Scientific Name: *Catostomus plebeius*
Common Name: Rio Grande Sucker
BISON No.: 010515

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 USFS: Sensitive: Region 3, State NM: Provides limited protection.
The status of populations of the Rio Grande sucker is stable in the Rio Grande and Mimbres drainages (Sublette et al 1990). Rio Grande sucker was once common in the Rio Grande basin, however, its current status in New Mexico in unknown (Calamusso et al 2002). In the Carson national forest, two populations of Rio Grande sucker were confirmed and a new population (Little Tusas) was found (Calamusso et al 2002).
Rio Grande sucker is listed as endangered by the state of Colorado and is declining in New Mexico in the northern portion of its range (Calamusso 1992). Calamusso and Rinne (1996) reported the Rio Grande sucker is declining in the study area, especially in the Carson national forest, on lands adjacent to the Carson national forest, and its tributaries in the Santa Fe national forest draining into the Chama River. Although the Rio Grande sucker is in general decline in

the middle Rio Grande of New Mexico it is still considered common and is not afforded any special protection or status by the NMDGF (Calamusso and Rinne 1999). The Rio sucker appears to be declining in the northern portions of its range in New Mexico (Calamusso and Rinne 1996, Propst 1999).

Human influences have dramatically changed the composition of the native Rio Grande fish fauna with the major factors being the introduction of non-native species and habitat loss (Calamusso and Rinne 1999). Rinne (1995, Minckley and Rinne 1991) reported that typical forest management activities such as logging, recreation, road building, and livestock grazing all negatively affect fish habitat and streams.

Calamusso and Rinne (1999) identified the principal threat to native fishes as the expansion in range and numbers and continued introduction of non-native fishes. The decline in range and numbers of the Rio Grande sucker is related to the introduction and range expansion of nonnative fishes, especially white sucker, into the Rio Grande drainage (Calamusso et al 2002). Rio Grande suckers have steadily disappeared from streams in New Mexico, due to competition and genetic swamping, and hybridization with the white sucker (Rinne 1995). In all streams where Rio Grande sucker has be extirpated or are declining, white sucker are now present (Calamusso et al 2002).

Distribution (narrative)**:**

Once widely distributed and abundant throughout the upper Rio Grande of Colorado and New Mexico, the Rio Grande sucker was the only catastomid endemic to this drainage (Koster 1957). The Rio Grande sucker is wide ranging from Rio Grande of Colorado and New Mexico, south through the intermontane basins and headwaters of Pacific drainages to Durango and Zacatecas, Mexico (Smith 1966). The current distribution of the Rio Grande sucker in New Mexico is reported as the Rio Grande, above the 36th parallel, its tributaries, primarily north of the 35th parallel, and the Mimbres River (Sublette et al 1990, Rinne 1995, Calamusso and Rinne 1995). Introduced populations of Rio Grande sucker also occur in the headwaters of the Gila River, the Rio Hondo (Pecos drainage), Gila River basin, and in the San Francisco drainage, Sacramento Mountains (Sublette et al1 1990). Calamusso and Rinne (1995) found a total of 14 populations of Rio Grande sucker to occur within their study area three on the Carson and eleven streams on the Santa Fe contain the sucker. Rio Grande sucker also inhabit six river basins draining four states of Mexico (Hendrickson et al 1980).

Key Distribution/Abundance/Management Areas:

Panel key distribution/abundance/management areas:

Breeding (narrative)**:**

Spawns February through April, and may extend into summer Koster (1957). Spawning is in early spring (Minckley 1973). Major spawning effort occurs in spring over medium gravel (8-16

mm) (Sublette et al 1990). This native sucker definitely spawned in the spring and early summer based on annual observations of flows in the Rio de las Vacas, the Rio Grande sucker spawned on the waning side of the period of peak spring flows (Rinne 1995). Rinne (1995) reported that once normal spring runoff subsided (i.e., late June to early July), spawning quickly terminated. Spawning occurs in the spring over gravel areas. Maximum life span for males is six years (Sublette et al 1990).

Habitat (narrative)**:**

Rio Grande sucker as found in small to large middle elevation (2,000-2,600 m) streams with gravel/cobble/ rubble substrates, and can also be found in backwater, beaver ponds, and pools proximate to riffles (Sublette et al 1990, Calamusso and Rinne 1995), but it is rarely found in waters with heavy loads of silt and organic detritus (Sublette et al 1990). The Rio Grande sucker inhabits pools, runs, and riffles of small to moderately large streams (Lee et al 1981). The Rio Grande sucker is an obligate riverine fish that favors low gradient (<3.5%), low velocity stream reaches (Calamusso 1996). The Rio Grande sucker is most abundant in flowing waters just downstream from swift riffles during the day, but moves into the swifter areas at night (Minckley 1973).

Key Habitat Components: Gradients less than two percent, gravel cobble riffles.

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)**:**

Rio Grande suckers are omnivorous (White 1972). This species feeds in moderate to swiftly flowing riffle areas on algae, diatoms, and benthic invertebrates in the aufwachs assemblage scraped from rocks or from the interstitial gravels between cobble and boulders (Sublette et al. 1990, Calamusso and Rinne 1995). Foods in northern populations of Rio Grande sucker are diatoms, detrital materials, and benthic invertebrates (Lee et al 1981). Larger individuals feed on filamentous algae and other microscopic and macroscopic organisms such as diatoms and benthic invertebrates inhabiting fast, rocky riffles (Sublette et al., 1990). The animal portion of their food consisted of aquatic invertebrates and postlarval fish of their own species, and the plant portion of their food consisted of diatoms, filamentous blue-green algae, and the filamentous green alga, *Cladophora* (White 1972). Large masses of *Cladophora* were once prominent in Jemez Creek (White 1972), which may explain the decline of this fish species in that part of New Mexico. Preliminary examinations of intestinal contents showed that the food of the Rio Grande sucker ranged in size from microscopic plants and detritus to large insects (White 1972). Further examination of material found in the intestines of the Rio Grande sucker to included fish, aquatic invertebrates, algae, organic detritus, mucus from the alimentary tracts, and a mixture of sand and silt accounting for 26 to 91% of the material examined from the intestines of these fish (White 1972). The food of juveniles consisted almost exclusively of diatoms, and *Navicula* (White 1972).

Diet category (list):

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

Grazing Effects (narrative):

Streambanks are unstable in the grazed areas (Rinne in litt.) and fine sediment content of the stream substrate is greater in reaches subjected to grazing (Rinne, 1988). The species is rarely found in streams with heavy silt loads and organic debris. Grazing on watersheds and riparian areas of small headwater streams potentially could affect reproductive success and food supply and negatively impact the 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:** Magaña, H.A. and Rinne, J.N.
- **GP 2001:**
- **GP 2002:**
- **Revision:**

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