Scientific Name: *Catostomus clarki*
Common Name: Desert sucker
BISON No.: 010500

Legal Status:

- Arizona, Species of Special Concern
- ESA, Endangered
- ESA, Proposed Endangered
- ESA, Proposed Threatened
- ESA, Threatened
- New Mexico-WCA, Endangered
- New Mexico-WCA, Threatened
- USFS-Region 3, Sensitive
- None

Distribution:

- Endemic to Arizona
- Endemic to Arizona and New Mexico
- Endemic to New Mexico
- Not Restricted to Arizona or New Mexico
- Northern Limit of Range
- Southern Limit of Range
- Western Limit of Range
- Eastern Limit of Range
- Very Local

Major River Drainages:

- Dry Cimmaron River
- Canadian River
- Southern High Plains
- Pecos River
- Estancia Basin
- Tularosa Basin
- Salt Basin
- Rio Grande
- Rio Mimbres
- Zuni River
- Gila River
- Rio Yaqui Basin
- Wilcox Playa
- Rio Magdalena Basin
- Rio Sonoita Basin
- Little Colorado River
- Mainstream Colorado River
- Virgin River Basin
- Hualapai Lake
- Bill Williams Basin

Status/Trends/Threats (narrative):

Federal: FWS species of concern. Federal: BLM sensitive (NMSO). State AZ: Threatened. State NM: Provides limited protection.

In the late 1800's extensive livestock grazing was imposed on the landscape (**Hendrickson and Minckley 1984**). Escalation of agricultural development of floodplain areas commenced in the 1950's and placed further demand on surface water resources through water diversion and on aquifers through groundwater mining (Rinne 1995). Alteration of habitat by humans and introduction of nonnative fish have caused a dramatic decline in desert fishes (Rinne 1992). The desert sucker is stable in New Mexico (Sublette et. al. 1990). Irrigation diversions have resulted in periodic loss of surface water, primarily in summer when quantity and quality of streamflow is critical to survival of fishes (Rinne 1995).

Threats to the desert sucker includes hybridization with the Sonora sucker in the Gila River drainage of New Mexico and Arizona and hybridization with the flannelmouth sucker in the Virgin River drainage, Utah (Barber and Minckley 1966, Smith 1966). Hybridization between the genera Pantosteus and Catostomus (e.g. Rio Grande sucker and desert sucker) is widespread and has relegated Pantosteus to a subspecies (Minckley 1973). Invasion by nonnative fishes either from domestic livestock watering tanks upstream or the Gila River downstream is an equal or greater threat (Rinne 1992). Introduction of nonnative fish species from cattle tank or stock pond introductions have negatively impacted native fish species (Rinne 1995). Arroyo cutting has been attributed to excessive livestock grazing and irrigation diversions (Rinne 1995).

Distribution (narrative)**:**

The desert sucker is native in the Gila basin and the San Francisco drainage, and occurs in suitable habitats of the lower Colorado River basin downstream from the Grand Canyon (Smith 1966), the Gila River drainage upstream from Gila, Arizona, the Virgin River basin of Utah, AZ, and NV and Bill Williams River basin in Arizona, New Mexico, and north Sonora, Mexico (Minckley 1973, Lee et. al. 1981, Sublette et. al. 1990). The desert sucker is one of the most common larger fishes remaining in the lower Colorado basin (Minckley 1991). The desert sucker is widespread and generally abundant in the Gila River basin to the north (Minckley 1973).

Key Distribution/Abundance/Management Areas:

Panel key distribution/abundance/management areas:

Breeding (narrative)**:**

The desert sucker spawns in winter and spring in Arizona with maturation occurring in the third summer (Smith 1966, Minckley 1973, Sublette et. al. 1990). Prior to spawning adults congregate in large numbers (Minckley 1991). Spawning is typically of one large female and two or more smaller males. The female desert sucker forms a depression in the bottom, and adhesive eggs are buried in loose gravel. The eggs hatch in a few days (Minckley 1991). After hatching, juveniles gather in quiet pools near the bank, moving to swifter waters as they mature (Sublette et. al. 1990).

Habitat (narrative)**:**

The desert sucker is found in a variety of large and small desert mountain streams where observed bottom materials consist of sand, rubble, boulders, mud, and bedrock (Smith 1966, Sublette et. al. 1990, Rinne 1992). The desert sucker is characteristic of small to moderately large streams with pool-riffle development (Minckley 1973). Small adults and young are predominately riffle fish, especially over gravel/rubble bottoms (Barber and Minckley 1966, Minckley 1991). The desert sucker tends to live more in rapids than in pools, or at least move to swift areas to feed and then move back to pools (Minckley 1973). Large adult desert suckers are found in pools during the day, moving to riffles and rapids at night and in periods of high turbidity (Minckley 1973, Schreiber and Minckley 1981). Very young individuals live in warm backwaters along the stream, moving into

faster waters as juveniles, then into riffles or pool and pool-like areas as adults (Barber and Minckley 1966, Minckley 1973, Minckley 1991). Current velocity is variable, ranging from swift waters of the Virgin River in AZ, and montane tributaries of the Gila system to pools or sluggish streams with little current (Smith 1966). Preferred temperature of desert suckers from the Virgin River is 17.5o C with temperatures ranging from 10-21^{o} C (Sublette et. al. 1990). The desert sucker inhabits waters with velocities of 22-30 cm s^{-1} (Rinne 1992).

Key Habitat Components: Low to high gradient riffles of moderate to swift velocity current, moderate depth (< 0.5 m), and over pebble to cobble-boulder substrate. The desert sucker is also inhabits pools with moderate current.

Breeding Season:

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Panel breeding season comments:

Aquatic Habitats:

Large Scale:

- Rivers
- Streams
- Springs
- Spring runs
- Lakes
- Ponds
- Sinkholes
- Cienegas
- Unknown
- Variable

Small Scale:

- Runs
- Riffles
- Pools
- Open Water
- Shorelines

Panel comments on aquatic habitats:

Important Habitat Features (Water characteristics):

Current
- Fast (> 75 cm/sec)
- Intermediate (10-75 cm/sec)
- Slow (< 10 cm/sec)
- None
- Unknown
- Variable

Gradient
- High gradient (>1%)
- Intermediate Gradient (0.25-1%)
- Low Gradient (<0.25%)
- None
- Unknown
- Variable

Water Depth
- Very Deep (> 1 m)
- Deep (0.25-1 m)
- Intermediate (0.1-0.25 m)
- Shallow (< 0.1 m)
- Unknown
- Variable

Panel comments on water characteristics:

Important Habitat Features (Water Chemistry)

Temperature (general)
- Cold Water (4-15°C)
- Cool Water (10-21°C)
- Warm Water (15-27°C)
- Unknown
- Variable

Turbidity
- High
- Intermediate
- Low
- Unknown
- Variable

Conductivity
- Very High (> 2000 µS/cm)
- High (750-2000 µS/cm)
- Intermediate (250-750 µS/cm)
- Low (< 250 µS/cm)
- Unknown
- Variable

Panel comments on water chemistry:

Important Habitat Features (Structural elements):

Substrate
- Bedrock
- Silt/Clay
- Detritus
- Sand
- Gravel
- Cobble
- Boulders
- Unknown
- Variable

Cover
- Rocks, boulders
- Undercut banks
- Woody debris
- Aquatic vegetation
- Rootwads
- Not important
- Overhanging vegetation
- Unknown
- Variable

Panel comments on structural elements:

Diet (narrative)**:**

The desert sucker is herbivorous feeding on encrusted diatom-rich claylike materials and other filamentous algae scraped from stones and other surfaces in moderate currents (Minckley 1973, Lee et. al. 1981, Schreiber and Minckley 1981, Greger and Deacon 1988, Sublette et. al. 1990, Minckley 1991). Inorganic material (sand) was common in stomachs of desert suckers (Schreiber and Minckley 1981). The foods of desert suckers consist of microscopic periphyton and other microscopic organic matter, occasionally invertebrates (Smith 1966). The desert sucker will take animal foods when they are abundant (Schreiber and Minckley 1981). Three to four percent of the desert sucker diet consists of animal prey (Greger and Deacon 1988). Nymphal flies were occasionally found in the stomachs of desert suckers (Schreiber and Minckley 1981).

Diet category (list):

- Planktivore
- Herbivore
- Insectivore
- Piscivore (Fish)
- Omnivore
- Detritivore

Grazing Effects (narrative):

The desert sucker's habitat behavior of the inhabiting pools during the day and riffles at night renders livestock grazing of little potential negative impact to this species.

Panel limiting habitat component relative to grazing and comments:
Panel assessment: Is this species a priority for selecting a grazing strategy? Throughout the species' distribution in New Mexico and Arizona YES NO UNKNOWN In key management area(s) YES NO UNKNOWN

Principle Mechanisms Through Which Grazing Impacts This Species (list):

May be Revised

- Alteration of bank structures
- Alteration of substrate
- Alteration of water regimes
- Altered stream channel characteristics
- Altered aquatic vegetation composition
- Altered bank vegetation structure
- Change in food availability
- Change in water temperature
- Change in water quality
- Habitat fragmentation
- Increased turbidity
- Other biotic factors
- Parasites or pathogens
- Population genetic structure loss
- Range improvements
- Trampling, scratching
- Unknown

Panel causal mechanisms comments:

Authors

- **Draft:** Rinne, J.N. and Magaña, H.A.
- **GP 2001:**
- **GP 2002:**
- **Revision:**

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