NOTES ON FISHES OF GRAND RIVER, CHOUTEAU CREEK, AND PRYOR CREEK, MAYES COUNTY, OKLAHOMA

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From February through July 1977, we sampled the fishes of Grand River (three locations on the river mainstream), Chouteau Creek (two locations), and Pryor Creek (two locations) in Mayes County, Oklahoma in order to assess the existing conditions of the food and sport fishery, and to determine the presence and relative abundance of nongame fishes. We seined and fished gill nets overnight on five occasions spaced evenly through the study period. We used "experimental" gill nets, 1.83 m × 30 m, with bar measure mesh grading 2.5-10.2 cm, at all mainstream and lower creek locations; upstream in the creeks gill nets with 2.5 and 10.2 cm bar measure mesh were set to span the stream. We used a variety of seines with mesh size and length adapted for specific habitats. In addition to sampling the regular locations, we seined two other locations on Grand River and seven in upper Chouteau Creek 26-29 May. We weighed, sexed, and measured food and game fishes, and took spine or scale samples. For food and game fishes we calculated coefficients of condition and a least squares linear regression of length versus weight (1), and determined age-growth relationships by the Dahl-Lea method (2).

The lower portion of our study area included a part of Grand River impounded by Fort Gibson Reservoir in 1950. Upstream ca. 10 km from our study area the river was also impounded in 1964, forming Lake Hudson. Preimpoundment surveys (3, 4, 5) and Branson's report (6) indicated the fishes in these areas to be a combination of species from the faunally rich Ozarks to the east and the Great Plains to the west, the river comprising an ecotone. Branson considered Grand River an effective barrier to dispersal of fishes between the two faunas.

We find that despite marked alteration by impoundment, Grand River remains a boundary between eastern and western fishes. We took typical Ozark fishes such as *Notropis boops* (bigeye shiner), *Notropis camurus* (bluntface shiner), *Campostoma anomalum* (central stoneroller), and *Etheostoma spectabile* (orangethroat darter) in the river mainstream but not from Chouteau Creek, despite rock riffles and habitat apparently acceptable for those fishes in the latter stream.

With the exception of one location reported by Hall (3), the fish fauna of Chouteau Creek has not been previously documented. Lower Chouteau Creek now reflects the effects of impoundment of Grand River, with white bass (*Morone chrysops*), buffalo fishes (*Ictiobus* spp.), and river carpsuckers (*Carpiodes carpio*) abundant. In contrast the most abundant fish in upper Chouteau Creek were: *Notropis lutrensis* (red shiner), *Lepomis macrochirus* (bluegill), *Pimephales notatus* (bluntnose minnow), and *Lepomis megalotis* (longear sunfish). Other fish species collected in upper Chouteau Creek were: *Notemigonus crysoleucas* (golden shiner), *Notropis umbratilis* (redfin shiner), *Fundulus notatus* (blackstriped topminnow), *Gambusia affinis* (mosquitofish), *Labidesthes sicculus* (brook silversides), *Lepomis cyanellus* (green sunfish), *Lepomis gulosus* (warmouth), *Micropterus salmoides* (largemouth bass), and *Etheostoma whipplei* (redfin darter). Ecological differences between upper and lower Chouteau Creek were documented by a complete dichotomy of distribution of *Pimephales notatus* (typical of upland conditions) and *Pimephales vigilax* (bullhead minnow) (characteristic of low-gradient streams).

Notropis camurus, considered rare in Oklahoma (7), was relatively common (59 adults from three gravel bar locations) in Grand River in our study area but absent from the creeks. Branson (6) considered *N. camurus* rare in Grand River, and Hall

TABLE 1. *Most abundant food and game fishes collected by gill netting in Grand River, Choteau Creek, and Pryor Creek, Oklahoma, February - July 1977. Condition coefficients are based on standard length (K_{SL}) and total length (K_{TL}). Length-weight slope is the slope of the regression line representing increase in weight as total length increased.*

Species	Total number	Mean weight (g)	K_{SL}	K_{TL}	Length-weight slope
Carpiodes carpio	73	920.5	2.76	1.40	2.901
Morone chrysops	62	574.9	3.06	1.47	3.328
Ictalurus punctatus	41	1137.1	1.85	0.08	3.640
Cyprinus carpio	39	1483.6	2.61	1.34	2.985
Ictiobus bubalus	26	1571.7	3.03	1.52	2.617
Pomoxis annularis	10	179.0	2.86	1.39	3.732
Micropterus punctulatus	7	1293.3	3.04	1.76	3.444
Micropterus salmoides	6	1215.5	2.71	1.63	3.413

(3) reported it only from eastern tributaries.

Neither Branson nor Hall listed *Menidia audens* (Mississippi silversides) from the drainage; we took 186 large specimens by seining over gravel bars at our most upstream Grand River location. The coexistence of *M. audens* and *L. sicculus* in this drainage is worthy of continued monitoring, as the former has replaced the latter in Lake Texoma (8) and possibly in Keystone Reservoir (9). *Labidesthes* is the typical upland member of this atherinid pair, while *M. audens* is more successful in lentic habitats. The wider distribution of *L. sicculus* and its listing in earlier surveys indicates that it is the species native to these streams.

Most abundant food or game fishes taken in gill nets are summarized in Table 1. Length-weight regression lines and condition coefficients (Table 1) compared favorably with published values (2, 10), and age-growth calculations indicated that five of seven species considered grew faster than the statewide average in our study area (11). Although our sample may be slightly biased by gravid females, the fishes of this portion of Grand River and its tributaries were in good physical condition, generally representing robust individuals. No evidence of disease or unusual parasitism was found.

Few young-of-year food or game fish were collected in the mainstream of Grand River. In contrast numerous ripe adults of food or game species and their young-of-year were taken in lower Chouteau and Pryor creeks. It is possible that irregular strong flow and water level fluctuations (3 m/0.5 hr) in the main river resulting from water release from Lake Hudson may have limited suitable breeding sites, and habitat for young fish. Such conditions have however had apparently no adverse effect on adult food or game fishes, as we collected the largest average biomass per unit of gill net effort at that location.

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