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Additional Geographic Records for the Goldstripe Darter, *Etheostoma parvipinne* (Perciformes: Percidae), from Arkansas

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The goldstripe darter, *Etheostoma parvipinne* Gilbert and Swain is a small, slender darter with a pale ("gold") stripe along its lateral line. It inhabits small, spring-fed, shallow feeder streams or spring branches typically with vegetation and sand or clay bottoms (Kuehne and Barbour 1983) where it is thought to attach its eggs to objects near the bottom or on substrate (Johnston 1994). This fish ranges from the Altamaha and Flint river systems in Georgia to the Navasota River system (Brazos River drainage) in Texas and north in the former Mississippi embayment to western Kentucky and southeastern Missouri (Rohde 1980; Page and Burr 1991). In Arkansas this darter is primarily found in the southern part of the state in the Red and Ouachita river drainages (Robison and Buchanan 1988). Indeed, over 90% of all previously known specimens from Arkansas have come from tributaries of the Ouachita River (Robison and Buchanan 1988), and although fairly widespread in the lowlands of the southern part of the state, it is apparently not locally abundant. Interestingly, this fish has also been reported in the St. Francis and Cache river drainages but it has not been reported from the latter in nearly 65 years. Herein, we report additional localities for *E. parvipinne* from several counties in the state including some new watersheds/drainages occupied by this taxon.

Historically, Black (1940) reported the first specimens of *E. parvipinne* collected from Arkansas in 1939 from 2 sites, at Lick Creek near its junction with the Cache River (White River system) in Greene County and Caney Creek (Bayou Bartholomew drainage), 1.6 km north of Star City in Lincoln County. Reynolds (1971) reported 1 specimen of the goldstripe darter from Clear Creek, a tributary of the Saline River of the Ouachita River system, and Buchanan (1973) provided 3 additional localities from Columbia County (Sloan Creek, Ouachita River drainage) and Bayou Dorcheat (Red River drainage). In addition, Robison (1974) reported the first specimen of *E. parvipinne* collected from the Rolling Fork River drainage (Little River system) of extreme southwestern Arkansas.

The most comprehensive study on *E. parvipinne* in the state was by Robison (1977) who summarized its distribution and provided data on habitat, stream associates, status, and meristic variation within Arkansas. Based on collections from 1960 to 1987, Robison and Buchanan (1988) reported 33 localities in the state for the species. Their most significant documented localities were 2 localities on Crowley's Ridge: Village Creek (St. Francis River drainage), Village Creek State Park in Cross

County, and Poplar Creek (Cache River drainage), 12.8 km west of Paragould off St. Hwy 141, Greene County. Although this fish was reported to be locally abundant in a farm pond on the University of Arkansas-Monticello campus in 1979 (see Robison and Buchanan 1988) and was previously reported from an east Texas pond with low pH by Robbins et al. (2003), some of the most recent fish surveys in the state did not report any specimens of *E. parvipinne* from the Red River (Buchanan et al. 2003), 6 Arkansas reservoirs (Buchanan 2005) or from any lakes within the Pine Bluff Arsenal (Robison 2005). Herein we provide further distributional records of *E. parvipinne* in 17 counties of Arkansas and document 44 new locales.

Between August 1996 and September 2005, goldstripe darters were collected with standard nylon seines (6 x 1.5 m and 9 x 1.5 m of 3.2 mm mesh), dipnets, or by rotenone sampling. Fish were preserved in 10% formalin and later transferred to 45% isopropanol. Specimens were identified in the field, verified in the laboratory, and vouchers were deposited in the collections at Southern Arkansas University, Magnolia (SAU), the University of Louisiana-Monroe Museum of Natural History (NLU), the University of Arkansas-Fort Smith (UA-FS), Arkansas State University Museum of Zoology (ASUMZ), and Henderson State University (HSU).

We document the collection of 50 *E. parvipinne* from 17 of 75 counties (23%) of Arkansas (Ashley, Bradley, Calhoun, Clark, Columbia, Dallas, Greene, Hempstead, Hot Spring, Howard, Jefferson, Lafayette, Little River, Miller, Ouachita, Sevier, and Union). The majority of specimens were taken in south Arkansas from tributaries of the Ouachita River (see specific localities herein). Detailed collection data on the 44 new locales are as follows: [county, specific locality (section, township, and range when available), date, collector (coauthors initials CTM, HWR and RT), museum of deposition and accession number (if known), and number of specimens in parentheses].

ASHLEY COUNTY: Unnamed tributary to Chemin-A-Haut Creek at St. Hwy. 82. 21 April 2000. HWR. SAU (1); Hank's Creek at St. Hwy. 52, 1.3 km W jct. U.S. 82. 21 April 2000. HWR. SAU (1). This is the first report of the goldstripe darter from this region of the state and partially fills a hiatus in extreme southeastern Arkansas.

BRADLEY COUNTY: Moro Creek at Moro Bay State Park (Sec. 21, T16S, R12W). 10 June 2005. HWR. SAU (1);

Unnamed tributary to L'Aigle Creek at St. Hwy. 160, 4.0 km west of Hermitage (Sec. 3, T15S, R11W). 8 May 1995. HWR. SAU (2).

CALHOUN COUNTY: Locust Bayou at St. Hwy. 4 (Sec. 30, T13S, R15W). 20 March 1994. HWR. SAU (1). Taylor Creek at Co. Rd. (Sec. 15, T13S, R14W). 27 April 2002. HWR. SAU (1); Moro Creek at St. Hwy. 160 (Sec. 9, T16S, R12W). 6 April 2001. HWR. SAU (1).

CLARK COUNTY: L'Eau Frais Creek at St. Hwy. 7 (Sec. 1, T8S, R19W). 17 February 1996. RT. HSU 1257 (1); Tupelo Creek at St. Hwy. 7 (Sec. 35, T7S, R19W). 4 May 1999. RT, J. Hardage, and D. Fendley. HSU 2763 (1). These 2 creek sites (without specific locales) were recently reported by Tumblison et al. (2006) who also noted this darter was both intolerant to change in water quality and change in habitat.

COLUMBIA COUNTY: Logoly State Park, 3.2 km E McNeil (Sec. 16, T16S, R20W). 25 June 1991. J. Gann. HSU 205 (1); 25 April 1992. RT. HSU 212 (1). Patterson Creek at Co. Rd., 3.2 km NE Ebenezer (Sec. 25, T16S, R19W). 11 March 2001. HWR. SAU (1); Hopper Creek at Co. Rd., 9.7 km N Magnolia (Sec. 31, T16S, R19W). 10 May 2000. HWR. SAU (1); Unnamed spring off Two Bayou, Poison Springs Battleground off St. Hwy. 76. 30 June 2001. CTM. Uncatalogued (4). Horsehead Creek at U.S. Hwy. 79, 3.2 km E Magnolia (Sec. 5, T17S, R20W). 6 March 2004. HWR. SAU (1).

DALLAS COUNTY: Unnamed tributary to Freeo Creek at Ramsey (Sec. 5, T10S, R14W). 29 April 2003. HWR. SAU (1). East Tulip Creek at St. Hwy. 8 at Princeton (Sec. 34, T8S, R15W). 13 March 1996. HWR. SAU (2). L'Eau Frais Creek (Sec. 7, T7S, R17W). 10 April 1997. W. Daggett and D. Turner. HSU 1936 (1).

GREENE COUNTY: Betty's Spring, 3.2 km W Lorado on west slope of Crowley's Ridge. Summer 1997. G. L. Harp. ASUMZ 9063 (1). This new locality adds a third record for *E. parvipinne* to supplement previous historic ones in northeastern Arkansas.

HEMPSTEAD COUNTY: Unnamed tributary to North Fork of Ozan Creek at St. Hwy. 24 (Sec. 8, T9S, R26W). 15 March 2002. HWR. SAU (1); Bois D'Arc Creek at U.S. Hwy. 278, 3.2 km E Hope (Sec. 6, T13S, R23W). 8 June 2004. HWR. SAU (1). Unnamed roadside runoff at St. Hwy. 29, 3.2 km N Hope (Sec. 4, T12S, R24W). 21 April 2006. HWR. SAU (1). These specimens help fill a distributional gap in southwestern Arkansas east of the Little River and west of the Antoine and Little Missouri rivers.

HOT SPRING COUNTY: Minnow pond drain, Black Branch drainage (Sec. 7, T5S, R17W). 17 April 1997. B.

Chancellor. HSU 1845 (1). Clearwater Lake on Rayburn Creek (Saline River drainage). 5-6 July 2000. T. Buchanan. UA-FS (1).

HOWARD COUNTY: Mine Creek at Co. Rd., 1.6 km W Tollette (Sec. 6, T11S, R29W). 8 March 1990. HWR. SAU (1); Prairie Creek at St. Hwy. 24. 19 March 2003. HWR. SAU (1). These specimens, in combination with those from Hempstead above, provide additional support for stable populations in this part of southwestern Arkansas.

JEFFERSON COUNTY: Caney Bayou at St. Hwy. 256. 16 March 1991. HWR. SAU (1).

LAFAYETTE COUNTY: Bodcau Creek at Co. Rd., 1.6 km N Lewisville (Sec. 7, T15S, R23W). 16 March 1990. HWR. SAU (1); Unnamed tributary to Bodcau Creek at St. Hwy. 29 (Sec. 8, T15S, R24W). 22 April 2005. HWR. SAU (3).

LITTLE RIVER COUNTY: Caney Creek at St. Hwy. 41, 4.0 km S Billingsley's Corner (Sec. 28, T10S, R32W). 1 March 1992. HWR. SAU (1); Cypress Creek at St. Hwy. 234 in Winthrop (Sec. 7, T11S, R31W). 6 June 1989. HWR. SAU (1); Beaver Creek at St. Hwy. 71, 1.6 km N Ashdown (Sec. 19, T12S, R29W). 5 April 1989. HWR. SAU (1). Hemphill Creek at Co. Rd. 21, 2.4 km SW Richmond. Unknown date in 2005. N. Lang. Uncatalogued (1).

MILLER COUNTY: West Fork of Kelly Bayou at Co. Rd., 1.6 km S Brightstar (Sec. 28, T18S, R28W). 12 May 2003. HWR. SAU (1); Turkey Creek at St. Hwy. 237, 6.4 km N Brightstar (Sec. 28, T18S, R28W). 12 May 2003. HWR. SAU (2).

OUACHITA COUNTY: En Core Fabre Bayou, 0.8 km NE Lester (Sec. 36, T12S, R18W). 16 June 1993. HWR. SAU (1); Freeo Creek at St. Hwy. 7 (Sec. 13, T12S, R17W), 11.3 km N Camden. 6 October 2001. HWR. SAU (1); Unnamed tributary to Tulip Creek at St. Hwy. 7 (Sec. 23, T11S, R17W). 23 April 1999. HWR. SAU (1).

SEVIER COUNTY: Big Creek at Co. Rd., 2.4 km W Bellville (Sec. 4, T10S, R30W). 13 May 2001. HWR. SAU (1); Clear Creek at St. Hwy. 24, 1.6 km E Horatio (Sec. 29, T9S, R31W). 2 September 1996. HWR. SAU (1).

UNION COUNTY: Unnamed tributary to Big Creek at U.S. Hwy. 82, 6.4 km W El Dorado. (Sec. 30, T17S, R16W). 26 February 2002. HWR. SAU (1); Bear Creek at St. Hwy. 160, 8.0 km NE Mount Holly (Sec. 21, T16S, R17W). 17 March 1989. HWR. SAU (1); Lapoile Creek at U.S. Hwy. 82, 16.1 km NE Strong (Sec. 18, T18S, R10W). 7 April 2003. HWR. SAU (1); Big Cornie Creek at St. Hwy. 15 (Sec. 35, T19S, R18W). 3 March 2002. HWR. SAU (1).

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Several of the sites noted herein provide a much-needed update on the distribution of this darter since Robison and Buchanan (1988) and add significantly to our current knowledge of the geographic distribution of *E. parvipinne* in Arkansas. Presently, it appears the goldstripe darter population in Arkansas is rather small in size, including some isolated disjunct populations in the northeast that are perhaps in need of management. However, *E. parvipinne* appears to persist at a relatively steady state in the southern part of the state, especially in tributaries of the Ouachita River. In other parts of its range, threats include habitat destruction due to development. In Missouri, streams not supporting populations of *E. parvipinne* were associated with human modifications, including gravel mining, small impoundments, household effluent, and pipe culverts (Winston 2002). In addition, there are indications that goldstripe darters have disappeared from historical sites in Oklahoma where populations had previously occurred, possibly due to intolerance in changes in habitat and water quality (Lemmons and Pigg 1999). Finally, we concur with Smiley et al. (2006) that any conservation plans for *E. parvipinne* should include development and maintenance of forested riparian zones adjacent to first-order streams.

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