

Fishes of Randolph County, Arkansas

STEVE M. BOUNDS,¹ JOHN K. BEADLES and BILLY M. JOHNSON
Division of Biological Sciences, Arkansas State University
State University, Arkansas 72467

ABSTRACT

A survey of the fishes of Randolph County in northcentral Arkansas was made between June 1973 and March 1977. Field collections, literature records, and museum specimens revealed the ichthyofauna of Randolph County to be composed of 128 species distributed among 24 families. Cyprinidae was the largest family, being represented by 34 species while Percidae was represented by 24 species.

Randolph County is composed of Ozark Uplands and Coastal Plain areas. All of the stream systems flow into the Black River system with the exception of Village Creek in the southeastern corner of the county which flows into White River. The major streams in the county are Black, Current, Eleven Point, Fourche, and Spring Rivers, and Jane's Creek.

INTRODUCTION

During the past decade Randolph County, Arkansas has experienced a population growth of more than 100%, particularly in the Ozark region. This has resulted in changes in land use which subsequently cause changes in the river and stream systems. Forests have been cleared resulting in altered temperature and runoff cycles, turbidity, and siltation rates. Much of the natural vegetation has been replaced by row crops and pasture. The increase in the use of agriculture chemicals, pesticides, and fertilizers has contributed to changes within the aquatic environments.

In 1962, Randolph County was designated as eligible to receive assistance under the Area Redevelopment Act. A product of this was the Fourche Creek Watershed Project. Floodwater-retarding structures were to be constructed in the upland streams while the lowland streams were to be channeled for agricultural drainage. As of February, 1977, five floodwater-retarding structures and all channelization had been completed.

The purpose of this study was to report the fish species within the county before further environmental alterations are made.

METHODS

Most of the collections were taken by seines ranging in size from 1.2 x 3.0 m (bar measure mesh = 3.2 mm) to 1.8 x 15.2 m (bar measure mesh = 6.4 mm). Gill nets with a mesh of 37 mm to 76 mm were used as were various hook and line methods. Museum specimens collected by Green (1973) and Fowler (1972) were examined.

Collected fish were fixed in 10% formalin for three days, washed, and stored in 40% isopropanol.

Classification was accomplished with the keys of Pflieger (1968), Moore (1968), Miller and Robison (1973), and Pflieger (1975). Nomenclature is in accordance with Bailey, et al. (1970) with the exceptions of *Notropis chrysocephalus*, *Notropis emiliae*, and *Lepomis gulosus*.

DESCRIPTION OF AREA

Randolph County is located in northeast-northcentral Arkansas between Oregon County, Missouri, to the north, and Lawrence County, Arkansas, to the south. It covers an area of 1650 km². The elevation ranges from 76 m in the southeastern section to nearly 305 m in the northwestern section (Harper, 1972).

The county is divided into two distinct physiographic regions, the Coastal Plain and the Interior Highlands. The Coastal Plain is characterized by nearly flat topography. Because of the flat terrain the streams are sluggish and runoff is slow. The Interior Highlands is characterized by hilly dissected uplands. Streams have steep grad-

ients, particularly in their upper reaches, and runoff is rapid.

Randolph County lies wholly within the White River basin. All except a small southeastern portion of the county is drained by the Black River and its tributaries. Village Creek arises in the southeastern corner of the county and flows directly into the White River (Lamonds, Hines, and Plebuch, 1969).

Current River flows along the eastern boundary of the county for 63 km before it joins the Black River 6.4 km east of Pocahontas. As the river enters the county, it leaves the Ozark escarpment to become a meandering lowland stream but maintains its rapid clear flow. The river is almost continuous pools separated by a few short riffles. In the upper portion of the county the substrate is composed of gravel while the lower portion is composed entirely of sand and mud.

Jane's Creek is a clear, spring-fed, Ozark stream that arises in the northwestern corner of the county, near the Missouri line, and flows into Spring River near Ravenden, Arkansas, approximately 40 km below its origin. The substrate in the pools varies from solid rock in the upper reaches to fine gravel and sand at Spring River. The riffle substrate is composed of coarse gravel and chert. The mean stream gradient was calculated to be 2.8 m/km.

Spring River forms the southwestern boundary of county. It flows southeastward through the Ozarks before entering the Coastal Plain. It maintains a clear moderate flow for 5 more km before it enters the Black River at Black Rock, Arkansas.

The Eleven Point and Fourche Rivers drain the largest portion of the county. The Eleven Point enters the western portion of the county from Missouri, flows rapidly through the Ozarks for 50 km, and empties into the Spring River near Black Rock, Arkansas. Fourche enters the eastern portion of the county from Missouri, flows slowly through the Ozarks before entering the Coastal Plain, and empties into the Black River at Pocahontas, Arkansas.

The Black River enters the county 9 km south of Biggers, Arkansas, flows westward to Pocahontas, turns southwestward and flows along the Fall Line separating the Interior Highlands and Coastal Plain, and leaves the county at Black Rock, Arkansas.

Two small creeks, Little Running Water and Big Running Water, drain the southeastern portion of the county that is not drained by Village Creek. These creeks are deltaic and were extensively channeled, consequently, they tend to become dry during the hot summer months.

Randolph County has an average annual temperature of 15° C. January is usually the coldest month with an average temperature of 3.5° C. The average annual precipitation is 121 cm. Rainfall is usually plentiful and well distributed over the county throughout the year (Hawkins, 1976).

A CHECK-LIST OF THE FISHES OF RANDOLPH COUNTY, ARKANSAS

Petromyzontidae (Lampreys)

Ichthyomyzon castaneus Girard. Chestnut lamprey.

¹Present address: Dept. Science, Crowley's Ridge College, Paragould, Ark. 72450.

- Ichthyomyzon gagei* Hubbs and Trautman. Southern brook lamprey.
Lampetra aepyptera (Abbott). Least brook lamprey.
 Acipenseridae (Sturgeons)
Scaphirhynchus platyrhynchus (Rafinesque). Shovelnose sturgeon.
 Polyodontidae (Paddlefishes)
Polyodon spathula (Walbaum). Paddlefish.
 Lepisosteidae (Gars)
Lepisosteus oculatus (Winchell). Spotted gar.
Lepisosteus osseus (Linnaeus). Longnose gar.
Lepisosteus platostomus Rafinesque. Shortnose gar.
Lepisosteus spatula Lacepede. Alligator gar.
 Amiidae (Bowfin)
Amia calva Linnaeus. Bowfin.
 Anguillidae (Eels)
Anguilla rostrata (Lesueur). American eel.
 Clupeidae (Herrings)
Alosa chrysochloris (Rafinesque). Skipjack herring.
Dorosoma cepedianum (Lesueur). Gizzard shad.
 Hiodontidae (Mooneyes)
Hiodon tergisus Lesueur. Mooneye.
 Salmonidae (Trouts)
Salmo gairdneri Richardson. Rainbow trout.
 Esocidae (Pikes)
Esox americanus vermiculatus Lesueur. Grass pickerel.
Esox niger Lesueur. Chain pickerel.
 Cyprinidae (Minnows)
Campostoma anomalum (Rafinesque). Stoneroller.
Campostoma oligolepis Hubbs and Greene. Largescale stoneroller.
Cyprinus carpio Linnaeus. Carp.
Dionda nubila (Forbes). Ozark minnow.
Hybognathus nuchalis Agassiz. Silvery minnow.
Hybopsis amblops (Rafinesque). Bigeye chub.
Hybopsis dissimilis (Kirtland). Streamline chub.
Hybopsis x-punctata Hubbs and Crowe. Gravel chub.
Nocomis biguttatus (Kirtland). Hornyhead chub.
Notemigonus crysoleucas (Mitchill). Golden shiner.
Notropis atherinoides Rafinesque. Emerald shiner.
Notropis boops Gilbert. Bigeye shiner.
Notropis cornutus chrysocephalus (Rafinesque). Striped shiner.
Notropis fumeus Evermann. Ribbon shiner.
Notropis galacturus (Cope). Whitetail shiner.
Notropis greeni Hubbs and Ortenburger. Wedgespot shiner.
Notropis maculatus (Hay). Taillight shiner.
Notropis ozarcanus Meek. Ozark shiner.
Notropis rubellus (Agassiz). Rosyface shiner.
Notropis spilopterus (Cope). Spotfin shiner.
Notropis telescopus (Cope). Telescope shiner.
Notropis texanus (Girard). Weed shiner.
Notropis umbratilus (Girard). Redfin shiner.
Notropis venustus (Girard). Blacktail shiner.
Notropis volucellus (Cope). Mimic shiner.
Notropis whipplei (Girard). Steelcolor shiner.
Notropis zonatus (Putman). Bleeding shiner.
Opsopoeodus emiliae Hay. Pugnose minnow.
Phoxinus erythrogaster (Rafinesque). Southern redbelly dace.
Pimephales notatus (Rafinesque). Bluntnose minnow.
Pimephales tenellus (Girard). Slim minnow.
Pimephales vigilax (Baird and Girard). Bullhead minnow.
Semotilus atromaculatus (Mitchill). Creek chub.
 Catostomidae (Suckers)
Carpiodes carpio (Rafinesque). River carpsucker.
Carpiodes cyprinus (Lesueur). Quillback.
Carpiodes velifer (Rafinesque). Highfin carpsucker.
Catostomus commersoni (Lacepede). White sucker.
Cycleptus elongatus (Lesueur). Blue sucker.
Erimyzon oblongus (Mitchill). Creek chubsucker.
Hypentelium nigricans (Lesueur). Northern hog sucker.
Ictiobus bubalus (Rafinesque). Smallmouth buffalo.
Ictiobus cyprinellus (Valenciennes). Bigmouth buffalo.
Ictiobus niger (Rafinesque). Black buffalo.
Mintyrema melanops (Rafinesque). Spotted sucker.
Moxostoma anisurum (Rafinesque). Silver redbhorse.
Moxostoma carinatum (Cope). River redbhorse.
Moxostoma duquesnei (Lesueur). Black redbhorse.
Moxostoma erythrurum (Rafinesque). Golden redbhorse.
Moxostoma macrolepidotum (Lesueur). Shorthead redbhorse.
 Ictaluridae (Freshwater catfishes)
Ictalurus furcatus (Lesueur). Blue catfish.
Ictalurus melas (Rafinesque). Black bullhead.
Ictalurus natalis (Lesueur). Yellow bullhead.
Ictalurus nebulosus (Lesueur). Brown bullhead.
Ictalurus punctatus (Rafinesque). Channel catfish.
Noturus albaater Taylor. Ozark madtom.
Noturus eleutherus Jordan. Mountain madtom.
Noturus exilis Nelson. Slender madtom.
Noturus gyrinus (Mitchill). Tadpole madtom.
Noturus miurus Jordan. Brindled madtom.
Noturus nocturnus Jordan and Gilbert. Freckled madtom.
Pygodictis olivaris (Rafinesque). Flathead catfish.
 Aphredoderidae (Pirate perches)
Aphredoderus sayanus (Gilliams). Pirate perch.
 Amblyopsidae (Cavefishes)
Typhlichthys subterraneus Girard. Southern cavefish.
 Cyprinodontidae (Killifishes)
Fundulus catenatus (Storer). Northern studfish.
Fundulus olivaceus (Storer). Blackspotted topminnow.
 Poeciliidae (Livebearers)
Gambusia affinis (Baird and Girard). Mosquitofish.
 Atherinidae (Silversides)
Labidesthes sicculus (Cope). Brook silverside.
 Cottidae (Sculpins)
Cottus bairdi Girard. Mottled sculpin.

- Cottus caroliniae* (Gill). Banded sculpin.
Percichthyidae (Temperate basses)
- Morone chrysops* (Rafinesque). White bass.
Elassomatidae (Pygmy sunfishes)
- Elassoma zonatum* Jordan. Banded pygmy sunfish.
Centrarchidae (Sunfishes)
- Ambloplites rupestris* (Rafinesque). Rock bass.
Centrarchus macropterus (Lacepede). Flier.
Chaenobrytus gulosus (Cuvier). Warmouth.
Lepomis cyanellus Rafinesque. Green sunfish
Lepomis humilis (Girard). Orangespotted sunfish.
Lepomis macrochirus Rafinesque. Bluegill.
Lepomis megalotis (Rafinesque). Longear sunfish.
Lepomis microlophus (Gunther). Redear sunfish.
Lepomis punctatus (Valenciennes). Spotted sunfish.
Micropterus dolomieu Lacepede. Smallmouth bass.
Micropterus punctulatus (Rafinesque). Spotted bass.
Micropterus salmoides (Lacepede). Largemouth bass.
Pomoxis annularis Rafinesque. White crappie.
Pomoxis nigromaculatus (Lesueur). Black crappie.
Percidae (Perches)
- Ammocrypta vivax* Hay. Scaly sand darter.
Etheostoma asprigene (Forbes). Mud darter.
Etheostoma blennioides Rafinesque. Greenside darter.
Etheostoma caeruleum Storer. Rainbow darter.
Etheostoma chlorosomum (Hay). Bluntnose darter.
Etheostoma euzonum (Hubbs and Black). Arkansas saddled darter.
Etheostoma flabellare Rafinesque. Fantail darter.
Etheostoma gracile (Girard). Slough darter.
Etheostoma histrio Jordan and Gilbert. Harlequin darter.
Etheostoma nigrum Rafinesque. Johnny darter.
Etheostoma proeliare (Hay). Cypress darter.
Etheostoma spectabile (Agassiz). Orangethroat darter.
Etheostoma stigmaeum (Jordan). Speckled darter.
Etheostoma whipplei (Girard). Redfin darter.
Etheostoma zonale (Cope). Banded darter.
Percina caprodes (Rafinesque). Logperch.
Percina evides (Jordan and Copeland). Gilt darter.
Percina maculata (Girard). Blackside darter.
Percina nasuta (Bailey). Longnose darter.
Percina phoxocephala (Nelson). Slenderhead darter.
Percina sciera (Swain). Dusky darter.
Percina uranidea (Jordan and Gilbert). Stargazing darter.
Stizostedion canadense (Smith). Sauger.
Stizostedion vitreum (Mitchill). Walleye.
Sciaenidae (Drums)
- Aplodinotus grunniens* Rafinesque. Freshwater drum.

DISCUSSION

The known fish fauna of Randolph County, Arkansas consists of 128 species distributed among 24 families. The topography consists of

Ozark and lowland habitats which accounts for the diversified fish populations. In an Illinois study Larimore and Smith (1963) reported 90 species from Champaign County, Illinois.

Ichthyomyzon castaneus was taken from Fourche and Eleven Point; it was the most abundant lamprey. *I. gagei* was taken from Jane's Creek by Fowler and Harp (1974). An immature *Lampetra aepyptera* was taken from the lower end of Eleven Point.

Scaphirhynchus platyrhynchus inhabited the larger lowland rivers as did *Polyodon spathula*. Neither was common. Both fishes were rarely caught by local commercial fishermen. The senior author has taken the shovelnose sturgeon and has seen the paddlefish in Current River.

Lepisosteus spatula was not collected during this study but it has been reported by the Arkansas Game and Fish Commission (1953) and Baker (1954). Local fishermen have recently reported having caught the alligator gar. The other species ofgars were fairly common with *L. platostomus* being least common.

Amia calva was common throughout the lowlands region of the county but was only occasionally taken in the Ozark region. *Anguilla rostrata* was reported as fairly common by local fishermen and has been collected from Fourche River (Bounds and Beadles, 1976). Both *Esox americanus* and *E. niger* were widely distributed, being taken in both the lowlands and Ozarks, but neither were common.

Of the herrings, *Dorosoma cepedianum* was common and widespread throughout the county while *Alosa chrysochloris* was occasionally taken from the Eleven Point River. Yeager (pers. comm.) has recently collected the skipjack herring from Cane Creek, a tributary to Black River in Clay County, Arkansas.

The rainbow trout was not taken by the authors during this study but fishermen have reported it from the Eleven Point River. On several occasions the Missouri Department of Conservation has stocked rainbow trout in the Eleven Point River near the state line. The goldfish, *Carassius auratus*, is known to have been raised in a farm pond in the county for several years; however, no specimens were taken from any of the streams. Therefore, it is not included in the species list.

Minnows found primarily in the Ozark portion of the county were *Camptostoma anomalum*, *C. oligolepis*, *Dionda nubilis*, *Hybopsis amblops*, *H. dissimilis*, *H. x-punctata*, *Nocomis biguttatus*, *Notropis atherinoides*, *N. boops*, *N. cornutus chrysocephalus*, *N. galacturus*, *N. greeni*, *N. ozarcanus*, *N. rubellus*, *N. telescopus*, *N. whipplei*, *N. zonatus*, *Phoxinus erythrogaster*, and *Semotilus atromaculatus*. Minnows founds primarily in the lowlands were *Hybognathus nuchalis*, *Notemigonus crysoleucas*, *Notropis fumeus*, *N. maculatus*, *N. sabinae*, *N. texanus*, *N. venustus*, *N. volucellus*, *Opsopoeodus emiliae*, and *Pimephales tenellus*. Minnows that inhabited both physiographical regions were *Cyprinus carpio*, *Notropis umbratilis*, *Pimephales notatus* and *P. vigilax*. This follows closely with Pflieger's (1971) classification of Missouri fishes based on distribution patterns.

Meek (1894) reported *Notropis bienniis* from Randolph County but Black (1940) reported that Hubbs correctly identified the fish as the weed shiner; however, he did not give the species name.

A single specimen of *Notropis spilopterus* was taken from Eleven Point River. The spotfin shiner was first reported in the White River drainage by Beadles (1974). It was a rarely encountered species that seemed to prefer the larger, clearer streams.

Carpionoxys carpio was taken during this study from Eleven Point. *C. cyprinus* has been reported by the Arkansas Game and Fish Commission (1953) and *C. velifer* was reported by Green and Beadles (1974). *Cycleptus elongus* was reported from the Black River in Randolph County by Meek (1894) and from the Current River in Missouri by Pflieger (1971). *Erimyzon oblongus* and *Moxostoma duquesnei* were generally distributed throughout the county and were common. *Hypentelium nigricans* and *Moxostoma erythrurum* were common but were more restricted to the clearer Ozark streams. The buffalofishes and spotted sucker were commonly found in the lowland rivers although *Minytrema melanops* was reported from a smaller Ozark stream (Fowler and Harp, 1974).

Moxostoma anisurum was taken from Eleven Point River and has been reported from the Current and Black Rivers in Missouri (Pflieger, 1971). *M. carinatum* was reported by Meek (1894) and *M. macrolepidotum* was reported by Green and Beadles (1974). All three species typically inhabit moderately large rivers (Pflieger, 1975).

The catfish family was represented by 13 members. *Ictalurus furcatus* and *I. nebulosus* were reported by the Arkansas Game and Fish Commission (1953) and Meek (1894) respectively, but were not taken during this study. Robison and Beadles (1974) reported *I. furcatus* from the Strawberry River, just south of Randolph County. *Ictalurus melas*, *I. natalis*, and *I. punctatus* were common. *Pylodictis olivaris* was often reported from the larger rivers by local fishermen and was collected from Eleven Point and Fourche Rivers.

Noturus albatris, *N. exilis*, and *N. miurus* were the most common madtoms. *N. eleutherus* and *N. nocturnus* were mostly taken in clear riffles. Bounds and Beadles (1976) confirmed that *N. gyrinus* was present in the Black River system in Arkansas, thereby extending its range in the state. The tadpole madtom preferred the lowland ditches.

Aphredoderus sayanus was rare but was widely distributed and collected in all the major streams within the county. *Elassoma zonatum* was also rare. It was reported in the Black River system in Arkansas by Bounds and Beadles (1976). The banded pygmy sunfish preferred the lowland ditches in pools with aquatic vegetation. Another rarely collected species was *Morone chrysops*. It was collected from the Eleven Point River but had been reported from other streams in the county.

Fundulus olivaceus was common and widespread throughout the county. *F. catenatus*, although common, was restricted to the clearer streams, as were *Cottus bairdi* and *C. carolinae*. The mottled and banded sculpins were riffle-dwelling species found in the fast-flowing streams. Green and Beadles (1974) reported that they were not collected together in the Current River; however, they were taken together in the Eleven Point River. *Gambusia affinis* and *Labidesthes sicculus* were also common and widely distributed. Both species were most often taken in pools.

Woods and Inger (1957) reported *Typhlichthys subterraneanus* from a well in Randolph County and from a spring flowing into Eleven Point River in Missouri. The southern cavefish was not collected during this study.

Ambloplites rupestris was common in the clearer streams. *Lepomis cyanellus*, *L. megalotis*, and *L. macrochirus* were common throughout the county with the green sunfish being the most abundant. *Chaenobryttus gulosus* was generally found in quiet, sluggish pools. Larimore (1957) stated that dense weed beds and soft bottoms were two habitat characteristics with which the warmouth was usually associated. *Micropterus salmoides* was widely distributed while *M. dolomieu* and *M. punctulatus* were more often found in the Ozarks. *Pomoxis annularis* and *P. nigromaculatus* were most often found in the quiet pools of the larger streams.

Centrarchus macropterus and *Lepomis humilis* were rarely taken. Both tended to prefer a lowland habitat in swampy areas. According to Smith and Powell (1971), *L. humilis* is silt tolerant and was the dominant species in a small pool at one station in Oklahoma. *Lepomis punctatus* was only collected in Eleven Point River but was reported in the Spring River as *L. garmani* (Meek, 1894).

Twenty-three species of Percidae were collected during this study. *Percina phoxocephala* has been reported from the Spring River (Meek, 1894). *Stizostedion canadense* and *S. vitreum* were observed in a fisherman's creel from the Black River. The walleye is commonly taken in the larger streams in the county. Yeager (pers. comm.) has recently collected it from Cane Creek near Clay County, Arkansas. *Ammocrypta vivax* was taken in the slower flowing portions of the streams. It was not commonly taken.

Typical Ozarkian theostomids were *Etheostoma blennioides*, *E. caeruleum*, *E. euzonum*, *E. flabellare*, *E. spectabile*, and *E. zonale*. All were fairly abundant. *E. asprigene*, *E. chlorosomum*, *E. gracile*, *E. histrio*, *E. proeliare*, and *E. whipplei* were found in the lowland portion of the county. All were uncommon with the exception of *E. chlorosomum* which was the most abundant lowland darter. *E. asprigene* was reported from the Black River system in Arkansas for the first time by Bounds and Beadles (1976). Since then the mud darter has been taken from the lower end of the Eleven Point River. *E. nigrum* and *E. stigmaeum* were taken in both the Ozark and lowland streams. The johnny darter was more common in the Ozarks whereas the speckled darter was more common in the lowlands.

Percina caprodes and *P. uranidea* were the most commonly collected members of the genus *Percina*. Both were collected in upland and lowland habitats. *P. evides*, *P. maculata*, *P. nasuta*, and *P. sciera* were typically lowland darters and were rare.

Meek's (1894) record of *Percina phoxocephala* in the Strawberry River has been questioned by Robison and Beadles (1974). A re-examination of most of the *P. phoxocephala* specimens from Arkansas revealed them to be *P. nasuta*. Pflieger (1975) did not report either *P. phoxocephala* or *P. nasuta* from the Missouri portion of the Black River system. The collection of *P. nasuta* from the Fourche River definitely confirms the presence of this darter in the Black River system. No specimens of *P. phoxocephala* were collected during this study but it is included in the species list pending further examination of the Arkansas specimens.

Creel censuses revealed that *Aplodinotus grunniens* occurs in all rivers in the county. The drum typically is more common in the deeper pools of rivers (Miller and Robison, 1973).

Randolph County, because of its topography, supports a diverse fish population. As additional collections are made in the county other species are likely to be added to this list. *Lamprolaima lamottei* has been reported from the Current River in Missouri within 30 km of Randolph County (Pflieger, 1975). *Hiodon alosoides* and *Fundulus notii* were taken from Cane Creek, a tributary of Black River in Clay County, Arkansas (Yeager and Beadles, 1976). *Ctenopharyngodon idellus* was taken by a fisherman from Martin Creek, a tributary of Spring River in Sharp County, Arkansas. *Ammocrypta asprella* and *A. clara* have been reported in the Black River near the Arkansas-Missouri line (Pflieger, 1975). These species are nowhere abundant in the area but may be eventually found in Randolph County.

ACKNOWLEDGEMENTS

The writers wish to express their appreciation to several Arkansas State University students for their aid in the collection of fishes.

LITERATURE CITED

- ARKANSAS GAME AND FISH COMMISSION. 1953. Stream survey, Fourche Creek, Randolph County. Work Plan 1, Job 1-A, (form 3). 3 pp.
- BAILEY, R.M., J.E. FITCH, E.S. HERALD, E.A. LACHNER, C.C. LINDSEY, C.R. ROBINS and W.B. SCOTT. 1970. A list of the common and scientific names of fishes from the United States and Canada. Am. Fish. Soc. Spec. Publ. 6. 150 pp.
- BAKER, R. 1954. Stream survey. Work Plan 1, Job 1-B (form 3). Arkansas Game and Fish Commission, Little Rock, Arkansas. 2 pp.
- BEADLES, J.K. 1974. The spotfin shiner in northeastern Arkansas. SW Naturalist 19(2):219-220.
- BLACK, J.D. 1940. The distribution of the fishes of Arkansas. Ph. D. dissertation, Univ. Michigan. 243 pp.
- BOUNDS, S.M. and J.K. BEADLES. 1976. Fishes of the Fourche River in northcentral Arkansas. Proc. Ark. Acad. Sci. 30:22-26.
- FOWLER, C.L. 1972. Ichthyofaunal diversification and distribution in Jane's Creek watershed, Randolph County, Arkansas. Unpubl. M. S. thesis, Arkansas State Univ. 42 pp.
- _____ and G.L. HARP. 1974. Ichthyofaunal diversification and distribution in Jane's Creek watershed, Randolph County, Arkansas. Proc. Ark. Acad. Sci. 28:13-18.
- GREEN, J.F. 1973. Ichthyofaunal survey of the Current River within Arkansas. Unpubl. M. S. thesis, Arkansas State Univ. 32 pp.

Fishes of Randolph County, Arkansas

- _____ and J.K. BEADLES. 1974. Ichthyofaunal survey of the Current River within Arkansas. *Proc. Ark. Acad. Sci.* 28:22-26.
- HARPER, L.P. (Ed.). 1972. Arkansas almanac. Ark. Almanac, Inc. Little Rock. 350 pp.
- HAWKINS, D.L. 1976. Vascular plants of Randolph County, Arkansas. Unpubl. M. S. thesis, Arkansas State Univ. 51 pp.
- LAMONDS, A.G., M.S. HINES, and R.O. PLEBUCH. 1969. Water resources of Randolph and Lawrence Counties, Arkansas. U.S. Geol. Survey Water-Supply Paper 1879-B. 45 pp.
- LARIMORE, R.W. 1957. Ecological life history of the warmouth (Centrarchidae). *Ill. Nat. Hist. Surv. Bull.* 27(1):1-83.
- _____ and P.W. SMITH. 1963. The fishes of Champaign County, Illinois, as affected by 60 years of stream changes. *Ill. Nat. Hist. Surv. Bull.* 28(2):299-382.
- MEEK, S.E. 1894. Report of investigations respecting the fishes of Arkansas conducted during 1891, 1892, and 1893, with a synopsis of previous explorations in the same state. *Bull. U.S. Fish Comm.* 14:67-94.
- MILLER, R.J. and H.W. ROBISON. 1973. The fishes of Oklahoma. *Okla. State Univ. Mus. Nat. Cult. Hist. Ser. No. 1.* 246 pp.
- MOORE, G.A. 1968. Fishes. In: *Vertebrates of the United States*. W.F. Blair, A.P. Blair, P. Brodkorb, F.R. Cagle, and G.A. Moore, eds., McGraw-Hill, New York. pp. 19-165.
- PFLIEGER, W.L. 1968. A check-list of the fishes of Missouri, with keys for identification. *Missouri Dept. Cons., Div. of Fish. D-J Series No. 3.* 64 pp.
- _____. 1971. A distributional study of Missouri fishes. *Mus. Nat. Hist., Univ. Kansas, Publ.* 20(3):225-570.
- _____. 1975. The fishes of Missouri. *Missouri Dept. Cons., Jefferson City.* 343 pp.
- ROBISON, H.W. and J.K. BEADLES. 1974. Fishes of the Strawberry River system of northcentral Arkansas. *Proc. Ark. Acad. Sci.* 28:65-70.
- SMITH, C.L. and C.R. POWELL. 1971. The summer fish communities of Brier Creek, Marshall County, Oklahoma. *Amer. Mus. Novitates No. 2458.* 30 pp.
- WOODS, L.P. and R.F. INGER. 1957. The cave, spring, and swamp fishes of the family Amblyopsidae of central and eastern United States. *Amer. Midl. Nat.* 58(1):232-256.
- YEAGER, B.E. and J.K. BEADLES. 1976. Fishes of the Cane Creek watershed in southeast Missouri and northeast Arkansas. *Proc. Ark. Acad. Sci.* 30:100-104.