ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** AFCJC02100
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Catostomus insignis*
COMMON NAME: Sonora Sucker, Gila Sucker
SYNONYMS: *Minomus insignis, Catostomus insigne, Catostomus gila*
FAMILY: Catostomidae

AUTHOR, PLACE OF PUBLICATION: Baird and Girard, 1854. Descriptions of new species of fishes collected in Texas, New Mexico, and Sonora, by Mr. John H. Clark on the U.S. and Mexican Boundary Survey, and in Texas by Capt. Stewart Van Vliet, U.S.A., Proc. Soc. Nat. Sci. Philadelphia. 7:28.

TYPE LOCALITY: Rio San Pedro, tributary to Rio Gila, Arizona

TYPE SPECIMEN: SYNTYPE: USNM 169, J. Clark, 1851

TAXONOMIC UNIQUENESS: The genus *Catostomus insignis* is comprised of approximately 23 species, all of which occur in North America (GBIF 2022). Hybrids have been reported by Clarkson and Minckley (1988) between *C. insignis* and *C. (Pantosteus) clarki*.

DESCRIPTION: A medium-sized catostomid fish, adults can attain a size of 80.0 cm (31.5 in). Minckley (1973) states that adults can weigh greater than 2.0 kg (4.4 lbs). "Body fusiform, chubby. Head large. Lower lips enlarged, but only moderately, fleshy lobes not produced. Dorsal fin generally square on distal margin, usually with 11 (rarely 12) fin-rays. Scales relatively large, typically fewer than 60 in lateral line, crowded anteriorly, but not markedly so.

Body sharply bi-colored, brownish dorsally, yellow beneath. Dorso-lateral scales sharply outlined with melanophores over-all, each scale with a discrete broadening of the outline, to form a variably distinct spot; spots aligned to provide a visual effect of longitudinal, punctuate lines on upper sides of darkly-colored individuals. Interradials of fins variably darkened; lower fins typically yellow to white" (Minckley 1973).

"Tiny young of this species, and of most other suckers, have dorsal mouths that migrate to the ventral position as the fish develops through their larval stages" (Stewart 1926 in Minckley 1973).

AIDS TO IDENTIFICATION: Very similar in appearance to the Yaqui Sucker, *C. bernardini*. Melanophoric spots formed on upper body scales form apparent dash lines. Sometimes this sucker is sharply bicolored.

ILLUSTRATIONS:
B&W photo (Minckley 1973:160)
Line drawing (Page and Burr 1991:170)
Color drawing (Page and Burr 1991:171)
Color photos (Rinne and Minckley 1991:20)
Line drawings (Sublette et al. 1990:200)
B&W photos (Sublette et al. 1990:200)

TOTAL RANGE: Upper Gila and Bill Williams River systems of the Colorado River basin in Arizona, the Gila and San Francisco dranages (excluding extreme headwaters) in New Mexico, and headwaters of the Santa Cruz and San Pedro River systems of the Gila basin in northern Sonora, Mexico (Sublette et al. 1990, Lee et al. 1980, NatureServe 2022). Widely extirpated in the southern half of the range (Lee et al. 1980).

RANGE WITHIN ARIZONA: "...widespread in the Gila and Bill Williams river basins in Arizona" (Sublette et al. 1990). Per 1995 AGFD Native Fish Diversity Review, this fish is thought to be rare to absent in the Salt River Canyon, mainly due to predation by flathead catfish (*Pylodictis olivaris*).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: "*C. insignis* seems intolerant of lake conditions" (Minckley 1973), although a few specimens have been collected at Roosevelt Lake, Arizona, during netting and electrofishing surveys of the late 1980s by AZGFD. Sublette et al. 1990 described the Sonora Suckers of Arizona and New Mexico's San Francisco and Gila Rivers as "very sedentary" despite seasonal changes and major flood events. Recent data shows that suckers forage widely over the entire stream including extremely shallow areas during low light periods (night or high turbidity, i.e. cryptic movements) and retreat to areas of cover such as deep pools during high light periods (Booth et al. 2013). Individual fish dig holes while feeding on invertebrates in soft sediments (i.e. sand, silt, gravel) resulting in roughly cylindrical divots in the streambed, which range in size from 1 cm wide and 0.4 cm deep to 40 cm wide and 6.8 cm deep. Sonora suckers also feed on hard substrates, moving unconsolidated particles (pebbles to small cobbles) as they forage for invertebrates (Booth et al. 2019). Therefore, Sonora Sucker have some functionality as ecosystem engineers, as invertebrate biomass is increased in divots caused by foraging fish (Booth et al. 2019).

REPRODUCTION: "Spawning begins in late winter and continues through midsummer. The female is usually attended by two males. Eggs are deposited in riffles, fall into the interstices between gravels, and incubate" (Reughard 1920 in Sublette et al. 1990). "They tend to move

to smaller streams or onto riffles in larger streams, but a few populations are known to spawn in lakes" (Minckley 1973). Spawning does not appear to be correlated with any specific pattern of stream flow or temperature.

FOOD HABITS: Feed on invertebrates and detritus (Clarkson and Mickley 1988). While feeding in soft sediments, individual fish will dig holes to capture invertebrate prey (Booth et al. 2019). Sonoran Suckers are effective suction feeders when feeding on benthic-unattached prey. This makes them adaptable to environmental changes that are common in waters of the Southwest (O'Neill and Gibb 2013).

"The young feed along the margins of streams, sometimes by the millions, upon tiny crustaceans, protozoans, and other animal and plant groups" (Minckley 1973). Adults are likewise omnivorous, "feeding in early morning and late evening on the aufwuchs assemblage (diatoms and algae) of shallow pools. A significant component of the diet is macroinvertebrates, particularly Ephemeroptera (Clarkson and Minckley 1988), with some coarse sand occasionally ingested" (Sublette et al. 1990).

HABITAT: Forage both in soft sediment and hard substrates for inverts and detritus, spend days in pools as refuges (Booth et al. 2013) and forage in shallow riffles and runs during the night (Booth et al. 2019).

The Sonora Sucker is found in a variety of habitats from warm water rivers to trout streams. "It has an affinity for gravelly or rocky pools, or at least for relatively deep, quiet waters" (Minckley 1973). Adults tend to remain near cover in daylight, but move to runs and deeper riffles at night. Young live in and utilize runs and quit eddies.

ELEVATION: 369 to 2663 m (1,210 to 8,730 ft.) (AGFD, unpublished data accessed 2001).

PLANT COMMUNITY:

POPULATION TRENDS: Long term trends are difficult to determine. "The status of the species is stable in the San Francisco and Gila River drainages, New Mexico" (Sublette et al. 1990). Thought to be lost from the entire Santa Cruz watershed (D. Foster 2005). "Over the long term, this species appears to have declined somewhat in area of occupancy, number of subpopulations, and population size, but Olden and Poff (2005) concluded that this species has maintained a relatively stable distribution over time".

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: SC (USDI, FWS 1996)
[C2 USDI, FWS 1994]

STATE STATUS: 2 (AZGFD, AWCS 2022)
[1B (AGFD SWAP 2012)]

OTHER STATUS:

Forest Service Sensitive (USDA, FS Region 3, 2013)
Bureau of Land Management Sensitive (USDI, BLM AZ 2000, 2005, 2008, 2010, 2017)
P, Listed Endangered (Secretaría de Medio Ambiente 2000, 2010, 2018)
[Listed Endangered (Secretaría de Desarrollo Social 1994)]

MANAGEMENT FACTORS: Alteration of historic flow regimes and construction of reservoirs have diminished available habitat for Sonoran Sucker. General watershed erosion causing excessive sand deposition in streams has eliminated much pool habitat required by the species. A winter snagging season for anglers currently (1994) exists for this sucker and the desert sucker below Stewart Mountain Dam on the Lower Salt River. This management action was taken as a measure to encourage harvest of the species, as many die during the extremely slow winter water flows. Changes in water flow are detrimental due to their intolerance to low water levels.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Distribution and population trend studies within known range. Variability in reproductive success. Suggest that AZGFD actively search for species in Mexico via cooperators (D. Foster 2005).

LAND MANAGEMENT/OWNERSHIP: BIA - Fort Apache, Fort McDowell, Salt River Pima, and San Carlos Reservations; BLM - Kingman, Safford, and Tucson Field Offices; BOR - Phoenix Area; NPS - Montezuma Castle National Monument; USFS - Apache-Sitgreaves, Coconino, Coronado, Prescott, and Tonto National Forests; State Land Department; AGFD Black River Lands; Dead Horse Ranch and Red Rock State Parks; TNC - Canelo Hills Cienega, Patagonia-Sonoita Creek, Aravaipa Canyon and Muleshoe Ranch Preserves; Private.

SOURCES OF FURTHER INFORMATION

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ADDITIONAL INFORMATION:

Revised: 1994-07-01 (JJW)
1995-01-29 (KLY)
1997-03-04 (SMS)
2001-10-10 (SMS)
2002-12-04 (RHB)
2022-09-08 (KSL)
2023-01-09 (MBL)