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Kentucky Arrow Darter

Description

The Kentucky arrow darter is a small fish that reaches a maximum length of about 4.7 inches. It has a slender body, elongated snout, large mouth, and virtually scaleless head. Its background color is straw yellow to pale greenish, but the body is also covered by a variety of colorful stripes and blotches.

Life History

Spawning occurs from April to May, with peak activity occurring when water temperatures reach 55°F. A shallow depression (nest) is made by the male following elaborate courtship behavior that involves fin-flaring, nudging, quivering, and rapid dashes. Kentucky arrow darters feed primarily on aquatic insects (i.e. mayflies, blackflies, caddisflies) and small crayfish. Their lifespan is approximately four years. Common associates are the creek chub, central stoneroller, and fantail darter.

Historical and Current Distribution

The Kentucky arrow darter's historical distribution was limited to 74 streams in the upper Kentucky River drainage in eastern Kentucky. Its distribution spanned portions of six sub-basins or drainages: Red River, Sturgeon Creek, Silver Creek, South Fork Kentucky River, Middle Fork Kentucky River, and North Fork Kentucky River.

It continues to occupy portions of the upper Kentucky River drainage, but the species has disappeared from 36 historical streams; 44% of those extirpations occurring since the mid-1990's. Currently, extant populations of the Kentucky arrow darter are known from 47 streams (38 historic; 9 nonhistoric) across 10 Kentucky counties - Breathitt, Clay, Harlan, Jackson, Knott, Lee, Leslie, Owsley, Perry, and Wolfe.

Habitat

Kentucky arrow darters typically inhabit pools or transitional areas between riffles and pools (glides and runs) in moderate to high-gradient, first to third order streams with rocky substrates. Typically,



Kentucky arrow darter; credit: J.R. Shute, Conservation Fisheries, Inc.

the species is observed near some type of cover – boulders, rock ledges, large cobble, or woody debris piles, occupying streams with watersheds draining an area of about 25.9 square kilometers (10 square miles) or less. Many of these habitats, especially those in first order reaches, can be intermittent in nature.

Threats

The darter's habitat and range have been severely degraded and limited by water pollution from surface coal mining, oil/gas exploration activities, and residential areas; removal of riparian vegetation; stream channelization; increased siltation associated with poorly-implemented mining, logging, agricultural practices, and residential development; and deforestation of watersheds.

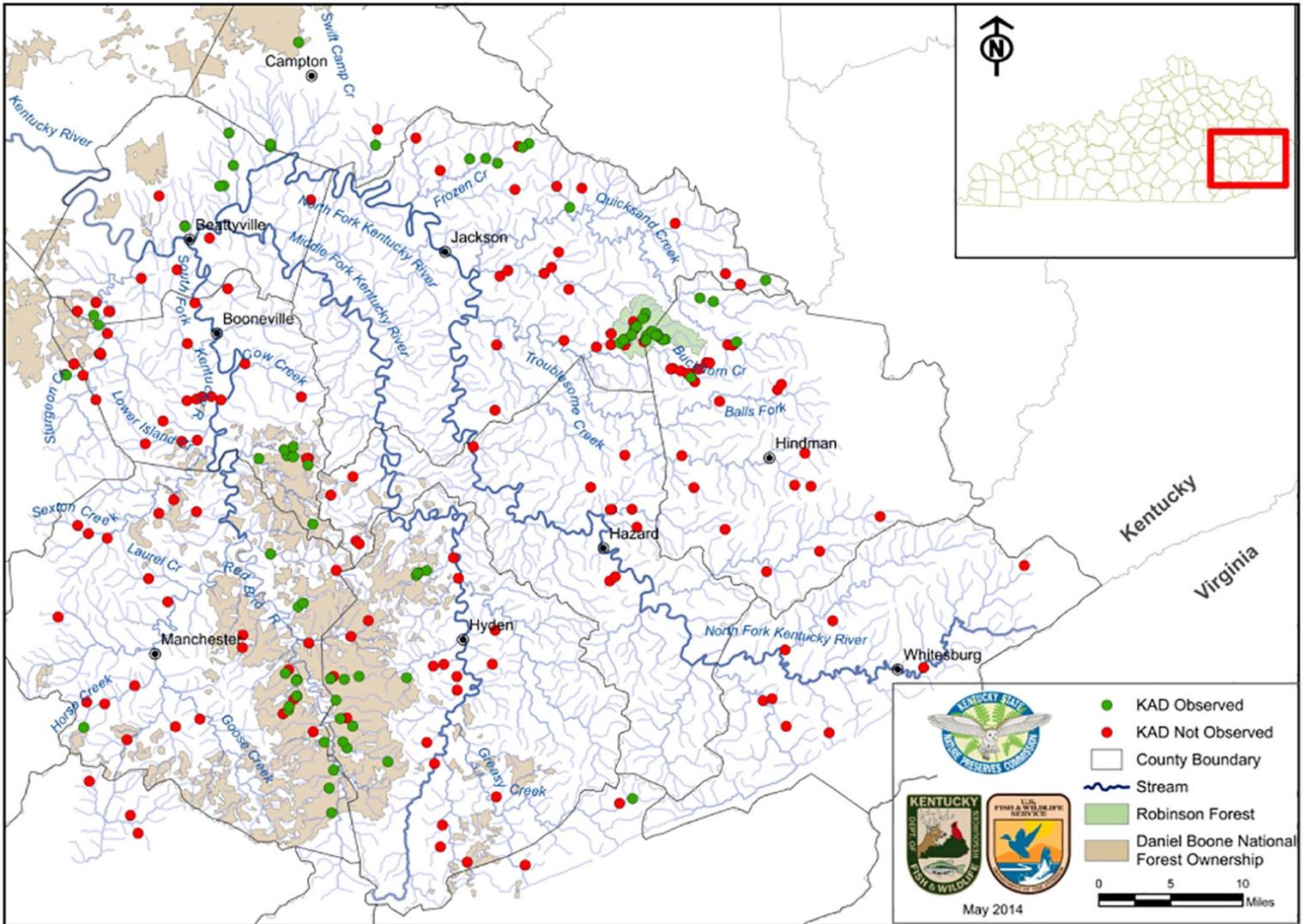
The Kentucky arrow darter is considered "threatened" by the Commonwealth of Kentucky but current regulatory mechanisms have been inadequate to conserve the species and its habitats. The species is also threatened due to the small, remnant nature of its populations.

Population Estimate/Status

A population estimate completed in 2013 shows that the most stable and largest populations of Kentucky arrow darters appear to be located in the following streams/basins: Tributaries of Red Bird River, Redbird District of Daniel Boone National Forest (Clay and Leslie Counties); Hell Creek, Walker Creek, and Frozen Creek - tributaries of North Fork Kentucky River – (Breathitt and Lee Counties); Clemons Fork and Coles Fork of Buckhorn Creek, North Fork Kentucky River basin (Breathitt County).

Candidate Conservation Agreement

The U.S. Fish and Wildlife Service and U.S. Forest Service entered into a candidate conservation agreement (CCA) to protect the Kentucky arrow darter and its habitat. This commitment to proactive, voluntary conservation ensures that needed management actions for reducing threats to the Kentucky arrow darter will occur. Some improvements under this agreement include replacing culverts impeding the Kentucky arrow darter's use of available habitat and developing a forest-wide monitoring program for the fish.



Distribution of Kentucky arrow darter (KAD); 2007-2014 survey results

References

Range-Wide Conservation Strategy for the Kentucky Arrow Darter, U.S. Fish and Wildlife Service, May 2014

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Kentucky arrow darter habitat, Elisha Creek, Leslie County, KY, credit: USFWS