Occurrence of the Central Stoneroller (*Campostoma anomalum*) in the Upper Washita River Drainage

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Between 14 July and 13 October, 1992, we collected 129 specimens of *Campostoma anomalum* from seven sites in the upper Washita River drainage (Table 1). The specimens were collected with seining and kick sets by using a 4.5 × 1.8-m heavily leaded seine with 4.8-mm mesh. The sites, except those at Sandstone Creek and Gyp Creek, were seined for approximately 50 min with sampling of all habitat types in a 100-m to 150-m stretch. Sampling at Sandstone Creek and Oak Creek followed the same procedure but was limited to 15 min for a 15-m to 30-m stretch. Average depth at all sites and average depth of capture was 0.3 m. These specimens are cataloged in the Oklahoma Museum of Natural History, University of Oklahoma.

The habitat for *C. anomalum* is generally described as clear streams with gravel, rubble, and bedrock substrates (*1-3*). According to Pflieger (*3*), *C. anomalum is* tolerant of high turbidity. The habitats that we sampled (except Gyp Creek) are not typical for *C. anomalum;* however, the species was more numerous over patches of gravel and rock available in these streams.

Burr (*4*) showed the distribution of *C. anomalum* in western Oklahoma to exclude the upper Washita River drainage. Pigg (*5*) found *C. anomalum* in the upper Cimarron River in the Oklahoma Panhandle. Habitat at these sites was described as "long shallow rocky riffles and pools" (*5*). *C. anomalum* was reported from Red River tributaries in the Wichita Mountains and the upper Cimarron River drainage in Oklahoma by Hubbs and Ortenburger (*6*); no *C. anomalum* was found from a site on the Washita River 3 km north of Cheyenne in Roger Mills County. This site is approximately 8 km southeast of our Site 3. Further, Orth and Jones (*7*) made collections on the Washita River 13 km northwest of Cheyenne, the same as our Site 1, but did not find *C. anomalum.*

Our data indicate that populations of *C. anomalum* likely occur in the upper Washita River drainage where suitable habitat is found. Inadequate sampling may explain why *C. anomalum* was not reported previously from this drainage. Recent distributional extensions in western Oklahoma (*7, 8*) indicate that more effort is needed to

TABLE 1. Site information including number of *C. anomalum* specimens collected at each site.

Site	Location	Number	Substrate	Secchi depth, cm
1	Washita River, 13 km NW of Cheyenne Roger Mills Co., S33 T14N R24W	41	Sand and gravel riffles w/algae	30
2	Washita River, 6.4 km S of Hwy 33 Roger Mills Co., S20 T15N R26W	22	Sand riffles w/algae	30
3	Washita River, 4.8 km NE of Cheyenne Roger Mills Co., S33 T14N R23W	43	Sand and gravel	30
4	Washita River, 6 km SE of Strong City Roger Mills Co., S14 T13N R22W	01	Sand	10
5	Sugar Creek, 6 km S of Mountain View Kiowa Co., S4 T7N R15W	10	Sand and gravel riffles w/algae	45
6	Gyp Creek, 4 km NW of Mountain View Washita Co., S36 T9N R15W	10	Rock and gravel riffles w/algae	>40
7	Sandstone Creek, 9 km SE of Strong City Roger Mills Co., S23 T13N R22W	02	Clay and sand w/algae	20

determine accurately the distribution of fishes in the upper Washita drainage. Changes in stream flow no doubt have a significant impact on *C. anomalum* populations. Many streams in this area are intermittent. Therefore, drying conditions could have an impact on fish populations in the drainage area by local extinctions. For example, even though the Washita River was flowing at the times of collection, a second visit in October to Sites 1 and 2 revealed these sections of the river to be dry. *C. anomalum* could survive the seasonally harsh conditions found in the upper Washita River by inhabiting intermittent pools, or they may utilize spring-fed tributaries that provide continuous flow, e.g., Sandstone Creek. From these refugia, *C. anomalum* could recolonize areas which are intermittently dry. Further study is needed to determine accurately the effect of intermittent stream flow on these populations.

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REFERENCES

1. Miller, R.J., and Robison, H.W., *The Fishes of Oklahoma,* Okla. State Univ. Press, Stillwater, OK (1973).

2. Robison, H.W., and Buchanan, T.M., *Fishes of Arkansas,* Univ. of Arkansas Press, Fayetteville, AR (1988).

3. Pflieger, W.L., *The Fishes of Missouri*, Missouri Dept. of Conservation, Jefferson City, MO (1975).

4. Lee, D.S., Gilbert, C.R., Hocutt, C.H., Jenkins, R.E., McAllister, D.E., and Stauffer, J.R. Jr., Eds., *Atlas of North American Freshwater Fishes,* North Carolina State Museum of Natural History, Raleigh, NC (1980).

5. Pigg, J., Survey of Fishes in the Oklahoma Panhandle and Harper County, Northwestern Oklahoma, *Proc. Okla. Acad. Sci.* **67**, 45-59 (1987).

6. Hubbs, C.L., and Ortenburger, A.I., Further Notes on the Fishes of Oklahoma with Descriptions of New Species of Cyprinidae, *Pub. Univ. Okla. Biol. Sur.* **1**(2), 17-43 (1929).

7. Orth, D.J., and Jones, R.N., Range Extensions of the Orangethroat Darter *(Etheostoma spectabile)* and the Freckled Madtom *(Noturus nocturnus)* into Western Oklahoma. *Proc. Okla. Acad. Sci*. **60**, 98-99 (1980).

8. Lemmons, R.P., Hill, L.G., and Wells, J., Extension of Ranges into Kiowa County, Oklahoma for the Dusky Darter *(Percina sciera*) and the Freckled Madtom (*Noturus nocturnus). Proc. Okla. Acad. Sci.* **71**, 47-48 (1991).