

STATE Texas
PROJECT F-2-R-1, Job B-6
PERIOD June 1, 1953 -
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Job Completion Report

by

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FILE

TITLE

Inventory of species present and their distribution in those portions of the Leon, Lampasas and Little Rivers which lie in Bell County, Texas.

OBJECTIVES

To determine the distribution of the species present and their relative abundance and ecological factors influencing their distribution.

METHODS

A total of 42 collections were made at 22 stations in Bell County on the Leon, Lampasas and Little Rivers which are portions of the greater Brazos River Drainage. (See appended map for locations of stations.) With the exception of three, the collections were made with common sense seines and/or thirty ft. straight seines, with $\frac{1}{4}$ " mesh size. The other collections were made with experimental gill nets, 125 ft. in length, having mesh sizes in 25 ft. sections ranging from one to three inches. Rotenone collections were not practical due to the large rate of flow in the streams under study.

Seined specimens were taken to the laboratory for identification and counting after field preservation with 10 percent formalin. Gill net specimens were identified and counted in the field.

Water analysis, temperature and pH were determined in conjunction with Job A-1. (Basic Survey of those Portions of the Leon, Lampasas and Little Rivers which Lie Within Bell County, Texas.)

RESULTS

As shown in the appended map of Bell County, the area through which these rivers flow is divided into two ecological sections by a line closely approximating the Balcones fault. To the west of this line, on the Edwards Plateau, the country is rough, rocky rolling ranch land with few fields under cultivation. The stream beds on the plateau have frequent outcroppings of limestone bedrock and the water, except in time of heavy runoff, is relatively free from turbidity. To the east of the Balcones fault, on the Blackland Prairie, the country is relatively flat with deep soils, most of which are under cultivation. The stream beds in this section are heavily silted and there is little or no bedrock. Turbidity in these portions of the rivers becomes increasingly more intense.

A total of 33 species of fish, representing ten families were found to occur in the rivers. Of these, 32 species were taken on the Edwards Plateau while only 20 species were taken in the rivers of the Blackland Prairie. The distribution and relative abundance of these species are shown in Table 1. Apparently the factors which influence the distribution of those species taken in the rivers of the Plateau but not found in the rivers of the Blackland Prairie are turbidity and bottom type since water quality in both sections is essentially the same.

With the closing of Belton Dam on the Leon River, it is expected that turbidity in the lower Leon and therefore the Little River will be decreased. The Lampasas River, which is normally clearer than the Leon, does not usually add much to the total turbidity of the Little River. The closing of this dam should result in the invasion of the Little River by species which do not now occur there.

The 33 species collected may be divided into six groups on the basis of their distribution in the rivers under study. The first group includes: the spottail shiner, the redbfin shiner, the mimic shiner, the parrot minnow, the channel catfish, the gambusia or mosquitofish and the longear sunfish. These species were present ⁱⁿ from 47 to 92 percent of the collections and might be expected to be taken anywhere in the rivers.

The second group includes those species typically found in the clear, shallow, barren, bedrock type of area. They are: the young of the river carpsucker, the grey redhorse, the stoneroller, the spotted black bass, the Texas spotted bass, the largemouth bass, the warmouth, the green sunfish, the bluegill and the orangespotted sunfish.

Group three includes those species usually found in association with some form of aquatic vegetation in the clear pools. They are: the yellow bullhead, tadpole madtom and the blackstripe topminnow.

Group four is composed of the shortnose gar, the gizzard shad, the blue catfish, the flathead catfish, the white crappie and the freshwater drum. These species are typically found in the deeper pools where cover is abundant in the form of brush or undercut banks.

The darters, which are generally found in close association with riffles, comprise the fifth group. The orangethroated darter was found on riffles throughout the study area while the logperch and dusky darter were found on those riffles where the water was from slightly to moderately turbid.

The sixth group includes miscellaneous species. The ghost shiner was found in the more turbid areas and there was an indication that its abundance increased with increased turbidity. The roundnose minnow and the fathead minnow were not collected in numbers enough to form the basis for conclusions concerning their distribution.

SUMMARY

1. A total of 42 collections were made at 22 stations on the Leon, Lampasas and Little Rivers within Bell County, Texas.
2. 33 species representing ten families were found to occur in the study area.
3. Of the fish species collected, 33 were taken from those portions of the river on the Edwards Plateau while only 20 were found on the Blackland Prairie.
4. Turbidity and bottom types are the two main factors which influence the distribution of the species occurring in these rivers since water quality is essentially the same throughout the area.
5. The total of 33 species may be divided into six groups on the basis of their abundance and distribution.
 - a. Those species found abundantly throughout the study area.
 - b. Those species found associated with clear, shallow, barren bedrock areas.
 - c. Species found almost entirely in association with streams of limited aquatic vegetation.
 - d. The species typical of the deeper pools.
 - e. The darters - typical of the riffles.
 - f. The miscellaneous, more or less rare species.

Table 1. Distribution Checklist

Name of Species Scientific	Common	Edwards Plateau 30 collections	Blackland Prairie 12 collections
<i>Lepisosteus platostomus</i>	shortnose gar	C	F
<i>Dorosoma cepedianum</i>	gizzard shad	F	F
<i>Carpionotus carpio</i>	river carpsucker	A	F
<i>Moxostoma congestum</i>	grey redhorse	F	-
<i>Hybopsis aestivalis</i>	speckled dace	F	F
<i>Notropis venustus</i>	spottail shiner	VA	VA
<i>Notropis lutrensis</i>	red shiner	VA	VA
<i>Notropis volucellus</i>	mimic shiner	A	VA
<i>Notropis bethlemi</i>	ghost shiner	-	F
<i>Dionda episcopa</i>	roundnose minnow	F	-
<i>Pimephales promelas</i>	fathead minnow	R	-
<i>Pimephales vigilax</i>	parrot minnow	VA	VA
<i>Camptostoma anomalum</i>	stoneroller	A	F
<i>Ictalurus punctatus</i>	channel catfish	VA	A
<i>Ictalurus furcatus</i>	blue catfish	R	-
<i>Ameiurus natalis</i>	yellow bullhead	F	-
<i>Pilodictus olivaris</i>	flathead catfish	F	F
<i>Schilbeodes mollis</i>	tadpole madtom	A	F
<i>Fundulus notatus</i>	blackstripe topminnow	F	-
<i>Gambusia affinis</i>	mosquitofish	VA	VA
<i>Micropterus punctulatus</i>	spotted black bass	VA	C
<i>Micropterus treculi</i>	Texas spotted bass	F	-
<i>Micropterus salmoides</i>	largemouth bass	C	-
<i>Chaenobryttus coronarius</i>	warmouth	F	-
<i>Lepomis cyanellus</i>	green sunfish	A	C
<i>Lepomis macrochirus</i>	bluegill	A	C
<i>Lepomis humilis</i>	orangespotted sunfish	A	-
<i>Lepomis megalotis</i>	longear sunfish	VA	VA
<i>Pomoxis annularis</i>	white crappie	F	-
<i>Haplocheilichthys scierus</i>	dusky darter	F	-
<i>Percina caprodes</i>	logperch	F	-
<i>Etheostoma spectabile</i>	orangethroat darter	A	VA
<i>Aplodinotus grunniens</i>	freshwater drum	R	F

Distribution of fish species collected in those portions of the Leon, Lampasas and Little Rivers within Bell County, Texas showing the differences in Edwards Plateau and Blackland Prairie collections. The distribution figure is based on the number of times each species was found in relation to the number of collections made as follows: VA- Very abundant (over 50%), A- abundant (33 - 50%), C - common (18-32%), F - frequent (7-17%) and R - rare (6% or less.)

BELL COUNTY
TEXAS



TEMPLE

EDWARDS PLATEAU

LEON RIVER

BELTON

MOLAN CREEK

KILLEEN

LITTLE RIVER

LAMPASAS RIVER

SALADO CREEK

BLACKLAND PRAIRIE

