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Kentucky Arrow Darter

Final listing as a threatened species under the Endangered Species Act with designated Critical Habitat



Kentucky arrow darter (*Etheostoma spilotum*), credit: Kentucky Department of Fish and Wildlife Resources/Matt Thomas

Background

The U.S. Fish and Wildlife Service (Service) is finalizing the listing of the Kentucky arrow darter as threatened under the Endangered Species Act (ESA) with exemptions for certain activities under Section 4(d) of the ESA. The Service also is finalizing the designation of critical habitat. The Service proposed these actions in October 2015 and after reviewing comments received on the listing and designation of critical habitat, will be finalizing these actions in October 2016.

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 (mayflies, blackflies, caddisflies, etc...) and small crayfish. Their lifespan is approximately four years. Common associates are the creek chub, central stoneroller, and fantail darter.

Historical and Current Distribution

Historically, the Kentucky arrow darter was known from only 74 streams in the upper Kentucky River drainage of 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 has been eliminated from about 49 percent of its historical streams with almost half of the localized extirpations occurring since the mid-1990s. Currently, extant populations of the Kentucky arrow darter are known from 47 streams 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 (headwater) streams with rocky substrates. Typically, the species is observed near some type of cover – boulders, rock ledges, large cobble, or woody debris piles, occupying streams



Siltation from logging activities, credit: USFWS

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 species' habitat and range have been 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.



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

U.S. Fish & Wildlife Service

The Kentucky arrow darter is considered “threatened” by the Commonwealth of Kentucky but current regulatory mechanisms have not been effective enough to conserve the species and its habitats. The species is also threatened due to the small, remnant nature of its populations.

Population Estimate/Status

Status surveys completed from 2007-2014 showed 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). Updated information on the species status will be published in the October 2016 Federal Register notice finalizing listing for the Kentucky arrow darter as a threatened species under the Endangered Species Act.

Critical Habitat

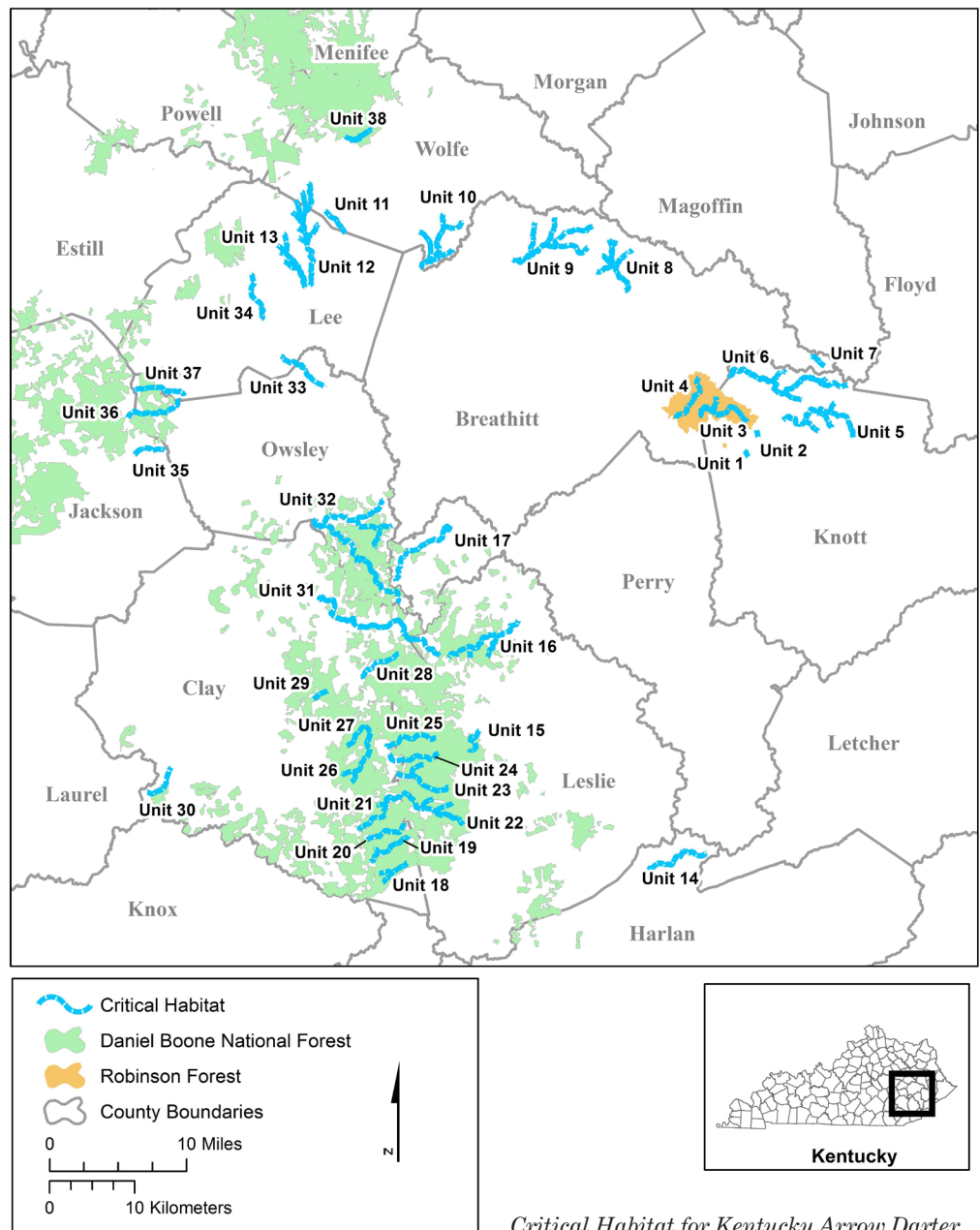
In total, approximately 398 stream kilometers (skm) or 248 stream miles (smi) has been designated as critical habitat for the species in Breathitt, Clay, Harlan, Jackson, Knott, Lee, Leslie, Owsley, Perry, and Wolfe Counties. These stream reaches comprise the entire currently known range for the species and are considered to be occupied at the time of this listing. Land ownership includes Federal (103.7 skm or 64.7 smi), State 17.9 skm or 11.1 smi), and private/other lands (276.5 skm or 172.0 smi). The units include the stream channels of the creeks within the ordinary high water line. In Kentucky, landowners own the land under non-navigable streams (e.g. - the stream channel or bottom), but the water is under State jurisdiction. We do not include any lands above the ordinary high water line, nor the adjacent uplands.

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; credit: J.R. Shute, Conservation Fisheries, Inc.