

Range Expansion of the State-Endangered Bigeye Chub *Hybopsis amblops* (Rafinesque) in Illinois

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ABSTRACT

One specimen of the state-endangered bigeye chub *Hybopsis amblops* (Rafinesque) was collected in Little Beaver Creek, Kankakee County, Illinois, on 2 May 2004, and deposited at the Illinois Natural History Survey Fish Collection, Champaign (INHS 98619). This specimen represents a range expansion into a new river drainage.

Key Words:

Bigeye chub, *Hybopsis amblops*, Little Beaver Creek, endangered species

The bigeye chub *Hybopsis amblops* (Rafinesque) is state-listed as endangered in Illinois (IESPB, 1999). On 2 May 2004, two of us (JST and BLT) collected a 40.2 mm SL (50.7 mm TL) female *H. amblops* with latent ovaries by common-sense seining in Little Beaver Creek (Iroquois River - Kankakee River drainage), 2.0 km W Leesville, Kankakee County, Illinois. This specimen possessed maxillary barbels, an eye diameter slightly greater than length of snout, and a pronounced black lateral stripe extending from tip of snout to caudal peduncle, fitting Smith's (1979) description of *H. amblops*. This specimen was collected in a small school (five individuals) of ironcolor shiners *Notropis chalybaeus* (Cope), another state-listed species (IESPB, 1999). The *H. amblops* was deposited in the Illinois Natural History Survey (INHS) Fish Collection, Champaign (INHS 98619), and represents a verified range expansion into a new river drainage (Illinois River basin)

Hybopsis amblops inhabits portions of the Ozarks, the Lake Erie drainage, and the Ohio River basin (Page and Burr, 1991). It is common in southern portions of its range, but is vanishing from much of the northern portions, especially in agricultural regions (Page and Burr, 1991). Based on vouchered records, the only known historical records for *H. amblops* in Illinois prior to this specimen were from the Wabash River drainage of the Ohio River basin (Warren and Burr, 1988). Literature records indicated that *H. amblops* was in the Iroquois River drainage in the late 1800s and early 1900s (e.g., Forbes and Richardson, 1908). However, these data were based on unvouchered records and were believed to have been misidentified as *Notropis (Hybopsis) amnis* Hubbs and Green due

to superficial similarities between the two species (Warren and Burr, 1988). This argument appeared to be supported because *H. amblops* was not believed to occur in the Kankakee River drainage (e.g., Iroquois River) in Indiana (Carney et al., 1992). Because the area has been well sampled (INHS Fish Collection has vouchers from >150 collections in the Iroquois River drainage), it appeared unlikely that an unknown isolated population was extant in the Little Beaver Creek drainage.

Hybopsis amblops is indicative of good water quality (Page and Retzer, 2002) and occurs in clear, well-vegetated pools of creeks with sand and fine gravel bottoms (Smith, 1979). At the point of collection, Little Beaver Creek was under an enclosed canopy and had a firm, sandy bottom with clear, shallow, still water; the surrounding area was flat to gently rolling with amalgamated forests and agricultural fields. Habitat degradation resulting from agricultural practices was identified (Page and Retzer, 2002) as a threat to *H. amblops*. Human modifications of aquatic ecosystems have caused a decline in abundance and distribution throughout the fish's range in Illinois that lead many researchers to consider it extirpated from the state (Smith, 1979). However, a single adult was collected from the Little Vermilion River in 1992 (Burr et al., 1996); since then, it has been found throughout the Wabash River drainage (Page and Retzer, 2002).

The expanded range of *H. amblops* might have occurred through human introduction (e.g., bait-bucket), but seems unlikely due to its rare status. A more likely scenario is stream capture or dispersal from a surrounding drainage. As a result of the low-gradient topography in eastern Illinois / western Indiana (Page et al., 1992), the expanded range of *H. amblops* might be an example of stream capture or dispersal during high water periods from the Tippecanoe River drainage (see Carney et al., 1992) or the Vermilion River drainage (see Page and Retzer, 2002), both of which are in the Wabash River drainage. Examination of maps (e.g., gazetteers and 7.5-minute series topographical maps) suggests that the ditch system of Beaver Creek could come in contact with the ditch system of the Tippecanoe River during high water periods, but not the Vermilion River, thus suggesting that the source population of this specimen might have been from the Tippecanoe River drainage. Because *H. amblops* is a rare species, the extension of its known range is of significance to its conservation. Additional surveys should be conducted to determine if a viable (e.g., reproducing) population occurs in the Little Beaver Creek drainage.

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