

## **Species Diversity Evaluation: Fish**

# **Habitat Needs, Distribution, and Description of Fish Species-of-Concern and Species-of-Interest Cimarron and Comanche National Grasslands**

### **Contents**

Species Diversity Evaluation: Fish .....	1
Habitat Needs, Distribution, and Description of Fish Species-of-Concern and Species-of-Interest Cimarron and Comanche National Grasslands .....	1
Contents .....	1
Introduction.....	2
Species-of-Concern.....	2
Arkansas darter .....	3
Works Cited .....	4

## Introduction

Under the 2005 National Forest Systems Land Management Planning Rule (2005 Rule), the U.S.D.A. Forest Service is directed to “Focus evaluation and development of plan components for species diversity on those species for which the Responsible Official determines that provisions in plan components are needed” (36 CFR 219). Forest Service Handbook Interim Directives released in March 2005 state: “The Responsible Official should identify federally threatened and endangered species, species-of-concern, and species-of-interest whose ranges include the plan area<sup>1</sup>, taking into account limitations that exist at the edge of a species’ range” (FSH 1909.12, 43.22). To meet these requirements, this document lists and describes the fish species evaluated as a species-of-concern for the Cimarron and Comanche National Grasslands Draft Land Management Plan (Draft Plan). It also describes habitat needs for the species-of-concern to assess if Plan components provide for the identified species.

The existing condition description Existing Condition Description: Chapter 6, Fisheries Specialist’s Report (Fisheries Specialist’s Report) (USDA FS 2005) prepared for the Draft Plan provided a species-specific summary of current conditions for fish in the Planning Area<sup>2</sup> that are of interest for conservation or monitoring objectives. This report evaluated fish habitat on the Grasslands and results of fisheries monitoring efforts. The report provides a starting point for developing the species-of-concern list, but additional criteria were also considered based on the interim planning directives developed for the 2005 Planning Rule. Based on evaluations in the Fisheries Specialist’s Report, which outlines current conditions and limitations concerning management for fish habitat on the Grasslands, no fish species were evaluated further for the species-of-interest list.

## Species-of-Concern

If the Responsible Official determines that management actions may be needed to prevent a species from being listed under the Endangered Species Act (ESA), that species may be identified as a species-of-concern. Following the recommendations described in FSH 1909.12, 43.22a, potential species-of-concern were identified as:

1. Species listed as candidate and proposed species under the Endangered Species Act.
2. Species with ranks of G-1 through G3 on the NatureServe ranking system.
3. Intraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.

Only one fish species on the Grasslands, the Arkansas darter (*Etheostema cragini*), met the above criteria.

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<sup>1</sup> Plan Area – The area that includes only those lands administered by the Forest Service.

<sup>2</sup> Planning Area – The area that includes Forest Service-administered lands described as the Plan Area plus all other adjacent lands, including private and state-owned and state-managed lands.

### **Arkansas darter**

The Arkansas darter (*Etheostema cragini* Gilbert) is indigenous to the Arkansas River drainage and tributaries in Arkansas, Missouri, Oklahoma, Kansas, and Colorado (Blair 1959; Branson 1967; Cross and Collins 1985; Pflieger 1992; Pigg 1987). The Grasslands are within the historic range. The Arkansas darter prefers small, permanent-flow springs and spring run tributaries, and is always found in association with aquatic vegetation, especially watercress, over a substrate of gravel, sand and silt (Moss 1981; Robison and Buchanan 1988). However, it has also been documented in several turbid streams with sand and mud bottoms, away from any nearby springs (Matthews and McDaniel 1981). This adaptation to turbid environments may allow the Arkansas darter to survive during droughts when springs become desiccated.

Suitable habitat for the Arkansas darter is limited within its natural range and on the Grasslands due to habitat loss from upstream and downstream water development projects such as diversion of surface water, cultivation and construction of impoundments in the early 1900s. Perhaps the greatest threat to the species, however, is removal of groundwater for irrigation (Cross and others 1985). As the water table continues to fall in this region, it causes some formerly perennial streams to become ephemeral, and the groundwater seepage is eliminated that maintains the summer temperature of the surface water at a level appropriate for the Arkansas darter (generally 25°C or less, Eberle and Stark 1998). The impact from these and other disturbances, and the associated loss of habitat, has resulted in declining populations throughout the range of the Arkansas darter.

The Arkansas darter has received numerous listings and designations from conservation organizations. The U.S. Fish and Wildlife Service classifies the species as a candidate for Endangered Species Act protection with a listing priority number of 11. The Arkansas Natural Heritage Program ranks the Arkansas darter as Critically Imperiled. The Colorado, Kansas, and Oklahoma Natural Heritage Programs rank it as Imperiled, and the Missouri Natural Heritage Program ranks it as Vulnerable. The American Fisheries Society designated the status of this species as “Special Concern” in 1989. NatureServe, a leading conservation organization, has categorized the Arkansas darter as vulnerable to extirpation globally with a rank of G3, and further categorized it as imperiled in Colorado and Kansas (S2).

Suitable habitat is not likely to exist on the Cimarron National Grassland (Cimarron) due to the loss of connectivity within the mainstem Cimarron River. Today, the Cimarron River flows only intermittently because of the habitat alterations described above. It does flow occasionally, primarily as a result of rainfall upstream. However, these flows would not likely provide the Arkansas darter the full suit of life-history conditions necessary for survival. At best, these flows may provide a mechanism for dispersal of the species through the Grassland into adjacent, more suitable habitats. Three perennial streams exist on the Comanche National Grasslands (Comanche), and while heavily impacted upstream and downstream from crop production and intensive cattle feeding operations on private property, may provide at least sub-optimal conditions in which could exist. The Purgatoire River, Timpas Creek, and Carrizo Creek may have supported populations of the Arkansas darter before settlement and development of the areas water resources. The

species has never been documented on the Grasslands but has been collected on lands adjacent to the Grasslands. Because of this, it is likely that the Arkansas darter existed on the Grasslands before settlement.

Because land use practices that result in the loss of suitable habitat for the Arkansas darter largely occur outside the Planning Area, management activities within the Planning Area would not even minimally provide suitable habitat for a self-sustaining population. Because the Forest Service has no authority to direct or manage land use practices on private holdings adjacent to Forest System lands, it can effect little change in creating or sustaining suitable habitat for the Arkansas darter. Therefore, the Arkansas darter is not recommended for inclusion on the species-of-concern list or the species-of-interest list.

## **Works Cited**

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