

Job Completion Report

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TITLE

Inventory of species present in those portions of the Brazos River and tributaries lying between Possum Kingdom Lake and Lake Whitney and included in the following counties: Palo Pinto, Parker, Hood, Somervell and Johnson.

OBJECTIVES

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

METHODS

Seine stations were established on the Brazos and tributaries between Possum Kingdom and Lake Whitney and were visited when water conditions would permit. (Figure 1).

Specimens collected were preserved in 10% formalin and transported to the laboratory for identification and tabulation. These specimens have been retained for further and more detailed study should time and personnel permit.

Lack of chemical equipment until the last few weeks of the project period prevented the determination of data pertaining to the dissolved gases present in the water.

RESULTS

The collections from the Brazos River watershed total 882 specimens, representing 18 species, 12 genera and 7 families. (Table 1) The plains red shiner (*Notropis lutrensis*) was most abundant in the collections (58.28%), followed by blacktail shiner, (*Notropis venustus* 16.67%), bluegill sunfish (*Lepomis macrochirus*), 8.05%, river carpsucker (*Carpionodes carpio*) 5.44% and black stripe topminnow (*Fundulus notatus*) 3.51% in that order. The remaining 13 species make up a total of 8.05% of the collection. (Table 2.)

This watershed is situated in both the West Cross Timbers and the Grand Prairie ecological regions but there is little difference in the type of vegetation and land use in these separate areas. The streams are largely sand and gravel bottomed with variable banks that may be shallow and sloping at one point and change abruptly to a sheer faced rock cliff many feet in height. The runoff is rapid and drouth conditions for the past three years

have kept the stream flow to a minimum in all but the Brazos where the operation of the hydro-electric generators in the Possum Kingdom Dam produce a variable flow. This flow may almost fluctuate from flood stage to practically no flow, depending upon the power production needs.

The uncertainty of flow on the Brazos, together with the almost total absence of water in the tributary streams during the greater part of the project period made collections rather inadequate. The rains of April and May provided water for the tributaries but also filled Possum Kingdom Lake to a point where constant release of water prevented collections except in the backwater on the edge of the river.

The collections show a slight difference between the ecological regions. The species collected only from the West Cross Timbers were small-mouth buffalo (*Ictiobus bubalus*) and ribbon shiner (*Notropis fumeus*) while those collected only from the Grand Prairie were: river carpsucker (*Carpionodes carpio*), Texas gray redhorse (*Moxostoma congestum*), palid shiner (*Notropis amnis*), silvery minnow (*Hybognathus nuchalis*), yellow bullhead (*Ameiurus natalis*), largemouth bass (*Micropterus salmoides*), green sunfish (*Lepomis cyanellus*), spotted sunfish (*Lepomis punctatus*) and longear sunfish (*Lepomis megalotis*). The difference in species may be due to the inability to obtain an adequate sample because of water conditions. The locations from the Grand Prairie region were made in three tributary streams: Squaw Creek, Paluxy River and Fall Creek. There were no collections made from the Brazos River in this area because of the swift current and the absence of backwater. The collections from the West Cross Timbers Region were made in the backwater pools on the Brazos River since there was no water in the tributaries that could be reached.

The use of rotenone was considered to be impractical since there are no accessible pools and it was considered unwise to attempt this method in a stream with considerable flow.

Data collected from a representative station is included in the following data sheet and is typical of the data collected from all the stations.

SUMMARY

1. Collections were established on the Brazos River and tributaries between Possum Kingdom Lake and Lake Whitney for the purpose of collecting data regarding the species present.
2. A total of 822 specimens representing 18 species, 12 genera and 7 families were collected.
3. Five species made up 91.95% of the total collection. They were: plains red shiner (5⁸.28%), blacktail shiner (16.67%), bluegill sunfish (8.05%), river carpsucker (5.44%) and blackstripe topminnow (3.51%).
4. This watershed is located in two ecological regions. The upper part is in the West Cross Timbers and the lower portion is in the Grand Prairie. There is little difference in the vegetation types and type of land use found in the two regions.
5. Drouth conditions plus the uncertainty of releases of water from the dam at Possum Kingdom Lake prevent adequate sampling of the watershed and cause variations in type of collections made.

FISH CARD

Coll. No. B5s5

Locality: Brazos - Sta. 2 Date: 5-28-53 Collector: Lamb
Time: 2:30 PM - 3:40 PM

Description

Shoreline: Sandy and sloping on north side - steep and rocky on north
Bottom: Sandy with gravel and rock in pools
Cover: Little other than salt cedar and some grass on margins

Weather: - Present - Clear and hot

Preceding: Partly cloudy.

Water temperature:

Color:

Surface: 76°F

Turbidity: none

Bottom: 76°F

Vegetation

Submerged: a very small amount of algae.

Floating: One small patch of pondweed observed.

Emerged: Salt cedar, black willow and button willow fairly abundant

Predators: Snakes, soft-shelled turtles, snapping turtles and gar observed in
backwater pool in Dark Valley Creek just above mouth.

Parasites and Disease: None observed.

Tackle Used: Bag seine

Length: 30 ft.

Depth: 8 ft. Mesh: $\frac{1}{4}$ "

No. of Hauls: 4

Length of Hauls: Average 40 ft.

Species Taken

Dorosoma cepedianum 5

Notropis fumeus 2

Notropis lutrensis 213

Ceraticthys sp. 3

Fundulus notatus 1

Gambusia affinis 4

Lepomis macrochirus 3

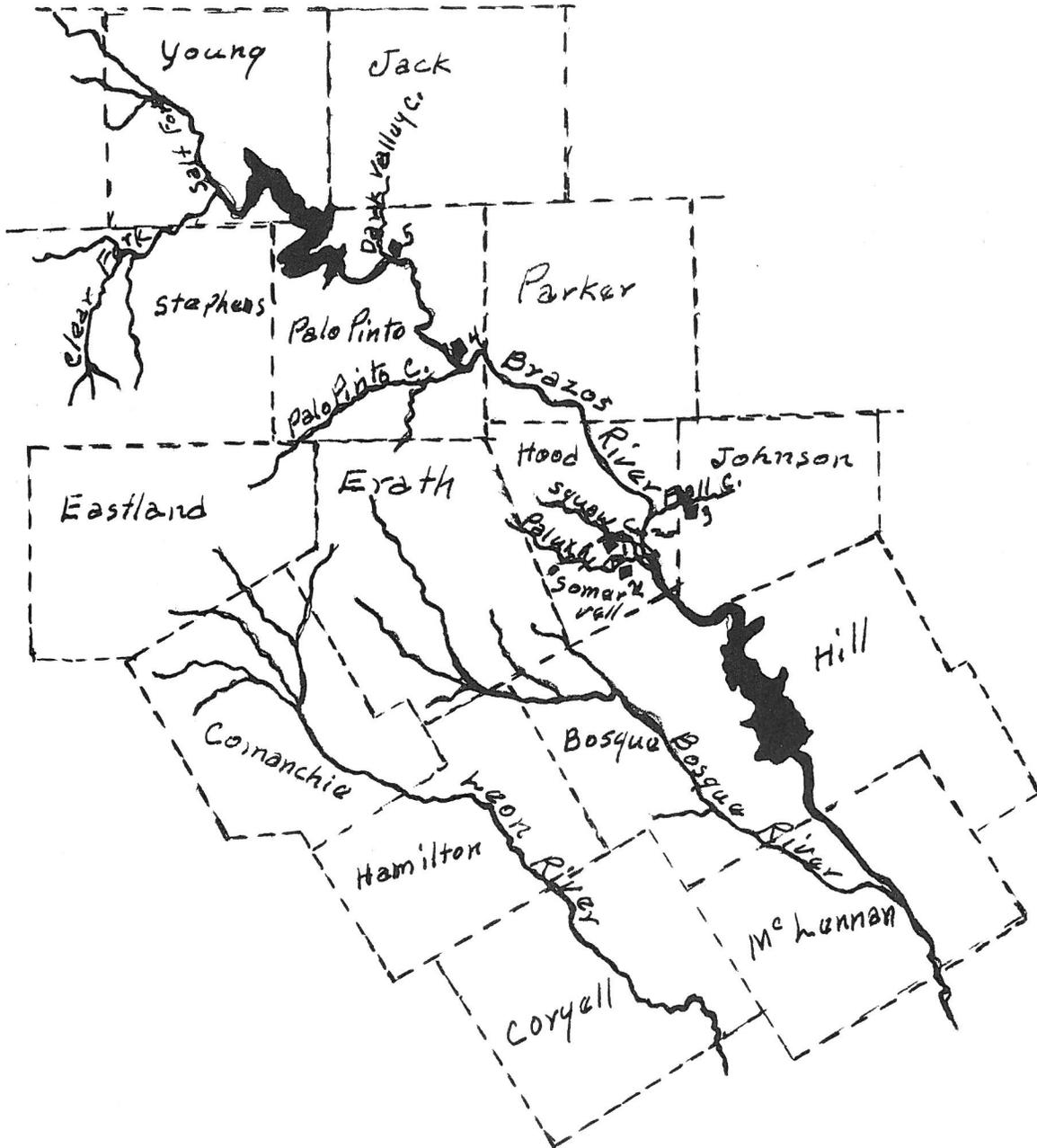
Table 1. A Check List of the Fishes Collected from the Brazos Watershed.

	Scientific Name	Common Name
1.	<i>Dorosoma cepedianum</i>	Gizzard Shad
2.	<i>Ictiobus bubalus</i>	Smallmouth Buffalo
3.	<i>Carpionodes carpio</i>	River Carpsucker
4.	<i>Moxostoma congestum</i>	Texas Gray Redhorse
5.	<i>Notropis fumeus</i>	Ribbon shiner
6.	<i>Notropis amnis</i>	Pallid Shiner
7.	<i>Notropis venustus</i>	Blacktail Shiner
8.	<i>Notropis lutrensis</i>	Plains Red Shiner
9.	<i>Hybognathus nuchalis</i>	Silvery Minnow
10.	<i>Ceratichthys</i> sp.	
11.	<i>Ameiurus natalis</i>	Yellow bullhead
12.	<i>Fundulus notatus</i>	Blackstripe Topminnow
13.	<i>Gambusia affinis</i>	Common mosquitofish
14.	<i>Micropterus salmoides</i>	Largemouth Black Bass
15.	<i>Lepomis cyanellus</i>	Green Sunfish
16.	<i>Lepomis punctatus</i>	Spotted sunfish
17.	<i>Lepomis macrochirus</i>	Bluegill Sunfish
18.	<i>Lepomis megalotis</i>	Longear Sunfish

Table 2. Results of Seine Collections on Brazos River Watershed.

Species	Squaw Creek	Paluxy Creek	Fall Creek	Brazos at Palo Pinto	Brazos at Dark Vall.	No.	%
<i>Dorosoma cepedianum</i>	1	3			5	9	1.02
<i>Ictiobus bubalus</i>				1		1	.11
<i>Carpionodes carpio</i>		43	5			48	5.44
<i>Moxostoma congestum</i>	1					1	.11
<i>Notropis fumeus</i>					2	2	.23
<i>Notropis amnis</i>		16				16	1.81
<i>Notropis venustus</i>	93	10	40	4		147	16.67
<i>Notropis lutrensis</i>	102	189	5	5	213	514	58.28
<i>Hybognathus nuchalis</i>			1			1	.11
<i>Ceratichthys</i> sp.	4		1	1	3	9	1.02
<i>Ameiurus natalis</i>	1					1	.11
<i>Fundulus notatus</i>	21	1	8		1	31	3.51
<i>Gambusia affinis</i>	1		1		4	6	.68
<i>Micropterus salmoides</i>			1			1	.11
<i>Lepomis cyanellus</i>	6	1				7	.79
<i>Lepomis punctatus</i>			2			2	.23
<i>Lepomis macrochirus</i>	42	20	3	3	3	71	8.05
<i>Lepomis megalotis</i>		6	9			15	1.70
Totals	272	289	71	14	236	882	99.98

FIGURE 1. A Map of the Watershed of the Brazos River Showing the Seine Stations where Collections were made.



* Solid blocks represent seine stations ----- ■