Scientific Name: *Lepomis macrochirus*
Common Name: Bluegill
BISON No.: 010045

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):

State NM: Provides full protection. At present, populations are well established in the San Juan drainage and localized in the Gila, Mimbres, and Canadian drainages (Sublette et. al. 1990). Several countries report adverse ecological impact after introduction (Fishbase.org 2002). The bluegill has been found to hybridize with both greenfish and longear sunfishes (Sublette et. al. 1990).

Distribution (narrative)**:**

The bluegill is native to eastern and central North America and south from the St. Lawrence River-Great Lakes region to the Gulf Coast states and into northeastern Mexico (Sublette et. al. 1990, Fishbase 2002). Bluegill are native to the Rio Grande and Pecos River where populations are stable (Sublette et. al. 1990). Bluegill have been introduced and are well established in the San Juan drainage and localized in the Gila, Mimbres, and Canadian drainages (Sublette et. al. 1990). The bluegill is native in the lower Pecos River (Koster 1957). In Arizona, the bluegill may be expected to occur in any waters below 2,500 meters, rarely in streams and rivers and most commonly in reservoirs and ponds (Minckley 1973).

Key Distribution/Abundance/Management Areas:

Panel key distribution/abundance/management areas:

Breeding (narrative)**:**

Bluegill usually begin to spawn in April and May, and often there are two peaks of activity, one earlier and the second about one month later (Bennett 1962); however, Minckley (1973) and Sublette et. al. (1990) reported that typical spawning occurs from late May through mid-August in water temperatures of 19.4-26.7o C. During the late spring and summer, bluegill nests can be found in shallow water, usually over a sandy bottom (Koster 1973). Bluegill generally mature during their second summer (**Bennett 1962**, Koster 1973). Bennett (1962) reported that bluegill might not mature until 2 or 3 years old in the northern habitats. Males select sites and fan shallow depressions in sand, gravel, mud, or organic debris (Minckley 1973). Nests are sometimes solitary, but more often in groups, or associated with nests of other sunfish species (Minckley 1973). The demersal, adhesive eggs are deposited in a shallow depression nest built and guarded by the male (Minckley 1973). Females may spawn in more than one nest (Sublette et. al. 1990). Eggs hatch in two to three days at water temperatures above 21oC (Sublette et. al. 1990). After yolk sac is absorbed, the larvae migrate from the littoral to the limnetic zone where there are fewer predators and greater food supply (Sublette et. al. 1990).

Habitat (narrative)**:**

Bluegill occur in schools in the main rivers, reservoirs, ponds, rivers, streams and slower moving waters at lower elevations (Koster 1957, Sublette et. al. 1990). Although weeds are not essential to their well being, bluegills are often found near them (Koster 1957). The bluegill is frequently found in lakes, ponds, reservoirs, sluggish streams, and prefers to live in deep weed beds (Fishbase 2002).

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)**:**

Bluegills are more omnivorous than most other sunfishes, and eat some plant material and plankton as well as insects, crustaceans, and snails (Koster 1957, Fishbase 2002). Bluegill tend to feed heavily on smaller invertebrates (Minckley 1973). Zooplankton and aquatic insects are major foods of young and adults alike, with insects becoming somewhat more important in larger fish (Minckley 1973). Cladocerans and copepod nauplii are the most frequently ingested prey for bluegill larvae and juveniles (**Werner 1969**). Aquatic insects, crayfish, and small fish comprise the primary diet of the adult in various water bodies (**Mittelbach 1984**). Bluegills undergo pronounced shifts in both habitat and food items as they grow due to changes in vulnerability (Mittelbach 1984).

Diet category (list):

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

Grazing Effects (narrative):

The widespread and adaptive nature of this suggests little impact by grazing, however, since bluegill make their nests in shallow water hoof action could negatively affect nests and reproduction.

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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