

RESEARCH NOTE

EXTENSIONS OF THE KNOWN RANGES OF *PERCINA SHUMARDI* GIRARD AND THREE SPECIES OF *ETHEOSTOMA* (SUBGENUS *NOTHONOTUS*) IN PENNSYLVANIA¹

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ABSTRACT

We used Missouri benthic trawls to sample benthic fish assemblages of the Ohio River within Pennsylvania during the summer and autumn of 2007. As part of our survey, we established range extensions for four species of darters (Percidae: Etheostomatini). These included the River Darter, *Percina shumardi* Girard, which is a new species record for Pennsylvania, although it is common in lower reaches of the Ohio River. We also extended the ranges of Bluebreast Darter, *Etheostoma camurum* (Cope), Spotted Darter, *Etheostoma maculatum* Kirtland, and Tippecanoe Darter, *Etheostoma tippecanoe* Jordan and Evermann, into the Ohio River. These latter three species are classified as threatened within Pennsylvania. The expansion of the known ranges of these fishes may be due to water quality improvement in the Ohio River, or may be the result of more efficient sampling techniques. Further sampling is warranted to elucidate their full ranges within Pennsylvania.

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INTRODUCTION

Over the past several years while conducting mussel surveys, we have noted the abundance of many species of darters (Percidae: Etheostomatini) in the deep pools and runs of large rivers. These habitats are difficult to sample for small fishes; thus they have been underrepresented in ichthyological surveys. The development of the Missouri

benthic trawl (Herzog et al. 2005) for sampling small benthic fishes has greatly improved the effectiveness of our sampling large riverine habitats; hence, our knowledge of the distribution and abundance of these species has increased. As a result of utilizing these sampling techniques, we extended the known ranges of the River Darter, *Percina shumardi* Girard, and three species of *Etheostoma* (subgenus *Nothonotus*) in Pennsylvania.

METHODS AND MATERIALS

We sampled the Ohio River in Pennsylvania at regular 1.0 km intervals from its formation at the confluence of the Allegheny and Monongahela rivers in Pittsburgh to the Ohio and West Virginia border (Fig. 1) in August 2007. We sampled the tailwaters of the Montgomery Dam (New Cumberland Pool) and the Dashields Dam (Montgomery Pool) in October 2007. Sampling was conducted using a Missouri benthic trawl according to the sampling protocols established by Herzog et al. (2005). Trawls were conducted in the central channel as well as near-shore, at depths ranging between 1.5–6.7 m. All fishes were identified in the field, with voucher specimens retained for laboratory verification.

RESULTS AND DISCUSSION

We captured a total of 35 River Darters, *Percina shumardi* (Fig. 2), from the Ohio River. We collected four individuals in the New Cumberland Pool of the Ohio River; and two individuals each at two sites located approximately 7 km and 11 km upstream from the Ohio/West Virginia border, respectively (PSU 4477, Fig. 1). Further targeted sampling revealed that their range within Pennsylvania extends at least 34 km upstream on the Ohio River to the Dashields Dam (PSU 4459, 4460, 4476).

The River Darter is distributed throughout the Mississippi River drainage, and is locally abundant in the Ohio River

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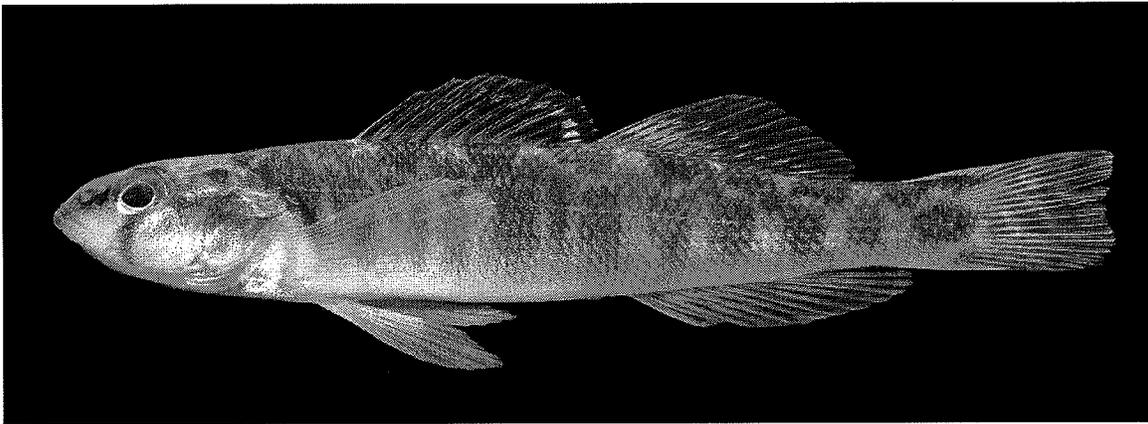


Figure 2. River Darter (*Percina shumardi*), New Cumberland Pool, Ohio River, Beaver County, PA . 7 October 2007 . Photo: R.W. Criswell.

These three species are presently classified as threatened within Pennsylvania by the Pennsylvania Fish and Boat Commission (2007). The Tippecanoe Darter has heretofore been reported only from the Allegheny River system. The Bluebreast Darter and Spotted Darter were collected from the Allegheny and Mahoning rivers, but have been extirpated from the latter (Bean 1892, Cooper 1983). The closest records downstream of the state line for the Bluebreast Darter and Tippecanoe Darter are from the lower Muskingum River, but they probably occurred in the unimpounded Ohio River as well (Trautman 1981). The nearest downstream records of the Spotted Darter include the middle sections of the Elk River in West Virginia (Stauffer Jr. et al. 1995) and Muskingum and Scioto rivers in Ohio (Trautman 1981), but there are none from the mainstem Ohio River. Water quality in the Ohio River has been improving over the last 50 years, with marked improvement since the Clean Water Act was implemented in 1972, and is closely correlated with marked improvements in fish diversity and assemblages from 1957–2001 (Thomas et al. 2005). Our recent records, facilitated by the use of benthic trawls as a novel sampling gear, therefore most likely represent an expansion of the Allegheny River populations of all three species as a result of improved water quality.

Additional sampling is warranted to elucidate the full range of these species throughout the Ohio River drainage in Pennsylvania, including both the Allegheny and Monongahela rivers. It is likely that further sampling using benthic trawls will yield more new species records for Pennsylvania and document additional range extensions.

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