

STREAM FISHES IN PONTOTOC COUNTY, OKLAHOMA

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Because of a lack of information on the fishes in Pontotoc County, Oklahoma, a survey of the stream fishes of this county was conducted. A total of eight families and 34 species were found and are represented in an annotated checklist.

To our knowledge the only published records of stream fishes in Pontotoc County, Oklahoma, are those of Linder (1), Moore and Cross (2), and Moore and Rigney (3). Linder (1) collected 14 species of fishes from Blue River near its origin, southwest of Ada, Pontotoc County, one of which, *Lepomis humilis* (orange spotted sunfish), is not reported herein. *Schilbeodes mollis* (tadpole madtom) was recorded by Moore and Cross (2) from Clear Boggy Creek in Pontotoc County. Also, Moore and Rigney (3) collected and described paratypes of the new subspecies *Etheostoma* (= *Poeciliichthys*) *radiosus cyanorum* (Blue River orange belly darter) from Blue River near its origin, southwest of Ada, Pontotoc County, and the holotype and paratypes of *Etheostoma* (= *Poeciliichthys*) *radiosus paludosum* (Kiamichi orange belly darter) from Bois d'Arc Creek, a tributary of Clear Boggy Creek, Pontotoc County. Dr. G. A. Moore, Oklahoma State University, in an unpublished manuscript entitled "Oklahoma fishes with distributional notes and keys", reported *Schilbeodes nocturus* (Jordan and Gilbert) (freckled madtom) and *Percina* (= *Hadropterus*) *s. scierus* Swain (northern dusky darter) from Clear Boggy Creek, Pontotoc County. Since so little work has been done on the stream fishes of Pontotoc County, an annotated checklist of the fishes seems pertinent.

METHODS

Study area

Pontotoc County, with a total area of 717 square miles, is located in south-central Oklahoma, with the northern boundary being the Canadian River. This county is within the Osage Savanna biotic district (4), and is that part of Oklahoma which is

often referred to as the "Cross Timbers" (5).

Pontotoc County consists of rolling prairies, forested slopes, and some rough hilly terrain. The entire southern portion of the county consists of a high plain, 1100 to 1300 ft above sea level, which drains to the southeast into tributaries of the Blue River. The rolling plain extending across the entire northern portion of the county has an elevation of 800 to 1100 ft above sea level. The northern portion of this plain drains northward and eastward into tributaries of the Canadian River. The southeast portion of this plain drains eastward and southeastward into Muddy Boggy and Clear Boggy creeks. The southwest portion of this plain drains into Sandy Creek.

The climate of Pontotoc County is highly variable. The average annual temperature is approximately 18 C (4). High summer temperatures generally occur with clear skies and hot, dry winds from south to southwest. Over a period of 30 years the average temperature for July was 28.3 C. According to records for a period of 32 years, the average total annual precipitation was 37.82 inches, with the greatest amount occurring in the spring and early summer (5). During drier periods of the year it is not uncommon for the smaller streams and headwaters of Blue River to stop flowing.

Collecting stations

Station 1. This collecting site was located 7 air miles SSE of Ada (T3N, R6E, Sect. 35) on the South Jack Fork Creek, which is part of the Clear Boggy Creek watershed. Collections were made in two pools and one riffle, with substrate being sand and gravel, respectively. Shelter in the creek consisted of exposed roots and sparse vegetation. Current was moderate, turbidity was slight, and maximum depth was approximately 4 ft.

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Station 2. This station was located 6 air miles S of Ada (T3N, R6E, Sect. 34) on the North Jack Fork Creek, which is part of the Clear Boggy Creek watershed. Collections were made in three pools and one riffle. Substrate consisted of layers of decaying leaves in the pools, with gravel and rubble in the riffle and shelter consisted of cut-in-banks and fallen trees. Current was moderate, turbidity was slight, and maximum depth was approximately 4 ft.

Station 3. This location was 7.5 air miles SSE of Ada (T2N, R6E, Sect. 12) on Bois d'Arc Creek, also part of the Clear Boggy Creek watershed. Collections were taken from numerous pools and riffles. Maximum depth of the stream was approximately 6 ft and substrate consisted of rubble, gravel, and sand. Cut-in-banks, boulders, and exposed roots afforded sheltered areas. Current was moderate and turbidity was negligible.

Station 4. This station was located 10.5 air miles SSE of Ada (T2N, R7E, Sect. 16) on Bois d'Arc Creek, part of the Clear Boggy Creek watershed. Collections were taken in numerous pools and two riffles. Maximum depth of stream was approximately 5 ft and substrate consisted of undercut banks, exposed roots, boulders, and debris; current was fast and turbidity was slight.

Station 5. Located on the headwaters of Blue River, this station was 16.5 air miles SSW of Ada (T1N, R6E, Sect. 20). Collections were made in three different months. Collection 5a was taken from several pools and riffles in December, 1971, after a week of heavy rains when current was fast, water was extremely turbid, and maximum depth was approximately 6 ft. Collection 5b is a combination of two samples taken from numerous pools during March and April, 1972. Water was clear, current was moderate, and maximum depth was approximately 4 ft.

Station 6. This site was located 3 air miles NNW of Ada (T4N, R6E, Sect. 19) on Little Sandy Creek, which is part of the Sandy Creek watershed. Collections were made in numerous pools and riffles. Substrate was composed of sand. Cut-in-banks and fallen trees provided shelter areas. Current was moderate to slow, water was slightly turbid, and maximum depth was approximately 5 ft.

Station 7. This site on the Canadian River was 11 air miles N of Ada (T5N, R6E, Sect. 4, 9). Collections were taken in numerous pools. Sheltered areas were provided by fallen trees and cut-in-banks. Current was moderate to fast, turbidity was slight, and maximum depth was approximately 6 ft.

Station 8. This station was located 3.3 air miles SW of Ada (T3N, R6E, Sect. 1) on Sandy Creek, which is part of the Sandy Creek watershed. Collections were made in three pools and two riffles where the substrate consisted of sand with intermixed boulders. Water was clear, current was moderate, and maximum depth was approximately 3 ft.

Station 9. This location was 10.5 air miles NNE of Ada (T4N, R8E, Sect. 8) on Muddy Boggy Creek, which is part of the Clear Boggy Creek watershed. Collections were made in numerous pools and riffles where the current was moderate, turbidity was slight, and maximum depth was approximately 4 ft. Boulders, fallen trees, and cut-in-banks offered sheltered areas and substrate consisted of rubble, sand, and silt.

Station 10. This collection site was located 12 air miles S of Ada (T2N, R6E, Sect. 25) on Mill Creek, which is part of the Upper Clear Boggy Creek watershed. Collections were made in numerous pools and riffles when water was clear, current was moderate to fast, and maximum depth was approximately 5 ft.

Fishes were collected at each of 10 different stations during November 1971, to April 1972. A total of 14 collections was made with a 1/8 inch square mesh common sense minnow seine (20 ft x 4 ft). The specimens were fixed in the field in 10% formalin, washed in water, and stored in 70% ethanol. The collections were cataloged and deposited in the East Central State College Vertebrate Collection, Ada, Oklahoma. All specimen identifications were verified by Dr. L. G. Hill, University of Oklahoma. All names used follow those described by Bailey, *et al.* (6).

RESULTS AND DISCUSSION

The number of specimens collected at each station, as well as the dates of each collection are listed in Table 1. Names of

the species collected are given in an annotated checklist.

When considering the number and size of the streams in Pontotoc County, it seems that the 15 collections were insufficient to capture all the fish species that were present. However, since so little work has been done in the area it is impossible to say how many species have been missed. Due to the limitations on equipment and man-power, the study represents only a beginning in an area where much work can be done.

ANNOTATED CHECKLIST

(Designations 1a, 1b, etc. following scientific and common names of species refer to those listed in Table 1.)

TABLE 1. Number of species collected at each of 10 stations with collection dates.

Station number	Number of species	Collection date (1971-72)	Collection designation ^a
1	6	Nov. 13	1a
2	7	Nov. 13	2a
		Nov. 18	2b
3	9	Nov. 20	3a
4	6	Nov. 20	4a
5	13	Dec. 11	5a
		Mar. 4 & Apr. 15	5b
6	8	Jan. 19	6a
		Jan. 20	6b
7	7	Jan. 22	7a
8	7	Feb. 19	8a
9	10	Apr. 1	9a
10	5	Apr. 12	10a

^a Designation used in annotated checklist.

CYPRINIDAE

Campostoma anomalum (Rafinesque), stoneroller: 1a, 3a, 5a, 10a.

Carassius auratus (Linnaeus), goldfish: Although no specimens were collected, the species can be found in Ada City Lake.

Cyprinus carpio Linnaeus, carp: 8a.

Hybognathus placitus Girard, plains minnow: 7a.

Notemigonus crysoleucas (Mitchill), golden shiner: 5a.

Notropis atherinoides Rafinesque, emerald shiner: 5a, 6a, 6b, 7a.

Notropis boops Gilbert, bigeye shiner: 1a, 3a, 4a, 5a, 5b.

Notropis girardi Hubbs and Ortenburger, Arkansas River shiner: 7a.

Notropis lutrensis (Baird and Girard), red shiner: 6a, 6b, 7a, 8a, 9a.

Notropis stramineus (Cope), sand shiner: 3a, 6a, 8a.

Notropis umbratilis (Girard), redbfin shiner: 5a, 5b.

Notropis venustus (Girard), blacktail shiner: 1a, 4a.

Pbenacobius mirabilis (Girard), sucker-mouth minnow: 4a.

Pimephales notatus (Rafinesque), blunt-nose minnow: 6a, 6b, 8a, 9a.

Pimephales promelas Rafinesque, fathead minnow: 5a.

CATOSTOMIDAE

Carpoides carpio (Rafinesque), river carpsucker: 7a, 8a.

Moaxostoma erythrurum (Rafinesque), golden redbhorse: 10a.

ICTALURIDAE

Ictalurus melas (Rafinesque), black bullhead: 5a, 9a.

Ictalurus natalis (Lesueur), yellow bullhead. The authors collected one specimen 6 miles S of Ada (T3N, R6E, Sect. 34) on the North Jack Fork Creek on 29 Oct. 1971.

Ictalurus punctatus (Rafinesque), channel catfish: 6a, 8a.

ANGUILLIDAE

Anguilla rostrata (Lesueur), American eel. Two specimens were collected on hook and line by two unidentified fishermen. One was taken 13 miles S and 6 miles E of Ada in a runoff pool below Thompson Lake on 12 Sept. 1970. The other was taken below a watershed lake on Bois d'Arc Creek, 9 miles SE of Ada on 17 Sept. 1970. Both were presented to East Central State College, Ada, Oklahoma.

CYPRINODONTIDAE

Fundulus kansae Garman, plains killifish: 7a.

Fundulus notatus (Rafinesque), black-stripe topminnow: 2a.

POECILIIDAE

Gambusia affinis (Baird and Girard), mosquitofish: 1a, 2a, 2b, 3a, 4a, 6b, 7a, 9a, 10a.

CENTRARCHIDAE

Lepomis (= *Chaemobryttus*) *gulosus* (Cuvier), warmouth. One specimen was collected from a farm pond 15 miles SSE of Ada on 15 April 1972, by Mrs. H. B. Smith, and brought to East Central State College, Ada, Oklahoma.

Lepomis cyamellus Rafinesque, green sun-

fish: 3a, 5a, 5b, 6b, 9a.

Lepomis macrochirus Rafinesque, bluegill: 2a, 2b, 3a.

Lepomis megalotis (Rafinesque), longear sunfish: 2a, 2b, 3a, 4a, 5a, 6a, 9a.

Lepomis microlophus (Günther), redear sunfish: 2a, 2b, 3a, 5a, 9a.

Micropterus punctulatus (Rafinesque), spotted bass: 1a, 2b, 4a.

Micropterus salmoides (Lacépède), largemouth bass: 5a, 8a, 9a, 10a.

Pomoxis annularis Rafinesque, white crappie: 5a, 9a.

PERCIDAE

Esbeostoma radiosum (Hubbs and Black), orangebelly darter: 1a, 2a, 2b, 3a, 4a, 5b, 9a.

Esbeostoma spectabile (Agassiz), orange-throat darter: 10a.

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