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THE FISHES OF ROCK CREEK, SHARP COUNTY, ARKANSAS

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ABSTRACT

A survey of the fishes of Rock Creek in northcentral Arkansas was made on 9-10 November, 1978, and 15-16 March, 1979. Field collections were made using a minnow seine and backpack shocker. The creek system was inhabited by 28 species of fish representing eight families. Fish collections were typical of a small Ozark stream. The most abundant species were: *Camptostoma oligolepis* Hubbs and Greene, largescale stoneroller; *Notropis telescopus* (Cope), telescope shiner; *Notropis zonatus* (Putnam), bleeding shiner; *Moxostoma duquesnei* (Lesueur), black redbreast; *Etheostoma blennioides* Rafinesque, greenside darter; *Etheostoma caeruleum* Storer, rainbow darter; *Etheostoma euzonum* (Hubbs and Black), Arkansas saddled darter; *Etheostoma spectabile* (Agassiz), orangethroat darter; and *Cottus bairdi* Girard, mottled sculpin. *Lampetra aepyptera* (Abbott), least brook lamprey, represented an extension of the previously known range of this species in the state.

INTRODUCTION

Rock Creek is a predominantly clear, spring-fed Ozark stream totally within Sharp County, Arkansas. The main spring area is referred to as Bubbling Springs and consists of one large spring with approximately one acre of numerous small bubbling springs. Six small intermittent tributaries flow into Rock Creek producing an upper stream with swift, long, narrow riffles and short, shallow pools and a lower section of long, swift, wide riffles and long wide pools (Fig. 1). The watershed consists of hardwood woodlands with few open fields. The substrate is composed of bedrock and gravel with varying sizes of swift riffles separating the pool areas. Periods of floodwater flush the system free of leaf and limb detritus each year. From the headwaters to the mouth, which empties into Spring River, the distance is 14 kilometers.

Similar studies have been conducted on Black River and its tributaries by Beadles (1972), Fowler and Harp (1974), Green and Beadles (1974), and Yeager and Beadles (1976) and on Sylamore Creek by Frazier and Beadles (1977).

METHODS AND MATERIALS

Collections were taken with the following equipment:

- 1) A 6-meter-long, .3-centimeter mesh minnow seine;
- 2) A gasoline-powered backpack shocker producing 230 volts with DC current; and
- 3) Hand held dip nets.

The electrofishing technique described by Ricker (1971) was used. The seine was primarily used to catch fish at the foot of a shoal area as they were washed downstream in front of the shocker. Hand held dip nets were used in all collection locations. Specimens were netted and fixed in 10% formalin for three to seven days, then washed, identified and preserved in 40% isopropanol.

Classification was accomplished with the keys of Pflieger (1975), Buchanan (1973), and Miller and Robison (1973). Genera and species are arranged alphabetically within each family in accordance with the scheme proposed by Greenwood et al. (1966). Scientific and common names of fishes follow those of Bailey et al. (1970).

RESULTS

This study yielded 28 species distributed among eight families. The following is an annotated checklist of the fishes of Rock Creek.

Petromyzontidae (Lampreys)

Lampetra aepyptera (Abbott). Least brook lamprey.

One specimen was captured during the spring collection and was found in a swift, shallow, rocky riffle. This record is a range extension of this species with the closest specimen recorded by Johnson and Beadles (1977) from the Eleven Point River system.

Cyprinidae (Minnows)

Camptostoma anomalum pullum (Agassiz). Central stoneroller.

One specimen was collected just below Bubbling Spring during November, 1978.

Camptostoma oligolepis Hubbs and Greene. Largescale stoneroller.

Very abundant in all collection sites.

Hybopsis amblops (Rafinesque). Bigeye chub.

Collected on the larger section of the creek. Uncommon.

Nocomis biguttatus (Kirtland). Hornyhead chub.

Collected in the pool section of the creek. This species was considered common.

Notropis cornutus chrysocephalus (Rafinesque). Striped shiner.

Common inhabitant of rocky pools; however, their occurrence was slightly below common. One specimen taken was 19.7 centimeters in length. Following Miller (1968), the writers consider *Notropis chrysocephalus* a subspecies of *Notropis cornutus* (Mitchell).

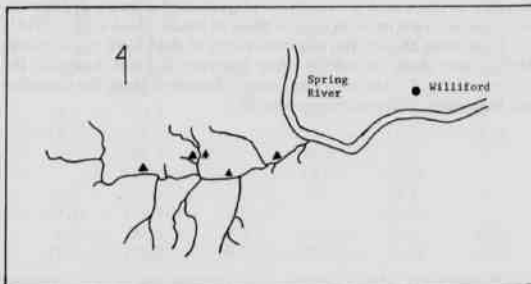


Figure 1. Collecting sites (▲) on Rock Creek, Sharp County, Arkansas. *Bubbling Springs.

Notropis galacturus (Cope). Whitetail shiner.

One specimen was found in the pool region of the lower section. This species is reported to be in the Spring River system by Buchanan (1973).

Notropis telescopus (Cope). Telescope shiner.

Abundant throughout the stream; however, mainly an inhabitant of pools over gravel bottoms.

Notropis zonatus (Putnam). Bleeding shiner.

Abundant throughout the stream, collected in all collection sites.

Chrosomus erythrogaster (Rafinesque). Southern redbelly dace.

Collected throughout the system mainly from flowing water over a rocky bottom.

Semotilus atromaculatus (Mitchill). Creek chub.

Common in the calm pools above riffles.

Catostomidae (Suckers)

Erimyzon oblongus (Mitchill). Creek chubsucker.

Common throughout the system. Found in the pool areas below riffles.

Hypentelium nigricans (Lesueur). Northern hogsucker.

The most abundant catostomid found in swift riffles and calm pools.

Moxostoma duquesnei (Lesueur). Black redbreast.

Very abundant during the spring collection; however, only common during the fall.

Ictaluridae (Catfishes)

Noturus exilis Nelson. Slender madtom.

Rare in occurrence. Most specimens were collected from swift riffles with a rock and gravel bottoms; however, one specimen was taken from a mud bottom area.

Cyprinodontidae (Killifishes)

Fundulus catenatus (Storer). Northern studfish.

Common throughout the system. Not as abundant as *Fundulus olivaceus*. Inhabitant of quiet pools over gravel bottoms.

Fundulus olivaceus (Storer). Blackspotted topminnow.

Widely distributed throughout the system but never in great numbers. Found in quiet pools over gravel bottoms as noted by Braasch and Smith (1965).

Centrarchidae (Sunfishes)

Ambloplites rupestris (Rafinesque). Rock bass.

A common inhabitant of deep pools. Found also under rock ledges in shoal areas.

Lepomis cyanellus Rafinesque. Green sunfish.

Common throughout the system. It was an inhabitant of the pool sections.

Lepomis megalotis (Rafinesque). Longear sunfish.

Found to be the most common of the bream. Inhabitant of the pool areas.

Micropterus dolomieu Lacepede. Smallmouth bass.

Found throughout the main creek system. Population was well established in all year classes.

Percidae (Perches)

Etheostoma blennioides Rafinesque. Greenside darter.

Common darter inhabiting the riffle areas.

Etheostoma caeruleum Storer. Rainbow darter.

One of the most abundant percids. Inhabitant of riffle and pools with gravel bottoms.

Etheostoma euzonum (Hubbs and Black). Arkansas saddled darter.

Abundant on the swift riffle areas of the lower section.

Etheostoma flabellare Rafinesque. Fantail darter.

Collected on shallow riffle areas. Moderately common throughout the system.

Etheostoma spectabile (Agassiz). Orangethroat darter.

Common throughout the system; however, found mainly along the head of riffle areas.

Etheostoma zonale (Cope). Banded darter.

Rare inhabitant. Found only at one location in a swift riffle area.

Cottidae (Sculpins)

Cottus bairdi Girard. Mottled sculpin.

Common in the upper section of the system. Collected in the swift riffle areas.

DISCUSSION

Rock Creek is an Ozark foothills stream that produces a fishable population of fish for the wading angler. The main sport species, *Ambloplites rupestris* (rock bass) and *Micropterus dolomieu* (smallmouth bass) were abundant. *Lepomis cyanellus* (green sunfish) and *Lepomis megalotis* (longear sunfish) were also present in sufficient number for the angler. During the survey of the fish population, sustaining reproduction was apparent in all species excluding *Lampetra aepyptera* (least brook lamprey), *Notropis galacturus* (whitetail shiner), and *Noturus exilis* (slender madtom). The record of *L. aepyptera* was a distributional record now placing it well within the Spring River system. *L. aepyptera* has been recorded from the Black River system by Yeager and Beadles (1976), from the White River system by Harp and Matthews (1975), and from the Sylamore Creek by Frazier and Beadles (1977).

Notropis telescopus (telescope shiner) and *Chrosomus erythrogaster* (southern redbelly dace) dominated the family Cyprinidae. *Notropis galacturus* is reported common in the Spring River system; however, only one specimen was collected in Rock Creek. Of the family Catostomidae, *Hypentelium nigricans* (northern hogsucker) was found throughout the system; however, it did not appear to be overpopulated. *Moxostoma duquesnei* (black redbreast) was more abundant during the spring collection. The catfish family, Ictaluridae, was not well represented, with only a few specimens of *Noturus exilis* found. The reason for this is expected to be due to the heavy predator population present. *N. exilis* has been found to be common in neighboring Ott Creek in which only *L. cyanellus* exists as the predator population (pers. obs. by Carter).

Fundulus catenatus (northern studfish) and *Fundulus olivaceus* (blackspotted topminnow) were common over most of the system. The family Percidae was well represented with abundant numbers of *Etheostoma blennioides* (greenside darter), *Etheostoma caeruleum* (rainbow darter), *Etheostoma euzonum* (Arkansas saddled darter), *Etheostoma flabellare* (fantail darter), and *Etheostoma spectabile* (orangethroat darter). *Etheostoma zonale* (banded darter) was rare. Specimens of *Etheostoma blennioides* ranged to 13 centimeters. The darters were mainly in the upper two-thirds of the stream where the water flowed over more riffle areas and was more shallow.

Cottus bairdi (mottled sculpin) of the family Cottidae was also more abundant in the upper section of the system. All age classes were present with the largest adult collected being 10.5 centimeters in total length.

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