary record for the Elk River system. The largest collection was 14 individuals collected at river mile 34.5. Stonecats are typically found under large slab-boulders during daytime sampling, and all three stations presented this type of habitat. Highlands stonecats were first collected in the Elk River in Alabama in 1993 by GSA biologists at Fishtrap Ford (Mettee and others, 1996). The species has also been collected upstream of Mason Island by biologists with UA (B.R. Kuhajda, pers. comm.), and is known from the Elk River in Tennessee (Jandebeur, 1972; Etnier and Starnes, 1993). In Alabama, it also occurs in Shoal Creek in Lauderdale County (Mettee, 2004e). The stonecat is the most widespread madtom species, occurring in the upper Mississippi, Ohio, and Great Lakes basins and in the Red River of the Hudson Bay drainage (Etnier and Starnes, 1993).

BLUEBREAST DARTER, *Etheostoma camurum*, high conservation concern. Bluebreast darters were collected only at Fishtrap Ford (ER-22) in one sample, and across the state line at river mile 34.5 (ER-24) in three samples (fig. 9, app. A, B). Our largest collection was 15 individuals at river mile 34.5. Bluebreast darters were first found in Alabama at three shoals upstream of the Highway 127 bridge in 1993 by GSA biologists (Mettee and others, 1996). Mason Island produced bluebreast darters in

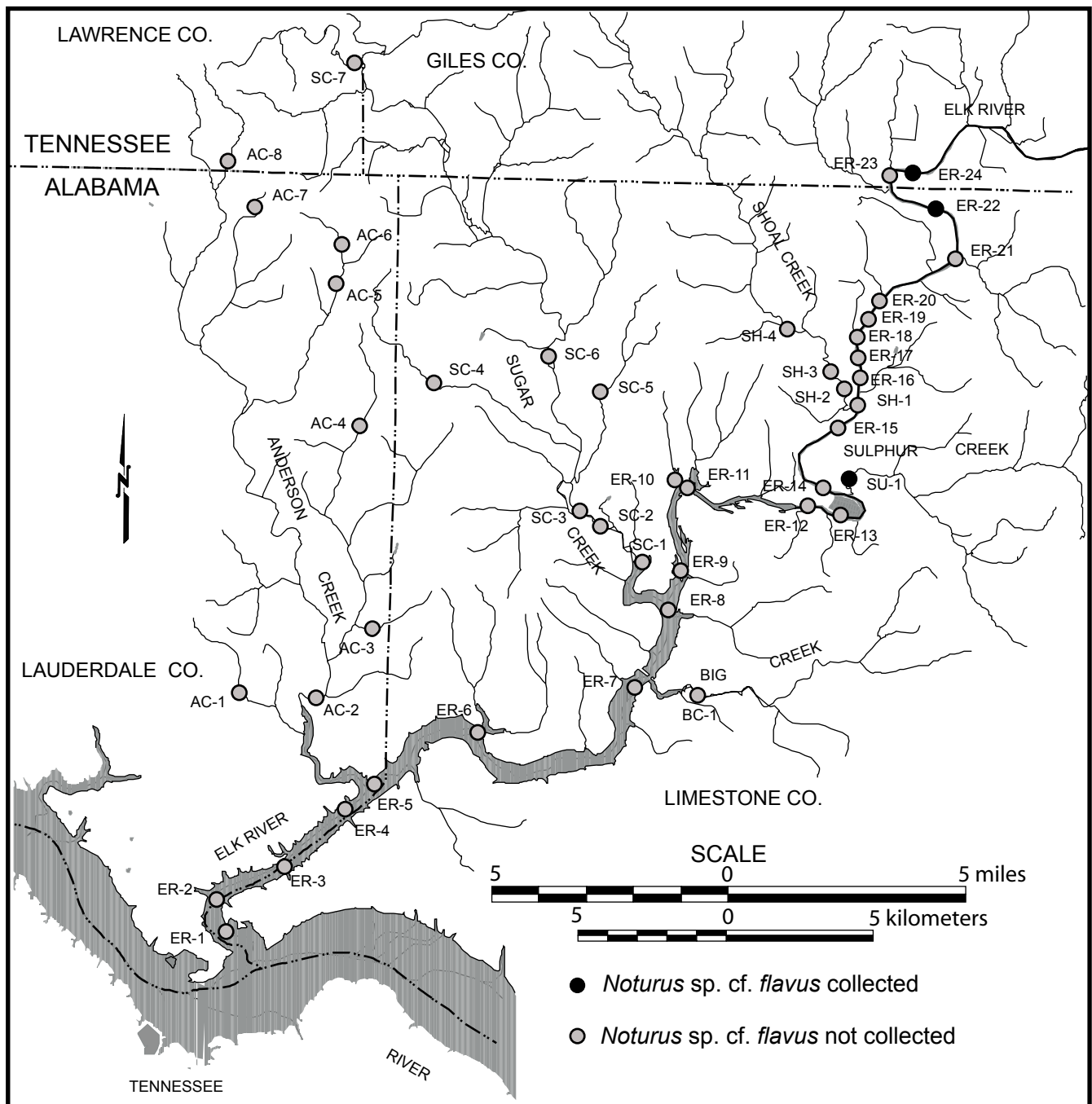


Figure 8. Sampling stations where the highlands stonecat, *Noturus sp. cf. flavus*, was collected in the Elk River system, 2004.

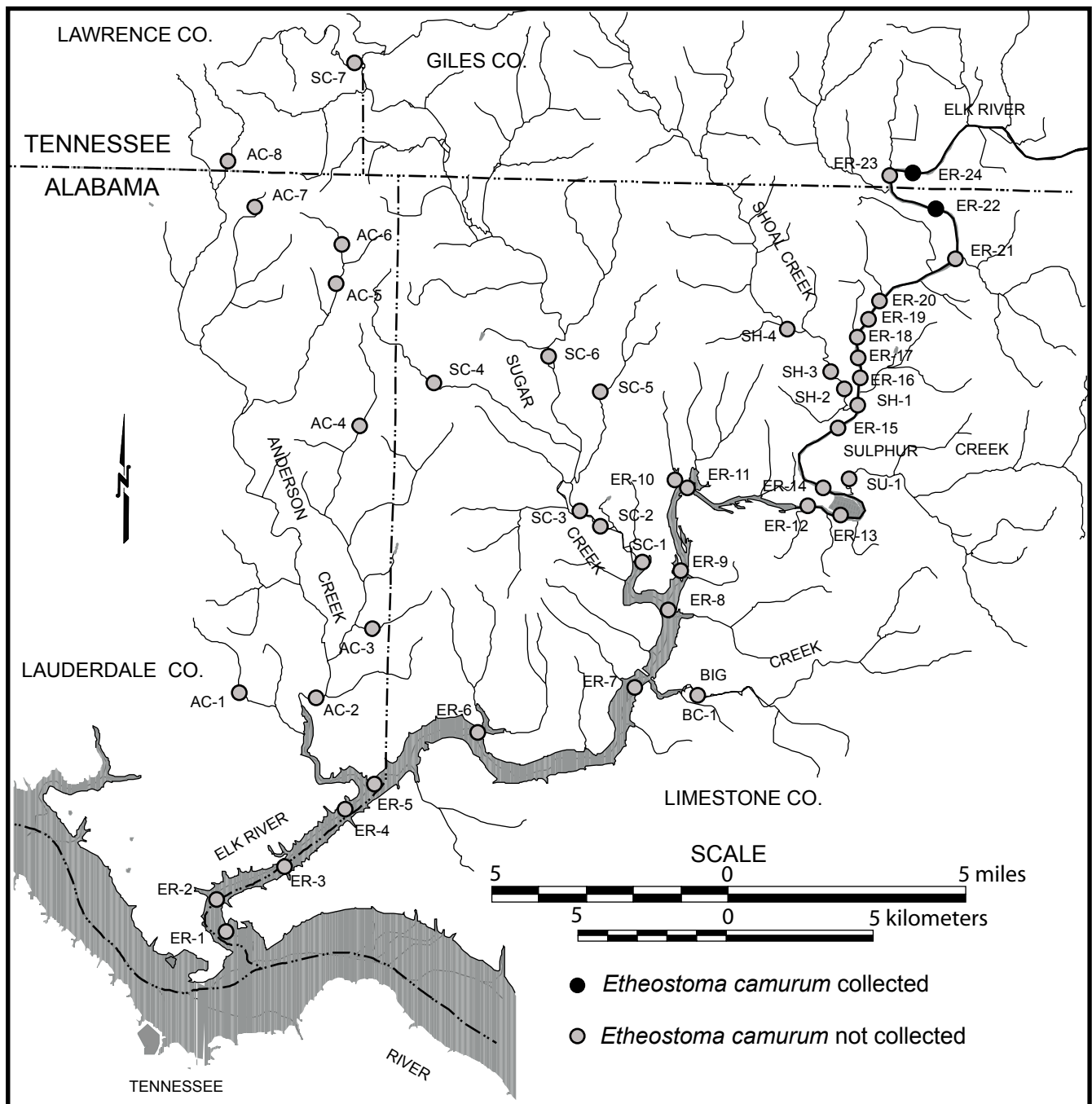


Figure 9. Sampling stations where the bluebreast darter, *Etheostoma camurum*, was collected in the Elk River system, 2004.

1993, but three collections there this year yielded none. The species does not occur in other river systems in Alabama (O'Neil, 2004a) but is found in the main stem of the Elk River in Tennessee (Jandebeur, 1972; Etnier and Starnes, 1993). Overall, it has a widespread distribution in much of the Ohio, Cumberland, and Tennessee River drainages (Etnier and Starnes, 1993).

GILT DARTER, *Percina evides*, high conservation concern. Gilt darters were collected in nine samples at five stations (fig. 10, app. A, B). All of the stations were on the main stem from the upper end of Gallus Island upstream to river mile 34.5. The species was relatively abundant. The largest number of individuals was 35 at river mile 34.5. Jandebeur (1972) reported gilt darters from the Elk River in Tennessee, but they were first collected in the system in Alabama in 1993 by GSA (Mettee and others, 1996). Gilt darters are also known from the Shoal and Bear Creek systems in Alabama (O'Neil, 2004b). The species is widely distributed in the Mississippi River Basin from New York to Minnesota and south to the White River system in Arkansas and the Tennessee River system (Etnier and Starnes, 1993).

SKIPJACK HERRING, *Alosa chrysochloris*, moderate conservation concern. Skipjacks were captured using the boat electrofisher and gill nets at four stations in the impounded lower section of the Elk River and Sugar Creek (fig. 11, app. A, B). In addition to the specimens captured, large numbers of skipjacks were seen leaping from the water as they pursued massive schools of threadfin shad, *Dorosoma petenense*, at several stations in the river. The species is found in almost every major river system in Alabama and most Gulf Coastal drainages including the Mississippi River basin (Mettee and others, 1996), but has been extirpated in much of the upper Mississippi River system due to Locks and Dams which have blocked upstream migrations (Mettee and O'Neil, 2003). The skipjack herring is reported to be generally common in large rivers and main channel reservoirs in Tennessee (Etnier and Starnes, 1993). Populations in Mississippi and Alabama are also reported to be stable (Ross, 2001; Boschung and Mayden, 2004a). Our results in 2004 suggest that the population in the lower Elk River is stable as well.

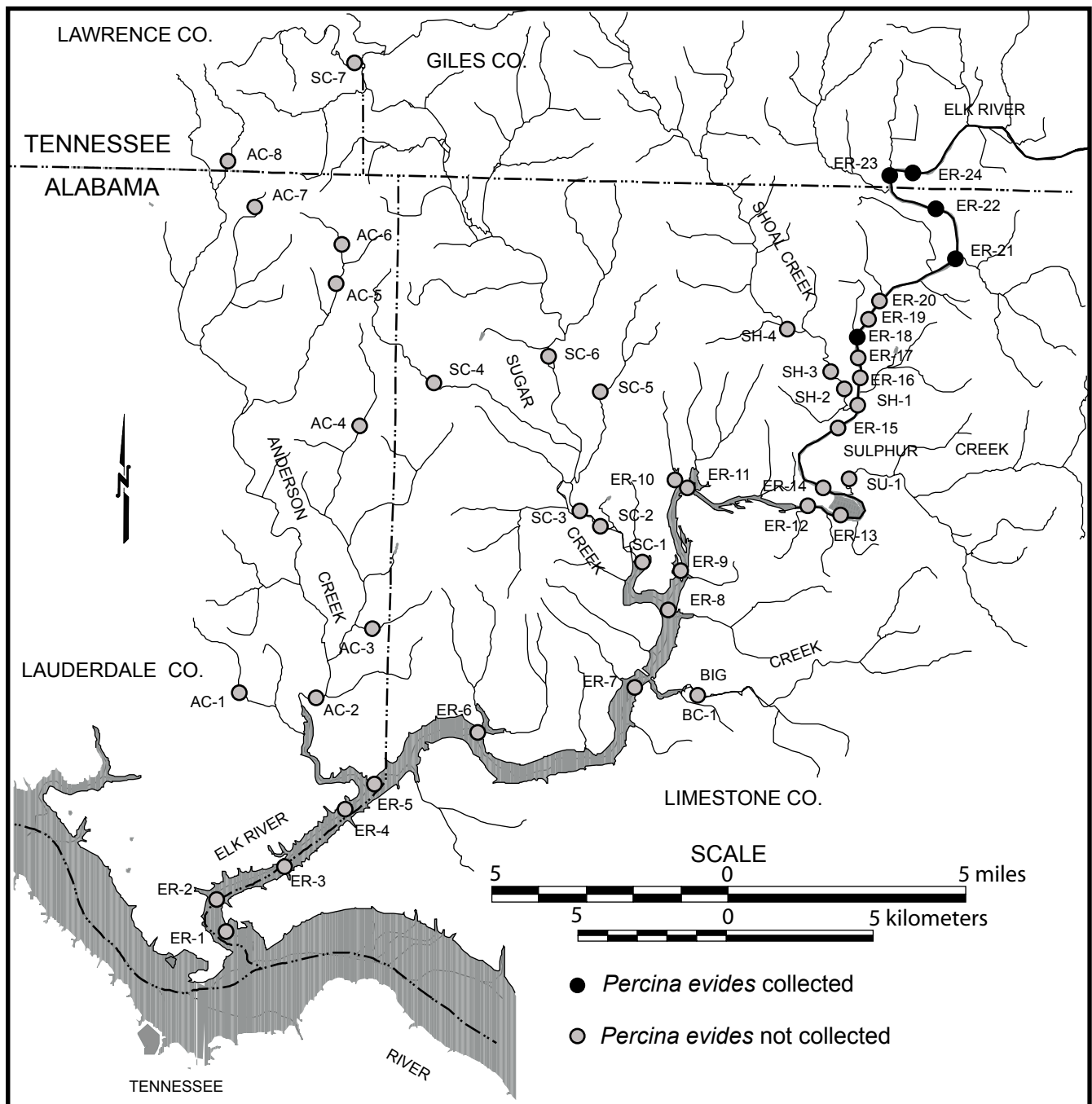


Figure 10. Sampling stations where the gilt darter, *Percina evides*, was collected in the Elk River system, 2004.

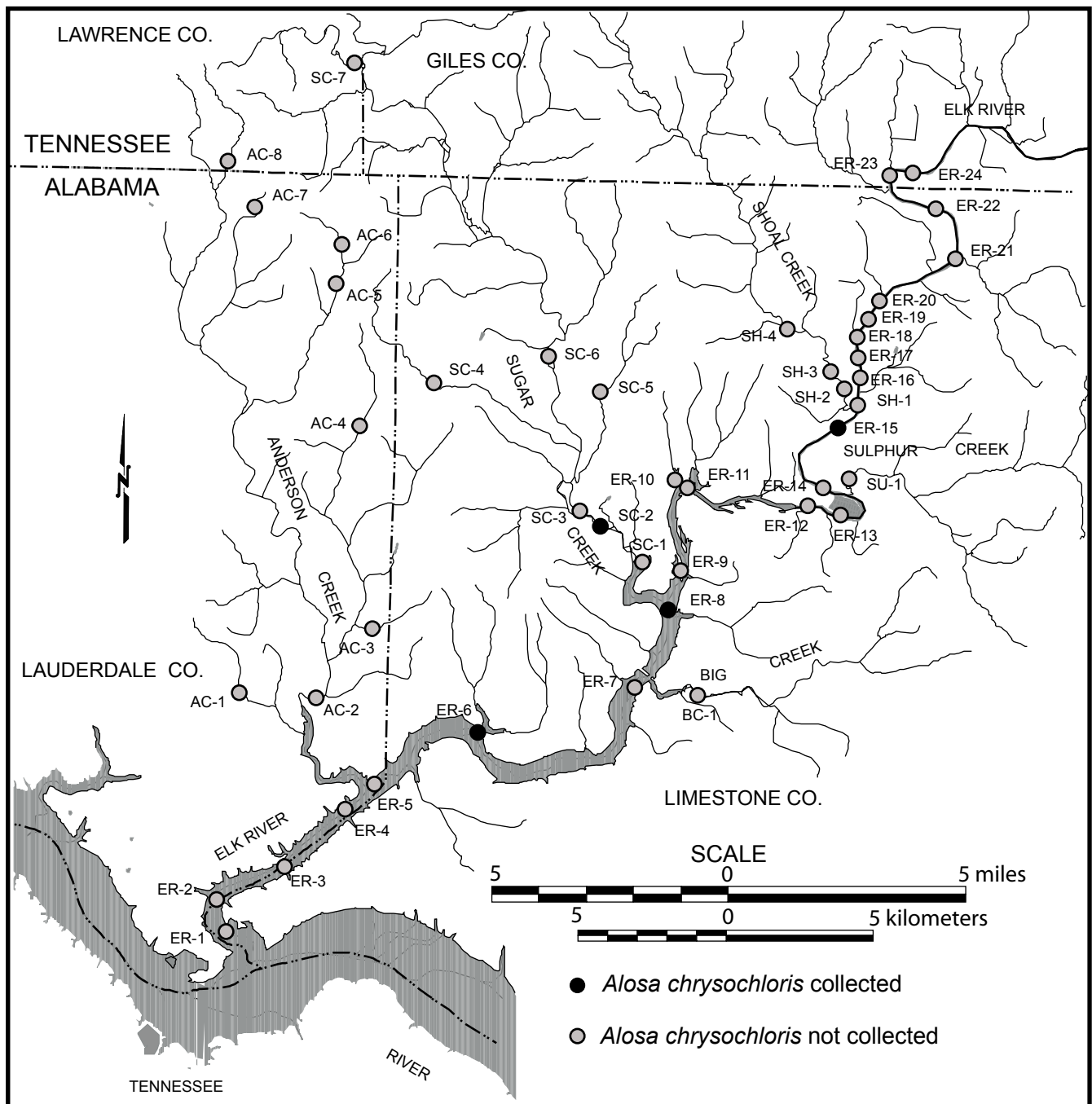


Figure 11. Sampling stations where the skipjack herring, *Alosa chrysochloris*, was collected in the Elk River system, 2004.

BLOTCHED CHUB, *Erimystax insignis*, moderate conservation concern. The blotched chub was collected at all stations in the main channel from Mason Island (ER-21) upstream to river mile 34.5 (ER-24) (fig. 12, app. A, B). The species was more common at river mile 34.5 than at any other station, with 48 individuals taken there on two occasions. Collections at other stations produced from one to eight individuals. Blotched chubs were first collected in the Elk River in Alabama by GSA biologists in 1993 at Fishtrap Ford (Mettee and others, 2002). Jandebeur (1972) had previously reported them in the Elk River system in Tennessee. The species is endemic to the Cumberland and Tennessee River systems (Mettee and others, 1996). In Alabama, blotched chubs are also found in the Shoal Creek, Flint River, and Paint Rock River systems (Mettee and others, 2002).

HIGHLAND SHINER, *Notropis micropteryx*, moderate conservation concern. Sampling produced highland shiners (formerly synonymized with the rosyface shiner, *Notropis rubellus*) in 14 collections at eight stations (fig. 13, app. A, B). The species was taken at two stations in Sugar Creek (SC-2, SC-3), one station in Shoal Creek (SH-3), and four stations in the main channel from the upper end of Gallus Island (ER-18) upstream to river mile 34.5 (ER-24). Highland shiners were abundant at most of these stations with up to 33 individuals collected at Gallus Island. Previous records in the Elk River system in Alabama were of specimens collected in 1993 by GSA biologists at Fishtrap Ford (Mettee and others, 1996, 2002) and in the main channel at the boat ramp upstream of Alabama Highway 99 and at Mason Island by UA (B.R. Kuhajda, pers. comm.). Jandebeur (1972) reported numerous records from the system in Tennessee. In addition to the Elk River system, the highland shiner is also found in the Bear Creek system in Alabama (Mettee and others, 1996). The overall distribution encompasses the Cumberland and Tennessee River systems (Boschung and Mayden, 2004a).

SILVER SHINER, *Notropis photogenis*, moderate conservation concern. Silver shiners were collected in eight samples at seven stations (fig. 14, app. A, B). Three of the stations were in Sugar Creek (SC-2, SC-3, SC-6) and the other four were in the main channel from the upper end of Gallus Island (ER-18) to river mile 34.5 (ER-24).

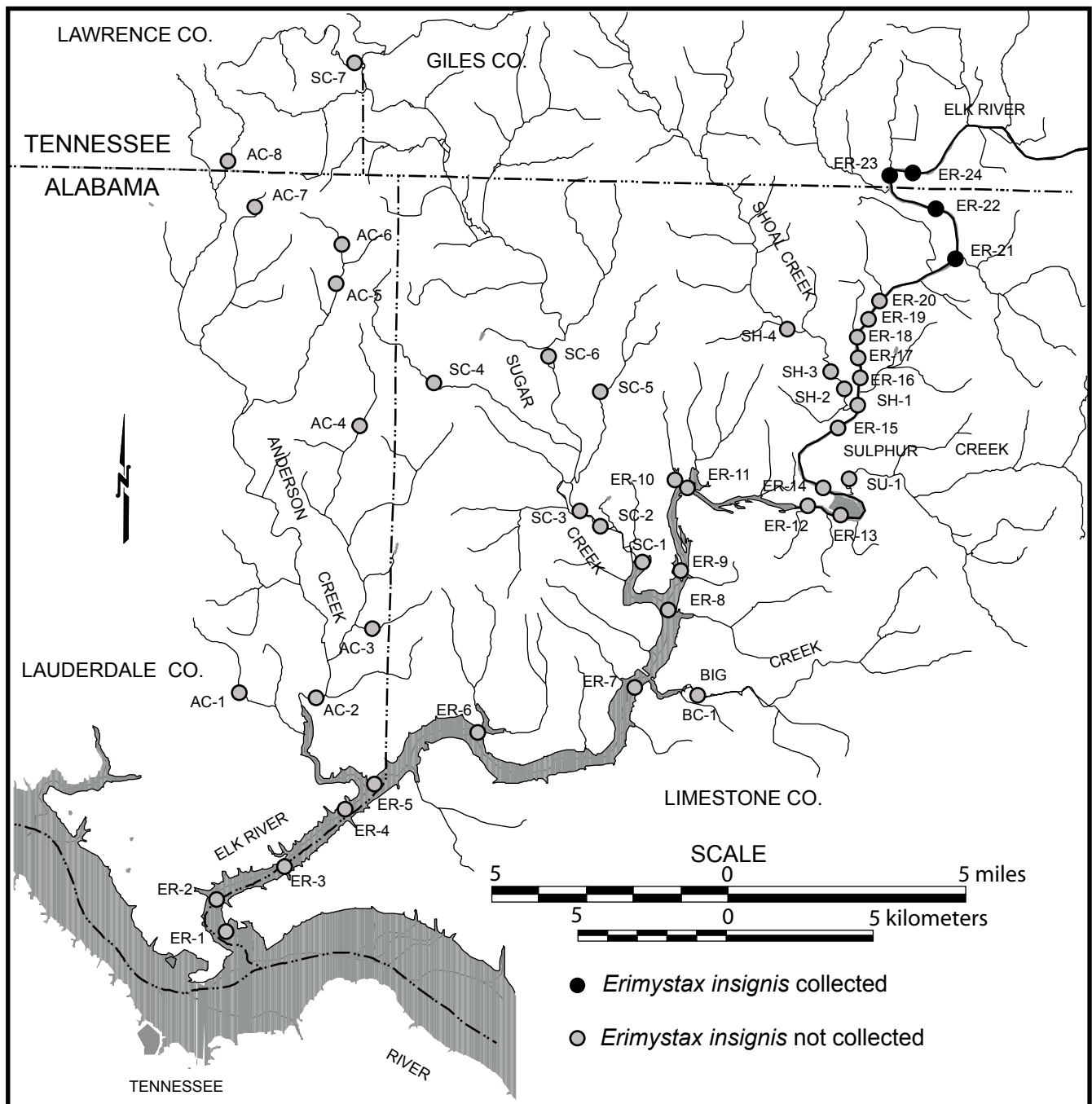


Figure 12. Sampling stations where the blotched chub, *Erimystax insignis*, was collected in the Elk River system, 2004.

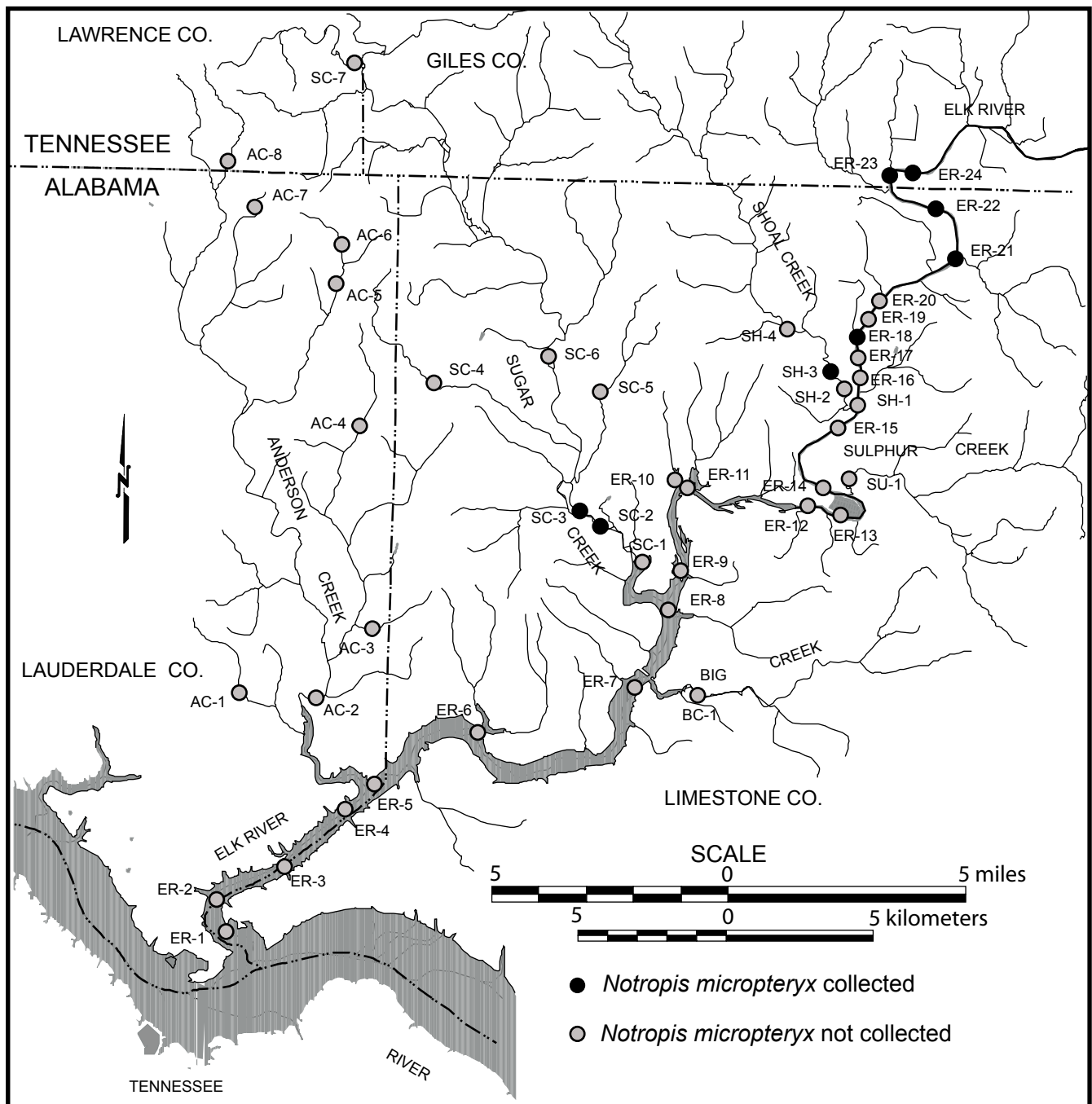


Figure 13. Sampling stations where the highland shiner, *Notropis micropteryx*, was collected in the Elk River system, 2004.

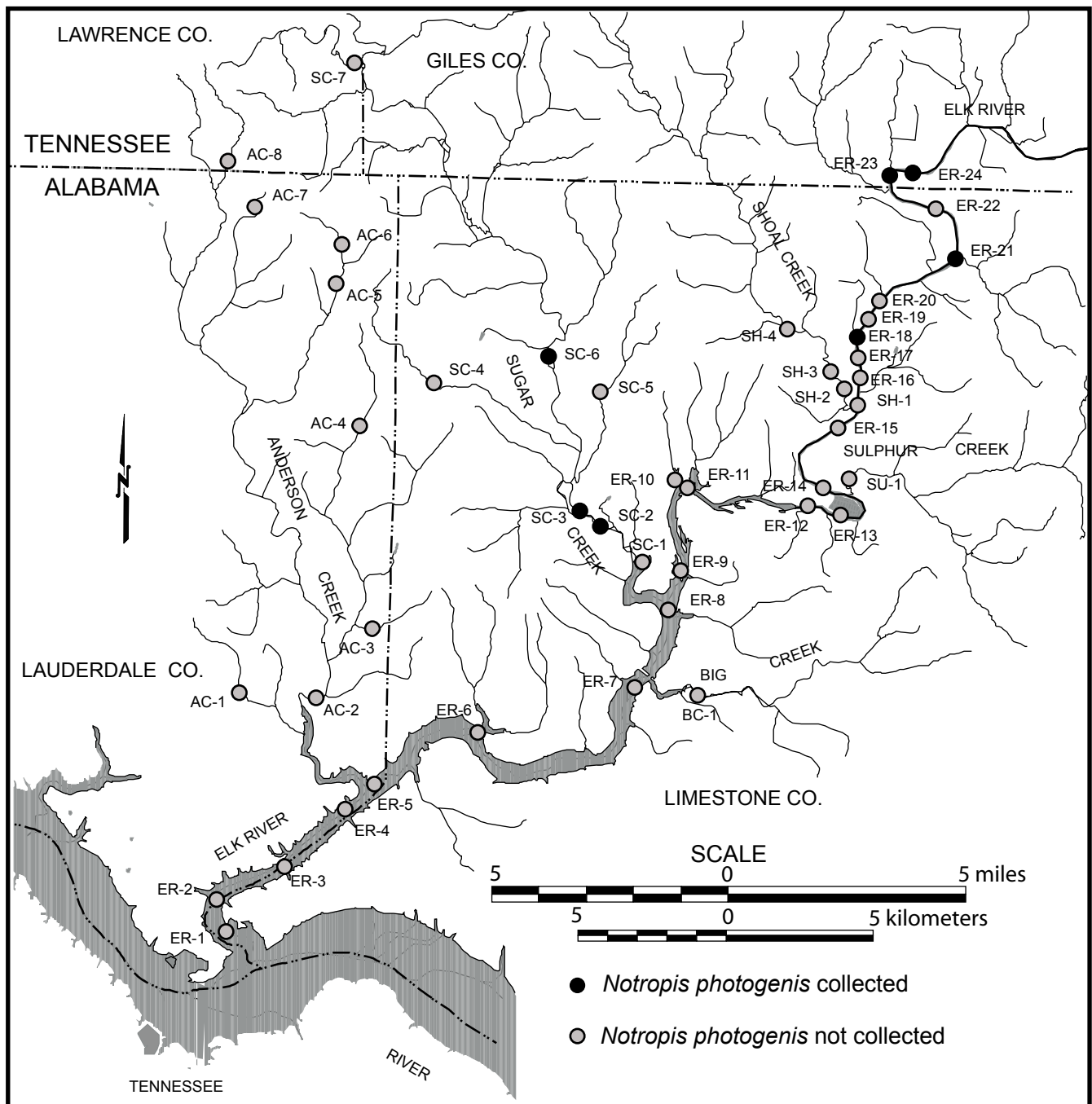


Figure 14. Sampling stations where the silver shiner, *Notropis photogenis*, was collected in the Elk River system, 2004.

Although most of the collections consisted of only a few individuals, one collection in Sugar Creek (SC-6) produced 22 silver shiners. The silver shiner had been collected from Sugar Creek and the main channel of the Elk prior to this study (Mettee and others, 2002; B.R. Kuhajda, pers. comm.; Boschung and Mayden, 2004a). In Alabama, the species also occurs in the flowing portion of Shoal Creek in Lauderdale County. The overall range of the silver shiner includes Lake Erie tributaries and Ohio, Cumberland, and Tennessee River drainages (Etnier and Starnes, 1993).

Our sampling did not produce any ashy darters, *Etheostoma cinereum*, or popeye shiners, *Notropis ariommus*, in 2004. These are two species which are thought to be extirpated in Alabama but have been found in the Elk River system in Tennessee. Therefore it is possible these species could potentially be found in Alabama. The search for these will continue in 2005.

Our sampling in 2004 also documented the invasion of the Elk River system by the Mississippi silverside, *Menidia audens* (fig. 15, app. A, B). Sampling by GSA of the Elk River produced no Mississippi silversides in 1993, and none were reported by Jandebeur (1972), Etnier and Starnes (1993), Mettee and others (1996), Mettee and others (2002), or Boschung and Mayden (2004a). In this study, however, the species was collected in 16 samples at 11 stations in the main channel from near the mouth to the most upstream station at river mile 34.5. The Mississippi silverside was somewhat common, with some samples producing over 50 individuals. Mettee and others (2002) reported collecting *Menidia* in Pickwick Reservoir, and that the specimens had been identified as *M. audens* by Dr. R.D. Suttkus. Chernoff and others (1981) considered *M. Audens* to be a clinal variant of the inland silverside, *M. Berylina*. Boschung and Mayden (2004a) stated that *Menidia* specimens collected in Pickwick and Wilson pools of the Tennessee River by Dr. D. A. Etnier probably came up the Tennessee River from the Mississippi River rather than entering from the Mobile Basin through the Tennessee-Tombigbee Waterway, because Inland silversides, *M. beryllina* in the Mobile Basin are only known to occur as far north as Little River in Baldwin County. Mississippi silversides have a high reproductive potential (Hubbs, 1976) and typically

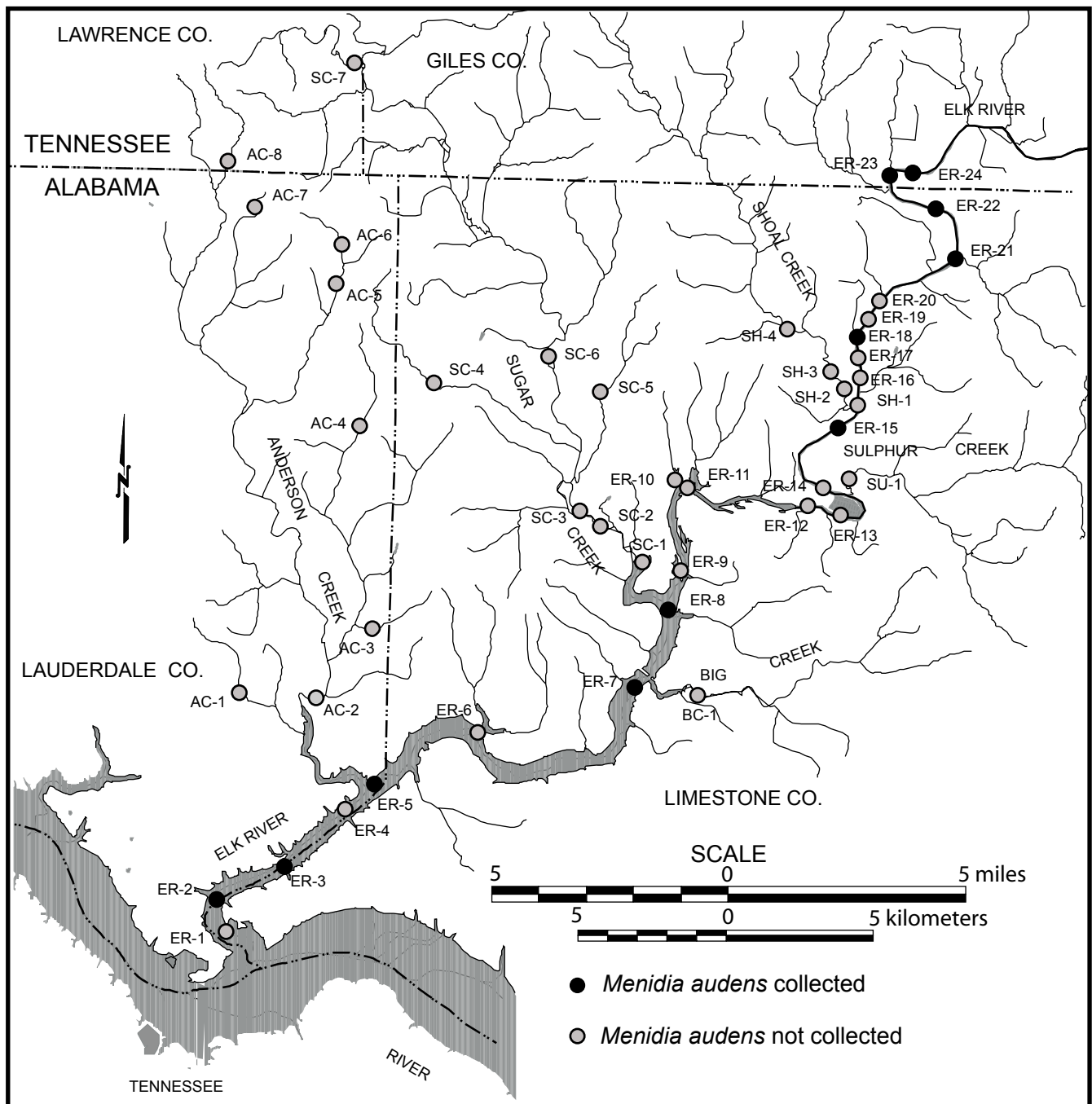


Figure 15. Sampling stations where the Mississippi silverside, *Menidia audens*, was collected in the Elk River system, 2004.

occur in large schools either in open water, or in deep water near shore. Their primary prey items are microcrustaceans and other small invertebrates (Boschung and Mayden, 2004a). The impact of a new and prolific species like the Mississippi silverside on the native fish population of the Elk River is difficult to predict; however, since the silversides inhabit open water and would probably not compete with species of conservation concern for food or spawning areas and would not be predatory on at least the adults of these species, the effects would hopefully be minimal. Inland silversides are a significant forage species a number of predatory fish such as white bass, yellow bass, and largemouth bass (Etnier and Starnes 1993) and they could become a major prey item in Wheeler Lake as well.

CONCLUSIONS

Although the fish fauna of the Elk River system has been impacted by impoundments, altered flow regimes, and nonpoint source pollution, survey results in 2004 revealed the continued existence of at least 12 of 13 species which have been designated for conservation concern. Range extensions and new localities were found for several of these species. Within the State of Alabama, four of these species (boulder darter, shoal chub, mountain madtom, and bluebreast darter) are only found in the Elk River system. Three more (silver shiner, highlands stonecat, and streamline chub) are found only in the Elk River system and the Shoal Creek system. Still another (blotched chub) is found only in the Elk River system, the Shoal Creek system, the Flint River system, and the Paint Rock River system. The continued existence of these sensitive species in the Elk River system depends on wise management of the watershed through efforts such as the development of protected riparian buffer zones and implementation of best management practices in forestry and agriculture. Particular effort should be devoted to a coordinated effort with TVA to devise a generation schedule for Tims Ford Dam that minimizes impacts to vulnerable species downstream.

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APPENDIX A

Collection results for fish samples in the Elk River system, 2004. (Station numbers reference table 1 and figure 2. "P" indicates that a species was present for those samples where individuals were not counted.)

Scientific name Common name		Station					
		ER-1	ER-2	ER-3	ER-4	ER-5	ER-6
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	2	40	24	1	--	3
<i>Lepisosteus osseus</i>	longnose gar	--	--	--	--	--	5
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	8
<i>Dorosoma cepedianum</i>	gizzard shad	--	--	6	1	--	--
<i>Dorosoma petenense</i>	threadfin shad	--	1,000	100	--	--	--
Cyprinidae							
<i>Campostoma oligolepis</i>	largescale stoneroller	--	--	--	--	--	--
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	--	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	--	3	2	--	--	--
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	1	--	--	--	--	1
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	--	--	--	--	--	--
<i>Luxilus chrysocephalus</i>	striped shiner	--	4	--	--	--	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	1	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpiodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpiodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	--	--	--	--	--	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	2	3	--	1	41	1
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	3	2	--	1	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	--	4
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	2	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	8	5	--	2	--
<i>Moxostoma erythrurum</i>	golden redhorse	--	--	--	--	3	--

Scientific name Common name		Station					
		ER-1	ER-2	ER-3	ER-4	ER-5	ER-6
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	2	--	--
<i>Ictalurus punctatus</i>	channel catfish	1	--	2	1	1	4
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	1	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
<i>Menidia audens</i>	Mississippi silverside	--	9	20	--	2	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	--	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	5	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	--	--	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	1
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	1	1
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	--	--	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	3	3	--	14	--
<i>Lepomis gulosus</i>	warmouth	--	--	3	--	1	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	1	--	--	--
<i>Lepomis macrochirus</i>	bluegill	--	153	142	--	12	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	--	56	33	--	35	--
<i>Lepomis microlophus</i>	reardear sunfish	--	11	15	--	1	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	4	--	--	--	--
<i>Micropterus punctulatus</i>	spotted bass	--	--	--	--	--	--
<i>Micropterus salmoides</i>	largemouth bass	--	50	25	--	9	--
<i>Pomoxis annularis</i>	white crappie	--	1	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		ER-1	ER-2	ER-3	ER-4	ER-5	ER-6
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	--	1	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	--	--	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	--	--	--	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	--	--	--	--	--	--
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	--	1	7	--	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	1	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	1	3	1	--	2	--
Total species		6	20	18	5	15	9
Total individuals		8	1,356	396	6	126	28

Scientific name Common name		Station					
		ER-7	ER-8	ER-9	ER-10	ER-11	ER-12
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	15	14	--	12	--	--
<i>Lepisosteus osseus</i>	longnose gar	--	--	--	--	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	1	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	22	36	--	50	--	--
<i>Dorosoma petenense</i>	threadfin shad	1,000	500	--	500	--	--
Cyprinidae							
<i>Camptostoma oligolepis</i>	largescale stoneroller	--	--	--	--	--	--
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	--	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	--	1	--	--	--	--
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	--	--	--	--	--	--
<i>Luxilus chrysocephalus</i>	striped shiner	7	3	--	1	--	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	4	13	--	1	--	--
<i>Notropis atherinoides</i>	emerald shiner	13	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	7	11	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	11	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	1	--
<i>Carpionodes velifer</i>	highfin carpsucker	5	1	--	6	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	--	--	--	--	--	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	30	1	25	1	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	1	--
<i>Minytrema melanops</i>	spotted sucker	27	56	--	18	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	3	--	7	8
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	3	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	1	1	1	--	--	--
<i>Moxostoma erythrurum</i>	golden redhorse	1	5	--	1	--	--

Scientific name Common name		Station					
		ER-7	ER-8	ER-9	ER-10	ER-11	ER-12
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	1	--	--	4
<i>Ictalurus punctatus</i>	channel catfish	9	--	1	--	2	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	1	1
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
<i>Menidia audens</i>	Mississippi silverside	37	1	--	--	--	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	--	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	1	--	1	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	--	--	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	3	--	--
<i>Morone mississippiensis</i>	yellow bass	2	--	--	5	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	--	--	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	--	--	--	--	--
<i>Lepomis gulosus</i>	warmouth	2	1	--	1	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	14	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	93	117	--	48	--	--
<i>Lepomis marginatus</i>	dollar sunfish	1	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	4	--	--	--	--	--
<i>Lepomis microlophus</i>	reardear sunfish	10	--	--	3	--	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	--	--	--	--	--
<i>Micropterus punctulatus</i>	spotted bass	--	--	--	--	--	--
<i>Micropterus salmoides</i>	largemouth bass	54	42	--	21	--	--
<i>Pomoxis annularis</i>	white crappie	--	--	--	1	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	1	--	--	--	--

Scientific name Common name		Station					
		ER-7	ER-8	ER-9	ER-10	ER-11	ER-12
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	--	--	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	--	--	--	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	--	--	--	--	--	--
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	--	--	--	--	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	24	21	--	11	--	--
Total species		23	21	5	18	6	3
Total individuals		1,363	859	7	708	13	13

Scientific name Common name		Station					
		ER-13	ER-14	ER-15	ER-16	ER-17	ER-18a
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	1	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	7	3	1	1	2	--
<i>Lepisosteus osseus</i>	longnose gar	--	--	1	--	1	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	1	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	18	30	41	--	25	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	1	--	--	--
Cyprinidae							
<i>Campostoma oligolepis</i>	largescale stoneroller	1	1	--	--	1	11
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	--	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	--	4	11	--	11	--
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--	--	--	11
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	1
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	--	--	--	--	--	--
<i>Luxilus chrysocephalus</i>	striped shiner	2	--	--	--	5	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	1	--	--	--	15	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	14	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	--	3	--	--	33	1
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	2
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	2	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpionodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	--	--	--	--	3	2
<i>Ictiobus bubalus</i>	smallmouth buffalo	2	--	--	--	22	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	2	--	--	--	1	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	20	1	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	1	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	--	1	--	3	--
<i>Moxostoma erythrurum</i>	golden redhorse	2	1	4	--	34	2

Scientific name Common name		Station					
		ER-13	ER-14	ER-15	ER-16	ER-17	ER-18a
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	1	--	--	--	3	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	1	1
<i>Menidia audens</i>	Mississippi silverside	--	--	1	--	2	58
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	--	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	--	--	--	6
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	--	2
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	--	--	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	2	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	1	--
<i>Morone saxatilis</i>	striped bass	1	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	--	--	4	--
<i>Lepomis cyanellus</i>	green sunfish	1	2	1	--	--	--
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	12	7	4	--	7	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	5	4	1	--	6	1
<i>Lepomis microlophus</i>	reardear sunfish	--	--	--	--	12	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	1	--
<i>Micropterus dolomieu</i>	smallmouth bass	1	1	1	--	1	--
<i>Micropterus punctulatus</i>	spotted bass	--	1	3	--	4	1
<i>Micropterus salmoides</i>	largemouth bass	4	1	5	--	9	1
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		ER-13	ER-14	ER-15	ER-16	ER-17	ER-18a
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	--	--	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	2
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	--	--	--	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	--	2	--	--	--	6
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	--	2	--	--	17	15
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	--	1	2	--	3	--
Total species		15	15	17	2	32	17
Total individuals		60	63	80	21	247	123

Scientific name Common name		Station					
		ER-18b	ER-19a	ER-19b	ER-20	ER-21a	ER-21b
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	--	--	--	--	--	--
<i>Lepisosteus osseus</i>	longnose gar	--	1	--	1	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	--	--	--	--	--	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	--	--	--	--
Cyprinidae							
<i>Camptostoma oligolepis</i>	largescale stoneroller	--	--	--	1	--	--
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	--	1	1
<i>Cyprinella spiloptera</i>	spotfin shiner	3	--	--	2	16	10
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	2	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	3	4
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	3	--	--	--	8	1
<i>Luxilus chrysocephalus</i>	striped shiner	54	--	--	4	46	30
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	11	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	33	--	--	--	26	13
<i>Notropis photogenis</i>	silver shiner	4	--	--	--	1	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	121	--	--	2	11	19
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	1
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpiodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpiodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	9	--	--	--	4	3
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	--	5	11	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--	1	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	2	2	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	1	--	1	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	--	1	1	--	--
<i>Moxostoma erythrurum</i>	golden redhorse	--	--	4	4	4	2

Scientific name Common name		Station					
		ER-18b	ER-19a	ER-19b	ER-20	ER-21a	ER-21b
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	--	--	--	3	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
<i>Menidia audens</i>	Mississippi silverside	16	--	--	--	12	8
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	--	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	5	--	--	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	--	--	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	--	1	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	--	--	--	--	--
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	--	--	2	10	--	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	2	--	--	1	--	--
<i>Lepomis microlophus</i>	reardear sunfish	--	--	--	1	--	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	--	--	2	--	--
<i>Micropterus punctulatus</i>	spotted bass	2	--	--	1	--	--
<i>Micropterus salmoides</i>	largemouth bass	2	--	--	5	--	--
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		ER-18b	ER-19a	ER-19b	ER-20	ER-21a	ER-21b
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	--	--	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	1	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	--	--	--	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	12	--	--	--	--	2
<i>Etheostoma wapiti</i>	boulder darter	1	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	32	--	6	--	--	4
<i>Percina evides</i>	gilt darter	8	--	--	--	1	1
<i>Percina sciera</i>	dusky darter	--	--	--	1	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	--	--	2	6	--	--
Total species		20	1	8	20	12	14
Total individuals		322	1	23	60	133	99

Scientific name Common name		Station					
		ER-21c	ER-22a	ER-22b	ER-22c	ER-23a	ER-23b
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	--	--	--	--	--	--
<i>Lepisosteus osseus</i>	longnose gar	--	2	--	1	--	1
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	--	--	--	1	--	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	--	--	--	--
Cyprinidae							
<i>Campostoma oligolepis</i>	largescale stoneroller	11	3	4	22	--	33
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	1	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	18	8	7	4	15	20
<i>Cyprinella whipplei</i>	steelcolor shiner	--	3	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	7	1	8	--	5
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	16	--	--	1	1	3
<i>Luxilus chrysocephalus</i>	striped shiner	64	1	1	8	8	14
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--	2	--	--
<i>Notropis micropteryx</i>	highland shiner	2	16	--	32	6	2
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	2
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	21	27	--	58	--	1
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	1	1	1
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	1	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpiodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpiodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	10	4	3	--	3	9
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	--	--	--	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--	--	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	4	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	1	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	2	--	--	--	--
<i>Moxostoma erythrurum</i>	golden redhorse	--	1	--	--	--	10

Scientific name Common name		Station					
		ER-21c	ER-22a	ER-22b	ER-22c	ER-23a	ER-23b
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	--	--	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	5	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	2	--	5	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	1	--	--	2	--
<i>Menidia audens</i>	Mississippi silverside	--	--	--	3	2	3
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	5	--	--	--	--	1
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	--	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	8	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	1	--	1	20	1	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	3	--	3	--	1
<i>Lepomis cyanellus</i>	green sunfish	--	3	3	4	--	1
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	10	--	1	4	--	3
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	3	--	1	2	--	9
<i>Lepomis microlophus</i>	reardear sunfish	--	--	--	--	1	2
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	3	--	3	--	2
<i>Micropterus punctulatus</i>	spotted bass	4	--	3	5	--	2
<i>Micropterus salmoides</i>	largemouth bass	1	--	--	1	1	--
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		ER-21c	ER-22a	ER-22b	ER-22c	ER-23a	ER-23b
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	1	1	5	--	5
<i>Etheostoma caeruleum</i>	rainbow darter	--	--	--	1	--	3
<i>Etheostoma camurum</i>	bluebreast darter	--	2	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	--	1	--	1
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	1	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	2
<i>Etheostoma rufilineatum</i>	redline darter	--	14	39	58	--	--
<i>Etheostoma simoterum</i>	snubnose darter	5	--	1	3	1	17
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	1	--	7
<i>Etheostoma zonale</i>	banded darter	1	5	--	33	1	4
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	4	7	--	19	5	14
<i>Percina evides</i>	gilt darter	--	--	--	5	7	1
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--	1	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	--	--	--	--	--	--
Total species		17	23	14	34	15	30
Total individuals		184	120	71	318	55	179

Scientific name Common name		Station					
		ER-24a	ER-24b	ER-24c	AC-1	AC-2a	AC-2b
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	2	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	3	--	--	--	--	--
<i>Lepisosteus osseus</i>	longnose gar	1	--	--	--	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	--	2	--	--	47	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	3	--	--	--
Cyprinidae							
<i>Campostoma oligolepis</i>	largescale stoneroller	32	2	58	P	19	635
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	2	--	--	--	8	22
<i>Cyprinella spiloptera</i>	spotfin shiner	44	1	27	--	16	27
<i>Cyprinella whipplei</i>	steelcolor shiner	3	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	1	--	1	--	--	--
<i>Erimystax insignis</i>	blotched chub	48	17	48	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	8	2	8	--	15	14
<i>Luxilus chrysocephalus</i>	striped shiner	32	29	6	--	45	100
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	16	6
<i>Macrhybopsis hyostoma</i>	shoal chub	1	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	27	10	21	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	1	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	19	2	37	--	12	91
<i>Phenacobius uranops</i>	stargazing minnow	5	--	4	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	P	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	--
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpionodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	12	2	8	--	14	16
<i>Ictiobus bubalus</i>	smallmouth buffalo	4	--	--	--	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--	--	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	10	--	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	1	--	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	--	--	--	4	--
<i>Moxostoma erythrurum</i>	golden redhorse	11	--	10	--	26	--

Scientific name Common name		Station					
		ER-24a	ER-24b	ER-24c	AC-1	AC-2a	AC-2b
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	6	--	--	--	1	--
<i>Noturus eleutherus</i>	mountain madtom	27	8	28	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	3
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	7	1	14	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	3	--	--	--	1	--
<i>Menidia audens</i>	Mississippi silverside	7	--	6	--	--	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	1	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	1	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	2	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	17	3	17	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	2	--	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	--	--	P	4	1
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	36	--	--	--	31	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	16	--	3	--	10	2
<i>Lepomis microlophus</i>	redeer sunfish	1	--	--	--	--	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	4	--	1	--	3	1
<i>Micropterus punctulatus</i>	spotted bass	1	--	--	--	--	1
<i>Micropterus salmoides</i>	largemouth bass	4	--	1	--	5	1
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		ER-24a	ER-24b	ER-24c	AC-1	AC-2a	AC-2b
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	9	10	19	--	2	15
<i>Etheostoma caeruleum</i>	rainbow darter	1	--	--	--	5	29
<i>Etheostoma camurum</i>	bluebreast darter	15	6	10	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	2	3	--	10	17
<i>Etheostoma flabellare</i>	fantail darter	--	--	2	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	1	--	1	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	P	--	--
<i>Etheostoma rufilineatum</i>	redline darter	174	66	215	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	19	13	18	--	--	--
<i>Etheostoma wapiti</i>	boulder darter	2	3	4	--	--	--
<i>Etheostoma zonale</i>	banded darter	77	41	50	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	39	6	19	--	9	9
<i>Percina evides</i>	gilt darter	35	5	31	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	1	--	1	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	6	--	--	--	2	--
Total species		46	21	35	4	23	18
Total individuals		777	231	679	--	305	990

Scientific name Common name		Station					
		AC-3	AC-4	AC-5	AC-6	AC-7	AC-8
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	--	--	--	--	--	--
<i>Lepisosteus osseus</i>	longnose gar	--	--	--	--	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	--	--	--	--	--	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	--	--	--	--
Cyprinidae							
<i>Camptostoma oligolepis</i>	largescale stoneroller	P	P	P	P	P	P
<i>Cinostomus funduloides</i>	rosyside dace	P	--	P	P	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	--	--	--	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	--	--	--	--	--	--
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	P	--	--	--	P
<i>Hybopsis amblops</i>	bigeye chub	--	--	--	--	--	--
<i>Luxilus chrysocephalus</i>	striped shiner	--	--	--	P	--	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	P	P	P	--	P	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	P	P	--
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpionodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	P
<i>Hypentelium nigricans</i>	northern hog sucker	P	--	--	P	--	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	--	--	--	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--	--	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	--	--	--	--	--
<i>Moxostoma erythrurum</i>	golden redhorse	--	--	--	--	--	--

Scientific name Common name		Station					
		AC-3	AC-4	AC-5	AC-6	AC-7	AC-8
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	--	--	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	--	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	--	--	--	--	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	--	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	--	P	--	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	--	--	--	--	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	--	--	--	P	P
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	--	--	P	P	--	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	--	--	--	--	--	--
<i>Lepomis microlophus</i>	reardear sunfish	--	--	--	--	--	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	--	--	--	--	--
<i>Micropterus punctulatus</i>	spotted bass	--	--	--	--	--	--
<i>Micropterus salmoides</i>	largemouth bass	--	--	--	--	--	--
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		AC-3	AC-4	AC-5	AC-6	AC-7	AC-8
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	P	--	P	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	P	--	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	--	--	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	P	P	P	P	P
<i>Etheostoma rufilineatum</i>	redline darter	--	--	--	--	--	--
<i>Etheostoma simoterum</i>	snubnose darter	--	--	--	--	--	--
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	--	--	--	--	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	--	--	--	--	--	--
Total species		5	4	8	8	5	5
Total individuals		--	--	--	--	--	--

Scientific name Common name		Station					
		BC-1	SC-1	SC-2	SC-3	SC-4	SC-5
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	No	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	1	--	2	--	Fish	--
<i>Lepisosteus osseus</i>	longnose gar	--	1	--	--	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	1	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	2	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	21	1	10	20	--	--
<i>Dorosoma petenense</i>	threadfin shad	--	--	--	--	--	--
Cyprinidae							
<i>Camptostoma oligolepis</i>	largescale stoneroller	317	3	123	443	--	P
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	P
<i>Cyprinella galactura</i>	whitetail shiner	7	--	4	38	--	--
<i>Cyprinella spiloptera</i>	spotfin shiner	6	--	16	51	--	--
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	4	12	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	2	--	9	6	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	44	--	4	104	--	--
<i>Luxilus chrysocephalus</i>	striped shiner	102	2	32	54	--	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	32	--	--	25	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	3	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	1	1	10	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	9	7	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	3	5	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	--	2	--	--
<i>Notropis volucellus</i>	mimic shiner	4	--	58	80	--	--
<i>Phenacobius uranops</i>	stargazing minnow	5	--	3	3	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	--	1	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	--	--	--	P
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpionodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	20	--	5	19	--	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	2	--	--	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	1	4	3	--	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	1	1	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--	1	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--	3	--	--
<i>Moxostoma duquesnei</i>	black redhorse	11	--	4	24	--	--
<i>Moxostoma erythrurum</i>	golden redhorse	--	1	6	3	--	--

Scientific name Common name		Station					
		BC-1	SC-1	SC-2	SC-3	SC-4	SC-5
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	2	1	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	8	--	3	--	--	--
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	--	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	9	--	1	4	--	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	1	--	--	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	1	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	10	--	--	--	--	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	6	--	12	67	--	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	2	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	3	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	1	--	--	7	--	--
<i>Lepomis cyanellus</i>	green sunfish	6	--	--	2	--	--
<i>Lepomis gulosus</i>	warmouth	1	--	1	2	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	22	19	8	13	--	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	12	2	20	17	--	--
<i>Lepomis microlophus</i>	reardear sunfish	1	--	1	3	--	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	--
<i>Micropterus dolomieu</i>	smallmouth bass	--	1	1	4	--	--
<i>Micropterus punctulatus</i>	spotted bass	2	--	3	2	--	--
<i>Micropterus salmoides</i>	largemouth bass	9	1	3	5	--	--
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	--

Scientific name Common name		Station					
		BC-1	SC-1	SC-2	SC-3	SC-4	SC-5
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	--	--	32	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	32	--	--	2	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	1	--	--	5	--	--
<i>Etheostoma flabellare</i>	fantail darter	--	--	3	1	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	60	--	57	117	--	--
<i>Etheostoma simoterum</i>	snubnose darter	3	--	--	20	--	--
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	2	--	--	--
<i>Percina caprodes</i>	logperch	18	1	9	23	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	1	--	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	4	--	9	1	--	--
Total species		35	16	36	43	0	3
Total individuals		782	44	444	1,233	0	--

Scientific name Common name		Station					
		SC-6	SC-7	SC-8	SC-9	SU-1	SH-1
Petromyzontidae							
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--	--	--	--
Lepisosteidae							
<i>Lepisosteus oculatus</i>	spotted gar	--	--	--	--	1	--
<i>Lepisosteus osseus</i>	longnose gar	--	--	--	--	--	--
Amiidae							
<i>Amia calva</i>	bowfin	--	--	--	--	--	--
Clupeidae							
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	--	--	--	--	21	200
<i>Dorosoma petenense</i>	threadfin shad	--	--	--	--	--	200
Cyprinidae							
<i>Camptostoma oligolepis</i>	largescale stoneroller	8	72	P	--	140	--
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	9	10	--	--	46	1
<i>Cyprinella spiloptera</i>	spotfin shiner	--	1	--	--	5	--
<i>Cyprinella whipplei</i>	steelcolor shiner	3	--	--	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	9	--	--	--	1	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	--	19	--	--	44	--
<i>Luxilus chrysocephalus</i>	striped shiner	50	47	P	--	160	--
<i>Lythrurus fasciolaris</i>	scarlet shiner	13	19	--	--	45	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	22	--	--	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	14	--	--	--	--
<i>Notropis volucellus</i>	mimic shiner	18	56	--	--	19	--
<i>Phenacobius uranops</i>	stargazing minnow	3	--	--	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	1	--	--	--	--
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	P	--	6	--
Catostomidae							
<i>Carpionodes carpio</i>	river carpsucker	--	--	--	--	--	--
<i>Carpionodes velifer</i>	highfin carpsucker	--	--	--	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	8	7	--	--	5	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	--	--	--	--	30
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--	--	1	12
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--	--	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	--	--	--	--	1	2
<i>Moxostoma erythrurum</i>	golden redhorse	--	2	--	--	20	3

Scientific name Common name		Station					
		SC-6	SC-7	SC-8	SC-9	SU-1	SH-1
Ictaluridae							
<i>Ictalurus furcatus</i>	blue catfish	--	--	--	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	--	--	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--
<i>Noturus exilis</i>	slender madtom	--	2	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	1	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--	--	--	--
Atherinopsidae							
<i>Labidesthes sicculus</i>	brook silverside	--	--	--	--	--	--
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	--	--
Fundulidae							
<i>Fundulus catenatus</i>	northern studfish	1	3	P	--	12	--
<i>Fundulus olivaceus</i>	blackspotted topminnow	--	--	P	--	--	--
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--	--	--	--
Poeciliidae							
<i>Gambusia affinis</i>	mosquitofish	--	--	--	--	1	--
Cottidae							
<i>Cottus carolinae</i>	banded sculpin	--	14	--	--	26	--
Moronidae							
<i>Morone chrysops</i>	white bass	--	--	--	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--
Centrarchidae							
<i>Ambloplites rupestris</i>	rock bass	1	3	--	--	--	--
<i>Lepomis cyanellus</i>	green sunfish	--	--	P	--	3	1
<i>Lepomis gulosus</i>	warmouth	--	--	--	--	--	1
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--	--	--	--
<i>Lepomis macrochirus</i>	bluegill	--	--	P	--	8	18
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	1	--	--	--	7	7
<i>Lepomis microlophus</i>	reardear sunfish	--	--	--	--	--	1
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	--	--	--	1
<i>Micropterus dolomieu</i>	smallmouth bass	--	--	--	--	--	--
<i>Micropterus punctulatus</i>	spotted bass	--	3	--	--	1	2
<i>Micropterus salmoides</i>	largemouth bass	--	2	--	--	4	9
<i>Pomoxis annularis</i>	white crappie	--	--	--	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--	--	--	2

Scientific name Common name		Station					
		SC-6	SC-7	SC-8	SC-9	SU-1	SH-1
Percidae							
<i>Etheostoma blennioides</i>	greenside darter	--	2	--	--	--	--
<i>Etheostoma caeruleum</i>	rainbow darter	1	4	--	P	2	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	1	--	--	20	--
<i>Etheostoma flabellare</i>	fantail darter	--	1	--	P	--	--
<i>Etheostoma jessiae</i>	blueside darter	--	3	--	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	P	P	--	--
<i>Etheostoma rufilineatum</i>	redline darter	163	57	--	--	98	--
<i>Etheostoma simoterum</i>	snubnose darter	3	13	P	--	4	--
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--
<i>Etheostoma zonale</i>	banded darter	--	--	--	--	--	--
<i>Perca flavescens</i>	yellow perch	--	--	--	--	--	--
<i>Percina caprodes</i>	logperch	4	1	--	--	18	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--	--	1	--
<i>Percina shumardi</i>	river darter	--	--	--	--	--	--
<i>Sander canadense</i>	sauger	--	--	--	--	--	--
Sciaenidae							
<i>Aplodinotus grunniens</i>	freshwater drum	--	--	--	--	--	1
Total species		17	25	9	3	30	17
Total individuals		317	357	--	--	721	491

Scientific name	Common name	Station		
		SH-2	SH-3	SH-4
Petromyzontidae				
<i>Ichthyomyzon castaneus</i>	chestnut lamprey	--	--	--
Lepisosteidae				
<i>Lepisosteus oculatus</i>	spotted gar	--	--	--
<i>Lepisosteus osseus</i>	longnose gar	1	--	--
Amiidae				
<i>Amia calva</i>	bowfin	--	--	--
Clupeidae				
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--
<i>Dorosoma cepedianum</i>	gizzard shad	2	--	1
<i>Dorosoma petenense</i>	threadfin shad	--	--	--
Cyprinidae				
<i>Campostoma oligolepis</i>	largescale stoneroller	--	35	947
<i>Cinostomus funduloides</i>	rosyside dace	--	--	--
<i>Cyprinella galactura</i>	whitetail shiner	--	4	39
<i>Cyprinella spiloptera</i>	spotfin shiner	--	5	1
<i>Cyprinella whipplei</i>	steelcolor shiner	--	--	--
<i>Cyprinus carpio</i>	common carp	--	--	--
<i>Erimystax dissimilis</i>	streamline chub	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--
<i>Hemitremia flammea</i>	flame chub	--	--	--
<i>Hybopsis amblops</i>	bigeye chub	--	7	59
<i>Luxilus chrysocephalus</i>	striped shiner	--	106	107
<i>Lythrurus fasciolaris</i>	scarlet shiner	--	9	12
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--
<i>Notemigonus crysoleucas</i>	golden shiner	--	--	--
<i>Notropis atherinoides</i>	emerald shiner	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	3	--
<i>Notropis photogenis</i>	silver shiner	--	--	--
<i>Notropis telescopus</i>	telescope shiner	--	--	82
<i>Notropis volucellus</i>	mimic shiner	--	11	15
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--
<i>Pimephales notatus</i>	bluntnose minnow	--	--	1
<i>Pimephales vigilax</i>	bullhead minnow	--	--	--
<i>Rhinichthys atratulus</i>	blacknose dace	--	--	--
<i>Semotilus atromaculatus</i>	creek chub	--	--	1
Catostomidae				
<i>Carpiodes carpio</i>	river carpsucker	--	--	--
<i>Carpiodes velifer</i>	highfin carpsucker	--	--	--
<i>Erimyzon oblongus</i>	creek chubsucker	--	--	--
<i>Hypentelium nigricans</i>	northern hog sucker	--	7	--
<i>Ictiobus bubalus</i>	smallmouth buffalo	--	--	--
<i>Ictiobus cyprinellus</i>	bigmouth buffalo	--	--	--
<i>Minytrema melanops</i>	spotted sucker	--	--	--
<i>Moxostoma anisurum</i>	silver redhorse	--	--	--
<i>Moxostoma breviceps</i>	smallmouth redhorse	--	--	--
<i>Moxostoma carinatum</i>	river redhorse	--	--	--
<i>Moxostoma duquesnei</i>	black redhorse	10	--	--
<i>Moxostoma erythrum</i>	golden redhorse	16	2	--

Scientific nameCommon name		Station		
		SH-2	SH-3	SH-4
Ictaluridae				
<i>Ictalurus furcatus</i>	blue catfish	--	--	--
<i>Ictalurus punctatus</i>	channel catfish	1	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--
<i>Noturus exilis</i>	slender madtom	--	--	3
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--
<i>Pylodictis olivaris</i>	flathead catfish	--	--	--
Atherinopsidae				
<i>Labidesthes sicculus</i>	brook silverside	--	--	--
<i>Menidia audens</i>	Mississippi silverside	--	--	--
Fundulidae				
<i>Fundulus catenatus</i>	northern studfish	--	1	3
<i>Fundulus olivaceus</i>	blackspotted topminnow	1	1	4
<i>Fundulus notatus</i>	blackstripe topminnow	--	--	--
Poeciliidae				
<i>Gambusia affinis</i>	mosquitofish	--	--	--
Cottidae				
<i>Cottus carolinae</i>	banded sculpin	--	21	45
Moronidae				
<i>Morone chrysops</i>	white bass	--	--	--
<i>Morone mississippiensis</i>	yellow bass	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--
Centrarchidae				
<i>Ambloplites rupestris</i>	rock bass	--	14	5
<i>Lepomis cyanellus</i>	green sunfish	--	10	6
<i>Lepomis gulosus</i>	warmouth	--	--	--
<i>Lepomis humilis</i>	orangespotted sunfish	--	--	--
<i>Lepomis macrochirus</i>	bluegill	7	2	--
<i>Lepomis marginatus</i>	dollar sunfish	--	--	--
<i>Lepomis megalotis</i>	longear sunfish	6	3	3
<i>Lepomis microlophus</i>	redear sunfish	1	1	--
<i>Lepomis</i> hybrids	sunfish hybrids	--	--	1
<i>Micropterus dolomieu</i>	smallmouth bass	--	--	4
<i>Micropterus punctulatus</i>	spotted bass	2	1	4
<i>Micropterus salmoides</i>	largemouth bass	--	1	2
<i>Pomoxis annularis</i>	white crappie	--	--	--
<i>Pomoxis nigromaculatus</i>	black crappie	--	--	--

Scientific name Common name		Station		
		SH-2	SH-3	SH-4
Percidae				
<i>Etheostoma blennioides</i>	greenside darter	--	15	20
<i>Etheostoma caeruleum</i>	rainbow darter	--	--	3
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--
<i>Etheostoma duryi</i>	blackside snubnose darter	--	--	21
<i>Etheostoma flabellare</i>	fantail darter	--	2	--
<i>Etheostoma jessiae</i>	blueside darter	--	--	--
<i>Etheostoma nigripinne</i>	blackfin darter	--	--	--
<i>Etheostoma rufilineatum</i>	redline darter	--	57	145
<i>Etheostoma simoterum</i>	snubnose darter	--	29	66
<i>Etheostoma wapiti</i>	boulder darter	--	2	--
<i>Etheostoma zonale</i>	banded darter	--	--	--
<i>Perca flavescens</i>	yellow perch	9	--	--
<i>Percina caprodes</i>	logperch	--	--	16
<i>Percina evides</i>	gilt darter	--	--	--
<i>Percina sciera</i>	dusky darter	--	--	--
<i>Percina shumardi</i>	river darter	--	--	--
<i>Sander canadense</i>	sauger	--	--	--
Sciaenidae				
<i>Aplodinotus grunniens</i>	freshwater drum	--	--	--
Total species		11	25	28
Total individuals		56	349	1,616

APPENDIX B

Abundance and catch per unit effort (CPUE) for 12 fish species of conservation concern and two nonnative species in the Elk River system, 2004. (Number of individuals in each collection is followed in parentheses by number of individuals captured per sample hour at each station. Station numbers reference table 1 and figure 2.)

Scientific name	Common name	Station									
		ER-1	ER-2	ER-3	ER-4	ER-5	ER-6	ER-7	ER-8	ER-9	ER-10
Highest conservation concern											
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--	--	--	--	--
High conservation concern											
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--	--	--	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--	--	--	--	--
Moderate conservation concern											
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	8 (3.56)	--	1 (1.0)	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--	--	--	--	--
Nonnative species											
<i>Menidia audens</i>	Mississippi silverside	--	9 (5.4)	20 (14.1)	--	2 (3.0)	--	37 (49.3)	1 (1.0)	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--	--	--	--	--
Sampling effort (hours)		2.50	1.67	1.42	2.50	0.67	2.25	0.75	1.00	1.75	0.42

Scientific name	Common name	Station									
		ER-11	ER-12	ER-13	ER-14	ER-15	ER-16	ER-17	ER-18a	ER-18b	ER-19a
Highest conservation concern											
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--	--	--	1 (1.5)	--
High conservation concern											
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--	--	1 (1.3)	2 (3.0)	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--	--	2 (2.6)	--	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--	--	--	--	--
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--	--	--	8 (11.9)	--
Moderate conservation concern											
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	1 (1.5)	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	--	--	--	33 (22.1)	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--	14 (6.0)	--	4 (2.68)	--
Nonnative species											
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	1 (1.5)	--	2 (.9)	58 (77.3)	16 (10.72)	--
<i>Morone saxatilis</i>	striped bass	--	--	1 (1.7)	--	--	--	--	--	--	--
Sampling effort (hours)		2.17	16.50	0.58	0.33	0.67	3.25	2.33	0.75	0.67	2.50

Scientific name	Common name	Station									
		ER-19b	ER-20	ER-21a	ER-21b	ER-21c	ER-22a	ER-22b	ER-22c	ER-23a	ER-23b
Highest conservation concern											
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--	--	1 (.6)	--	7 (5.6)
High conservation concern											
<i>Erimystax dissimilis</i>	streamline chub	--	--	--	--	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--	--	1 (.6)	1 (3.0)	1 (.8)
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--	5 (5.0)	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	2 (2.0)	--	5 (3.0)	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	2 (2.0)	--	--	--	--
<i>Percina evides</i>	gilt darter	--	--	1 (2.4)	1 (2.0)	--	--	--	5 (3.0)	7 (21.2)	1 (.8)
Moderate conservation concern											
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	3 (7.1)	4 (8.0)	--	7 (7.0)	1 (1.0)	8 (4.8)	--	5 (4.0)
<i>Notropis micropteryx</i>	highland shiner	--	--	26 (61.9)	13 (26.0)	2 (1.6)	16 (16.0)	--	32 (19.2)	6 (18.2)	2 (1.6)
<i>Notropis photogenis</i>	silver shiner	--	--	1 (2.4)	--	--	--	--	--	--	2 (1.6)
Nonnative species											
<i>Menidia audens</i>	Mississippi silverside	--	--	12 (5.0)	8 (16.0)	--	--	--	3 (1.8)	2 (6.1)	3 (2.4)
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--	--	--	--	--
Sampling effort (hours)		0.75	0.68	0.42	0.50	1.25	1.00	1.00	1.67	0.33	1.25

Scientific name	Common name	Station									
		ER-24a	ER-24b	ER-24c	AC-1	AC-2a	AC-2b	AC-3	AC-4	AC-5	AC-6
Highest conservation concern											
<i>Etheostoma wapiti</i>	boulder darter	2 (1.0)	3 (4.0)	4 (1.6)	--	--	--	--	--	--	--
High conservation concern											
<i>Erimystax dissimilis</i>	streamline chub	1 (.5)	--	1 (.4)	--	--	--	--	--	--	--
<i>Macrhybopsis hyostoma</i>	shoal chub	1 (.5)	--	--	--	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	5 (2.5)	--	4 (1.6)	--	--	--	--	--	--	--
<i>Noturus eleutherus</i>	mountain madtom	27 (23.5)	8 (10.7)	28 (11.2)	--	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	7 (3.5)	1 (1.3)	14 (5.6)	--	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	15 (7.5)	6 (8.0)	10 (4.0)	--	--	--	--	--	--	--
<i>Percina evides</i>	gilt darter	35 (17.5)	5 (6.7)	31 (12.4)	--	--	--	--	--	--	--
Moderate conservation concern											
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	48 (24.0)	17 (22.7)	48 (19.2)	--	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	27 (23.5)	10 (13.3)	21 (8.4)	--	--	--	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	1 (.4)	--	--	--	--	--	--	--
Nonnative species											
<i>Menidia audens</i>	Mississippi silverside	7 (3.5)	--	6 (2.4)	--	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--	--	--	--	--
Sampling effort (hours)		2.00	0.75	2.50	0.25	0.83	1.33	0.25	0.25	0.42	0.37

Scientific name	Common name	Station									
		AC-7	AC-8	BC-1	SC-1	SC-2	SC-3	SC-4	SC-5	SC-6	SC-7
Highest conservation concern											
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	--	--	--	--	--
High conservation concern											
<i>Erimystax dissimilis</i>	streamline chub	--	--	2 (.8)	--	9 (6.0)	6 (1.7)	--	--	9 (8.2)	--
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--	--	--	--	--
<i>Phenacobius uranops</i>	stargazing minnow	--	--	5 (1.9)	--	3 (2.0)	3 (.9)	--	--	3 (2.7)	--
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--	--	--	--	--
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	--	--	--	--	--	--	--	--
<i>Etheostoma camurum</i>	bluebreast darter	--	--	--	--	--	--	--	--	--	
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--	--	--	--	--
Moderate conservation concern											
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	2 (1.3)	--	--	--	--	--
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--	--	--	--	--
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	9 (6.0)	7 (2.0)	--	--	--	--
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	3 (2.0)	5 (1.4)	--	--	22 (20.0)	--
Nonnative species											
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	--	--	--	--	--	--
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--	--	--	--	--
Sampling effort (hours)		0.25	0.33	2.58	0.33	1.50	3.50	0.25	0.25	1.10	1.25

Scientific name	Common name	Station							Sampling effort (hours)	Total specimens and (overall CPUE)
		SC-8	SC-9	SU-1	SH-1	SH-2	SH-3	SH-4		
Highest conservation concern										
<i>Etheostoma wapiti</i>	boulder darter	--	--	--	--	--	2 (4.0)	--	27.5	20 (0.73)
High conservation concern										
<i>Erimystax dissimilis</i>	streamline chub	--	--	1 (.6)	--	--	--	--	27.5	32 (1.2)
<i>Macrhybopsis hyostoma</i>	shoal chub	--	--	--	--	--	--	--	27.5	1 (0.04)
<i>Phenacobius uranops</i>	stargazing minnow	--	--	--	--	--	--	--	27.5	28 (1.0)
<i>Noturus eleutherus</i>	mountain madtom	--	--	--	--	--	--	--	27.5	68 (2.5)
<i>Noturus</i> sp. cf. <i>flavus</i>	highlands stonecat	--	--	1 (.6)	--	--	--	--	27.5	30 (1.1)
<i>Etheostoma camurum</i>	bluebreast darter	--		--	--	--	--	--	27.5	33 (1.2)
<i>Percina evides</i>	gilt darter	--	--	--	--	--	--	--	27.5	94 (3.4)
Moderate conservation concern										
<i>Alosa chrysochloris</i>	skipjack herring	--	--	--	--	--	--	--	46.8	12 (0.3)
<i>Erimystax insignis</i>	blotched chub	--	--	--	--	--	--	--	27.5	141 (5.1)
<i>Notropis micropteryx</i>	highland shiner	--	--	--	--	--	3 (6.0)	--	27.5	207 (7.5)
<i>Notropis photogenis</i>	silver shiner	--	--	--	--	--	--	--	27.5	52 (1.9)
Nonnative species										
<i>Menidia audens</i>	Mississippi silverside	--	--	--	--	--	--	--	29.9	188 (6.3)
<i>Morone saxatilis</i>	striped bass	--	--	--	--	--	--	--	46.8	1 (0.02)
Sampling effort (hours)		0.50	0.25	1.80	0.50	0.42	0.50	2.42	80.2 (Total)	

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