

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AFCKA01090

Data Sensitivity: YES

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Ictalurus pricei*

COMMON NAME: Yaqui Catfish, Price's Catfish

SYNONYMS: *Villarius pricei*, *Ameiurus pricei*, *Amiurus pricei*, *Haustor pricei*, *Ictalurus pricei*

FAMILY: Ictaluridae

AUTHOR, PLACE OF PUBLICATION: Rutter, 1896, Proceedings California Academy of Science, 6: 245-67.

TYPE LOCALITY: San Bernardino Creek, just south of international border (in extreme southeastern AZ), Sonora, Mexico (Rutter 1896).

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: One of ten species in the genus. The Yaqui catfish is the only known native ictalurid west of the Continental Divide (Minckley 1973, USFWS 1995).

DESCRIPTION: Medium to large fish of the Ictularidae family. "Coloration dark gray to black dorsally, white to grayish beneath. Barbels jet-black except on chin, where they are gray to whitened. Body is usually profusely speckled" (Minckley 1973). A reddish coloration is prominent beneath the head, and on the fins and tail. Adult size up to 15.7 in (40 cm) and weights of 2.2 lbs (1 kg) or more.

AIDS TO IDENTIFICATION: Similar to the channel catfish but anal fin base is shorter and distal margin of the anal fin is broadly rounded with 23 to 25 soft rays. "Far darker over-all than either the channel or blue catfishes" (Minckley 1973).

ILLUSTRATIONS: Color photo (Rinne and Minckley 1991:31, fig. 62).

TOTAL RANGE: Historically occurred in moderate to large streams within the basins of the Rio Yaqui, Rio Sonora, Rio Maya, Rio Fuerte, and Rio Casas Grande (Miller et al. 2005). These river systems have been severely altered. Currently range of the species in Mexico is unknown, the species is functionally extinct in the wild of the U.S., and no captive populations exist (Stewart et al. 2017). Formerly in extreme southeast Arizona. Re-introduced to the Rio Yaqui on the San Bernardino National Wildlife Refuge November 1997.

RANGE WITHIN ARIZONA: Historically occurred in San Bernardino Creek as far up as San Bernardino Ranch, Arizona (has been taken just south of the border in Sonora). An

introduced population existed in the Monkey Springs Reservoir system from 1899 until the 1950's. Yaqui catfish were probably extirpated from the U.S. before the 1960's, when flows ceased in Black Draw (USFWS 2019b). In the mid 1990's, 1,800 fish were stocked in five ponds and pools at San Bernardino NWR, Slaughter Ranch, and El Coronado Ranch. Two of these populations persisted in 2017, but had experienced yearly population decline, and extirpation in the U.S. predicted to occur by 2018 (Stewart et al. 2017).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Adults spend daylight hours in deeper water and move to shallower riffles and runs to feed at night (Miller et al. 2005).

REPRODUCTION: The Yaqui catfish spawns in May and June (USFWS 2019). Females lay their eggs in nests constructed on the bottom of a creek bed. These nests are then guarded by the males, who in turn incubates the eggs by fanning away the silt. This action supplies oxygenated water to the eggs. Hatchlings collect in small schools, which the male protects (Hendrickson 1980, Miller 1977). Growth rates are estimated to be similar to estimates reported for channel catfish (USFWS 2019b).

FOOD HABITS: Aquatic invertebrates, other fish, and organic debris (Hendrickson et al. 1980).

HABITAT: *Ictalurus pricei* occupies ponds or streams, primarily in moderate to large streams and rivers, but also in small stream reaches where it prefers quiet, clear pools. They are most common in larger rivers in areas of medium to slow currents over sand/rock bottoms (Hendrickson et al. 1979). Streams flow intermittently in the dry season, and the catfish seeks refuge in permanent, often spring fed pools.

ELEVATION: 4,000 to 5,000 ft (1,219 to 1,425 m).

PLANT COMMUNITY:

POPULATION TRENDS: The Yaqui catfish survived in San Bernardino Creek until spring flows diminished because of groundwater pumping and the creek dried up. Remaining habitat there was severely trampled by drinking livestock, making it uninhabitable (Hendrickson 1980, Miller 1977). Introduced in 1899 into the Santa Cruz River System (in reservoir fed by Monkey Spring) where they persisted until the 1950's. Catfish populations were extirpated from United States according to Minckley in 1973, until a small population was re-introduced onto the San Bernardino National Wildlife Refuge in 1997. The species is likely extirpated from the Sonora and Casa Grandes basins, and was not detected in sampling of 10 river basins in the Rio Yaqui drainage in the early 2000's (Varela-Romero et al. 2011, Ruiz-Campos 2003). Detailed information about status of populations in Mexico are unknown. Reintroduced Populations in

the United States are functionally extinct. It is likely the Yaqui catfish is on the brink of global extinction (USFWS 2019b).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS:	LT with Critical Habitat (USDI, FWS 1984) [PT with Critical Habitat (USDI, FWS 1983)] [C1 (USDI, USFS 1982)]
STATE STATUS:	1 (AGFD, AWCS 2022) [1A (AZGFD SWAP 2012)] [WSC (AGFD, WSCA 1996 in prep)] [Endangered (AGFD, TNW 1988)]
OTHER STATUS:	Not Forest Service Sensitive (USDA, FS Region 3 1999, 2013) [Forest Service Sensitive, USDA, FS Region 3 1988] A, Determined Threatened in Mexico (NORMA Oficial Mexicana NOM-059-SEMARNAT-2010). [Determined Subject to Special Protection in Mexico, Secretaría De Medio Ambiente 2000] [Listed Rare, Secretaría de Desarrollo Social 1994] SC, American Fisheries Society

MANAGEMENT FACTORS: Threats to the species include aquifer pumping, reduction in stream flows, water diversion, habitat fragmentation and degradation, isolated populations, and competition and predation by non-native fishes. In Mexico, threats include; loss, alteration, and degradation of suitable habitat through the construction of dams used throughout the Rio Yaqui for agricultural and hydroelectric development; the presence of channel catfish (*Ictalurus punctatus*), a common non-native species that hybridizes with Yaqui catfish; and long-term drought combined with expanding human populations, which are creating increased demand for water for human consumption (Minckley and Marsh 2009).

An overall lack of historical range exists within which the Yaqui catfish can be recovered. Historic conditions have been severely altered by groundwater withdrawal, conversion of riverine systems to reservoirs, changes in water quality, competition and hybridization with non-native Channel catfish, decreasing precipitation, and a changing climate (Rinne and Minckley 1991, Miller et al. 2005, Minckley and Marsh 2009). A very small percent of unaltered historical range of this fish currently exists to help support potential recovery.

Yaqui catfish are difficult to rear in captivity. Attempts have not been successful since the late 1990's (USFWS 2019). Genetic and population refugium at San Bernardino/Leslie Canyon NWRs have been declining toward extinction, following the loss of captive stock at Uvalde National Fish Hatchery in 2006 (Stewart et al. 2017). Natural recruitment in this population occurred, but at very small numbers, and the population is considered functionally extinct (USFWS 2019). Recovery efforts in Mexico are hindered by limiting funding, permitting obstacles, access limitations, and safety concerns due to illegal border activity (USFWS 2019).

PROTECTIVE MEASURES TAKEN: Habitat conditions have improved at San Bernardino NWR and nearby conservation easements. Wetlands are being constructed to provide interstitial spaces, refugia from predation, and feeding areas (USFWS 2019b, Daugherty et al. 2011, Butler and Wahl 2011). The creation and involvement of the Malpai Borderlands Group has helped to protect the United States portion of the upper Rio Yaqui watershed. Non-native fish species have been eradicated at San Bernardino NWR, Leslie Canyon NWR, Slaughter Ranch, and El Coronado Ranch. Bullfrogs persist, but are believed to pose little threat to Yaqui catfish (Liu et al. 2017). In Mexico, habitat protection and improvement are spotty, and non-native species present a threat (Varela-Romero et al. 2007).

SUGGESTED PROJECTS: Survey potential habitat in Mexico. Extant populations should be established as natural refugia and/or a subsample collected for propagation in hatcheries to reestablish populations in the U.S. and Mexico. Water samples collected in Sonora, Mexico will be analyzed for eDNA of Yaqui catfish, in an attempt to determine species range. In Mexico, non-native fishes must be removed from habitat.

The 5-year review completed in 2019 suggested uplisting the Yaqui catfish to endangered in the United States. Researchers have recommended the species be uplisted to endangered in Mexico, and the status is currently under review (USFWS 2019b).

LAND MANAGEMENT/OWNERSHIP: FWS - San Bernardino National Wildlife Refuge; Johnson Historical Museum.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Revised: 1994-06-15 (DBD)
 1997-11-14 (SMS)
 2001-10-12 (SMS)
 2021-03-19 (KSL)
 2023-01-09 (MBL)

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