Fishes Known From Salt Creek, Osage County, Oklahoma[1]

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The only existing records of fishes from Salt Creek, Osage County, Oklahoma are those of Elkin (1954) who rotenoned two cut-off pools near Fairfax; and Blair (1959) who mentioned collections of darters from the stream. Since neither of these investigations were primarily concerned with the total fish fauna, it was felt that a more extensive study was desirable.

DESCRIPTION OF THE CREEK

Salt Creek presents a unique environment in north-central Oklahoma. The majority of the streams of this area are turbid as they drain areas of intensive cultivation, while Salt Creek drains extensive pasture lands and consequently remains clear except during periods of heavy rains.

Salt Creek is the only stream of major importance in western Osage County with the exception of the Arkansas River into which it flows. It drains 340 square miles, is approximately 60 miles in length, and has an average gradient of 6.4 feet per mile. The stream flows over a rocky bottom through large, quiet pools separated by areas of moderately swift riffles.

This stream drains a tall-grass prairie climax and is bordered by a typical fringe forest association. The soil types of the drainage area (Elkins, 1954) are: Soil Unit 6 of the Bluestem-Hill type, deep, medium textured, slowly permeable soil; Soil Unit 24-C of the Bluestem-Hill type, shallow, stony, fine textured, very slowly permeable soil; Soil Unit 2 of the Cherokee-Prairie type, deep, fine textured, slowly permeable soil.

COLLECTIONS AND PROCEDURE

Station 1, 13 mi. N. 1 mi. E. Shidler (Sect. 10, T 28 N, R 6 E).

This station consisted of two holes separated by a rocky riffle. The upper pool was approximately 100 yards long and 50 feet wide with a maximum depth of four feet. The lower pool was 50 yards long and 50 feet wide with a maximum depth of two feet. A total of 111 specimens representing 18 species were taken. Collections: 1a — 25 Feb. 1961 and 1b — 29 Apr. 1961.

Station 2, 9 mi. N. and 1 mi. E. Shidler (Sect. 21, T 28 N, R 6 E).

This station included a gravelly riffle and a pool 150 yards long and 50 feet wide with a maximum depth of five and one-half feet. Twenty-seven species represented by a total of 417 individuals were collected. Collections: 2a — 12 Feb. 1961; 2b — 18 Feb. 1961; 2c — 4 Mar. 1961 and 2d — 11 Apr. 1961.

Station 3, 2 mi. S. and ¼ mi. E. Burbank (Sect. 6, T 25 N, R 6 E).

This station consisted of a swift, boulder-strewn riffle and a pool 150 yards long and 50 yards wide with a depth of four and one-half feet. The collections consisted of 376 specimens of 24 species. Between collections 3a and 3b there was oil pollution when an oil well, located one mile north of the station, drained into the stream. The relatively small number of specimens taken in the second collection is attributed to the pollution. Collections: 3a — 12 Mar. 1961 and 3b — 29 Apr. 1961.

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Station four was located on the west side of the Oklahoma State Highway 18 bridge on the north edge of Fairfax about seven and one-quarter miles from the junction of Salt Creek and the Arkansas River. This station included a pool about 75 yards long, 60 feet wide, five feet deep and a swift, boulder-filled riffle. Fishes collected represented 22 species and totaled 859 individuals. Collections: 4a — 14 Apr. 1961 and 4b — 24 May 1961.

These collections were made with 15- and 20-foot, 3/16-inch mesh seines. In addition, three-quarter-inch mesh seines 50 and 150 feet in length were used at stations 1, 2, and 3.

Station five included the areas rotenoned by Elkin. The first pool was four miles northwest and the second 1.5 miles east of Fairfax. From this station 36 species totaling 215 individuals were taken. Although two distinct areas are included it was necessary to designate them as one station since Elkin makes no distinction between the collections from the two pools. Collections: 5a — 28 and 29 July 1954.

It is fully understood that so few stations on a stream of this size are insufficient and that doubtless some species have not been collected. Limitations in the equipment used must also be taken into account as is shown by comparison with the collections made by Elkin. Inferences drawn regarding relative abundance and distribution are limited, since the methods of collecting tend to be extremely selective.

ANNOTATED LIST OF SPECIES

Following the scientific and common names of each species, symbols referring to collections and pertinent data are given.

ACIPENSERIDAE

1. *Scaphirhynchus platorynchus* (Rafinesque). Shovelnose sturgeon.

Although no specimens were collected, several reliable reports of sturgeon from this area are assumed to represent this species.

2. *Polyodon spathula* Walbaum. Paddlefish.

No specimens were taken. This record is based on a picture appearing in the 7 July 1961 edition of the Ponca City News, Vol. 68, No. 240.

LEPISOSTEIDAE

3. *Lepisosteus productus* (Cope). Spotted gar.—5.

No collections of this species were made above station 5 during this study. However, Mr. W. Whitworth, Mr. T. Jones, and Mr. W. Hadley have taken the species at station 2.

4. *Lepisosteus osseus* (Linnaeus). Longnose gar.—3a and 5.

CLUPEIDAE

5. *Dorosoma cepedianum* (LeSueur). Gizzard shad.—1a, 1b, 2a, 3a, 4a, and 5.

This species was observed while spawning at station 2 on June 5.

CATOSTOMIDAE

6. *Ictiobus niger* (Rafinesque). Black buffalofish.—5.

7. *Carpiodes carpio* (Rafinesque). River carpsucker.—1a, 1b, 2c, 3a, 4a and 5.

8. *Moxostoma erythrurum* (Rafinesque). Golden redhorse.—2a, 2c, 3a, 3b and 5.

9. *Moxostoma carinatum* (Cope). River redhorse.—5.

10. *Minytrema melanops* (Rafinesque). Spotted sucker.—2a, 2b, 3a, 4a and 5.

CYPRINIDAE

11. *Cyprinus carpio* Linnaeus. Carp.—2c and 5.

12. *Notemigonus crysoleucas* (Mitchell). Golden shiner.—2c and 3a.

Only in the swiftest, most turbulent areas of the riffles was this species found. Its occurrence in Salt Creek is quite possibly limited to the few swift areas.

13. *Notropis percobromus* (Cope). Plains shiner.—3a and 4a.

Only two specimens were taken.

14. *Notropis umbratilis* (Girard). Redfin shiner.—1a, 2a, 2b, 3a, 3b, 4a and 5.

15. *Notropis blennius* (Girard). River shiner.—4a.

Ordinarily this is a fish of larger waters and the single specimen taken is regarded as a wanderer since the collection point was approximately 7.25 miles upstream from the Arkansas River.

16. *Notropis lutrensis* (Baird and Girard). Red shiner.—1a, 1b, 2a, 2b, 3a, 3b, 4a and 4b.

This is the most abundant species of *Notropis* in the stream. We are unable to explain the absence of this species from Elkin's collection. The males from collection 4b were coming into breeding color.

17. *Notropis volucellus* (Cope). Mimic shiner.—4a, 4b and 5.

18. *Notropis buchanani* Meek. Ghost shiner.—3a, 3b, 4a and 5.

19. *Phenacobius mirabilis* (Girard). Suckermouth minnow.—3a, 3b, 4a, 4b and 5.

Individuals taken in collection 4a were in breeding color and heavy with spawn. Those taken in collection 4b were spent.

20. *Pimephales promelas* Rafinesque. Fathead minnow.—1b and 2b.

This species was never taken in the main channel but only near the mouths of small feeder streams. All specimens taken were in breeding condition.

21. *Pimephales notatus* (Rafinesque). Bluntnose minnow.—1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b and 5.

It is assumed that spawning took place throughout the survey period since breeding and non-breeding individuals were taken in all collections.

22. *Pimephales tenellus* (Girard). Slim minnow.—3a, 3b, 4a, 4b and 5.

In collection 4b two males of this species were taken which were beginning to assume the breeding color.

23. *Campostoma anomalum* (Rafinesque). Stoneroller.—1b, 2a, 2b and 3a.

This fish was observed breeding in a small feeder stream 11 April 1961.

ICTALURIDAE

24. *Ictalurus punctatus* (Rafinesque). Channel catfish.—2c, 3a and 5.

25. *Ictalurus melas* (Rafinesque). Black bullhead.—1a, 2b and 5.

26. *Ictalurus natalis* (LeSueur). Yellow bullhead.—5.

27. *Pylodictis olivaris* (Rafinesque). Flathead catfish.—5.

ANGUILLIDAE

28. *Anguilla rostrata* (LeSueur). American eel.

No specimens were taken; however, Hadley saw one near station 2. It is considered likely that this species is found in all areas.

CYPRINODONTIDAE

29. *Fundulus notatus* (Rafinesque). Blackstripe topminnow.—1a, 1b, 2a, 2b, 3a, 3b and 4b.

POECILIIDAE

30. *Gambusia affinis* (Baird and Girard). Gambusia.—1b, 2a, 2b, 3a, 3b, 4a, 4b and 5.

ATHERINIDAE

31. *Labidesthes sicculus* (Cope). Brook silversides.—1a, 1b, 2a, 2b, 3a, 3b, 4a and 5.

CENTRARCHIDAE

32. *Micropterus punctulatus* (Rafinesque). Spotted bass.—2b, 2c, 3a and 5.

33. *Micropterus salmoides* (Lacépède). Largemouth bass.—1a, 1b, 2a, 2b, 3a and 5.

34. *Chaenobryttus gulosus* (Cuvier). Warmouth sunfish.—4a, 4b and 5.

35. *Lepomis cyanellus* Rafinesque. Green sunfish.—1a, 1b, 2a, 2b, 3a, 3b, 4a and 5.

36. *Lepomis microlophus* (Günther). Redear sunfish.—2a and 5.

In all likelihood the two specimens collected are the result of overflows from farm ponds. At this time no conclusions can be reached as to the possibility of its becoming established.

37. *Lepomis megalotis* (Rafinesque). Longear sunfish.—1a, 1b, 2a, 2b, 3a, 3b, 4a, 4b and 5.

38. *Lepomis humilis* (Girard). Orangespotted sunfish.—2a, 2b, 3a, 4a, 4b and 5.

39. *Lepomis macrochirus* Rafinesque. Bluegill sunfish.—1a, 1b, 2a, 2b, 2c and 5.

40. *Pomoxis annularis* Rafinesque. White crappie.—1a, 1b, 2a, 2b, 2c and 5.

41. *Pomoxis nigromaculatus* LeSueur. Black crappie.—1b and 5.

This species was represented by only two specimens.

PERCIDAE

42. *Percina phoxocephala* (Nelson). Slenderhead darter.—3a, 4a, 4b and 5.

43. *Percina copelandi* (Jordan). Channel darter.—2d, 3a, 3b and 5.

44. *Percina caprodes* (Rafinesque). Logperch.—1b, 2a, 2b, 3a, 4a, 4b and 5.

Females of this species taken 11 April 1961 were in spawning condition.

45. *Etheostoma spectabile* (Agassiz). Orangethroat darter.—1a, 1b, 2a, 3a, 3b, 4a, 4b and 5.

Males of this species were in breeding color from the earliest collection date to the last. These fish were seen in great abundance in a clear feeder stream and obviously were spawning there.

SCIAENIDAE

46. *Aplodinotus grunniens* Rafinesque. Fresh-water drum.—5.

HYBRID COMBINATION

1. *Lepomis (cyanellus* × *macrochirus).*—1a.

LITERATURE CITED

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