

Rio Grande Chub



ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



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Once widespread throughout the Rio Grande Basin, Rio Grande chubs (*Gila pandora*, Family Cyprinidae) currently occur in more scattered locations.

Species Description

Identification

With elongated heads, large eyes, and forked tail fin, Rio Grande chub can grow as long as 12 inches, but adults average about 5 inches in Colorado.

Whether they appear gray or yellowish gray, their darker backs gradually fade to lighter bellies. They have two dark, but subtle, lines along their sides, one above and one below the decurved lateral line. During the breeding season, lower fins, sides, and along the mouth become various shades of yellow, orange, or red, with males tending to be brighter than females.

Preferred Habitats

Rio Grande chub occur primarily in small streams, impoundments, and lakes. They are also known to inhabit engineered waterways, such as irrigation ditches, canals, and stock ponds.

Diet

As omnivores, Rio Grande chub consume vegetation, detritus, and animal matter, including small fish, crustaceans, insects, as well as various small invertebrates and plankton.

Conservation Status

Federal: Not listed.

Colorado: Listed as a Species of Concern and designated Tier 1 Species of Greatest Conservation Need.

USFS: Listed as Sensitive Species.

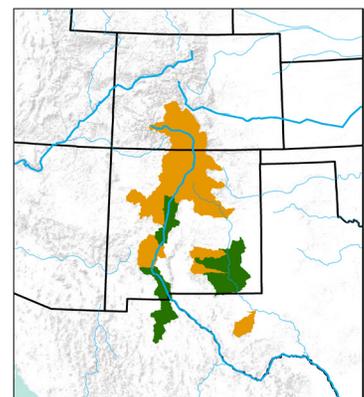
BLM: Listed as Sensitive Species.

Rangewide abundance of Rio Grande chub has been reduced by 75% from historic levels. Rio Grande chub were petitioned for listing under the Endangered Species Act in 2013. On 15 March 2016, in a 90-day Finding on Petition, U. S. Fish and Wildlife Service assigned the Rio Grande chub to the list of substantial findings, but currently it has no federal status.

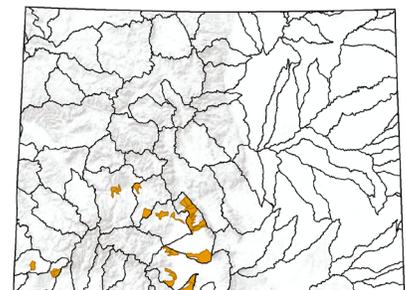
Species Distribution

Range

While Rio Grande chub were historically widespread throughout the Rio Grande Basin, they are now restricted to tributary streams and associated impoundments in Colorado, New Mexico, and Texas. They were thought to be extirpated from the mainstem of the Rio Grande in Colorado until recently when a small population was discovered near the town of Del Norte.



— Major Rivers
 ■ Current Native Distribution
 ■ Extirpated Populations



Known occurrence

Distribution of Rio Grande chub in North America and in Colorado. Map of entire range based on data provided by NatureServe. Colorado map based on CPW (2019) and represents the most current information on distribution by 12-digit hydrologic unit codes (HUCs), shown in orange with grey outline. Solid black lines indicate larger 8-digit HUCs.

Version Date: November 2020

Preferred Habitat Conditions

All fish must have connectivity among habitats, suitable for all life cycles, including spawning, rearing, feeding, and refuge. Dams and other barriers to fish movement can have both positive and negative effects for fishes of conservation concern. Barriers can block contact with non-native predatory fish or non-native fish that alter the gene pool of native fish, but they can also prevent desirable gene flow among populations. Rio Grande chub associate with cool flowing water and cover, such as instream vegetation, instream woody material, overhanging vegetation, and undercut banks. They are often found near inflows of riffles and flowing pools near headwaters. In Colorado, Rio Grande chub seem to prefer sand or sand/cobble substrates but elsewhere appear to prefer mixtures of gravel and cobble.

Association with other fishes	Rio Grande sucker, Rio Grande cutthroat trout, longnose dace, fathead minnow and brown trout (prefer similar conditions)
Cover	instream vegetation, woody material, boulders, overhanging vegetation, and undercut banks
Elevation	7580–8400 feet (in Colorado)
Features within streams	cool, low gradient reaches with riffles, runs, and pools
Spawning habitat	typically spawn in riffles with gravel or sand substrate
Stream type	primarily tributary streams
Stream width	8–75 feet
Substrate	variable; prefer cobble and gravel but also utilize sand and silt
Water depth	12–69 inches
Water temperature for spawning	59–64 °F; 69 °F maximum

Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. Biologists with expertise in Rio Grande chub have suggested numerous practical steps that can be taken to improve habitat quality for this species.

Hydrology

- Enhance stream flow and avoid dewatering.
- Avoid channelization and maintain natural meanders.
- Maintain processes that mimic results from natural flow regimes.
- Provide development buffer for stream to migrate laterally.
- Protect springs and small connecting streams.

Vegetation

- Protect integrity of existing native riparian vegetation.
- Re-establish native vegetation, such as willow and cottonwood.
- Implement non-native vegetation control.

Contamination

- Minimize use of herbicides, pesticides, and fertilizer near waterways.

Land Use

- Manage livestock to exclude grazing in the riparian zone or maintain strict grazing rotation to facilitate vegetation recovery.
- Avoid land use practices that result in sedimentation.



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Acknowledgements

Daniel Cammack (Colorado Parks and Wildlife, Gunnison, CO) and John Alves (Colorado Parks and Wildlife, Durango, CO) reviewed an earlier version and provided input on preferred habitat conditions.

Suggested Reading and Citations

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Habitat Scorecard for Rio Grande Chub (v. Nov 2020)

Assessment of habitat before and after restoration or management actions

Project Name: _____ Project Area (acres): _____ Habitat Area (acres): _____

Size of Contiguous Habitat outside Project Area (acres): _____ Ownership (circle): Same / Different / Conservation Easement

Scorecard Instructions: Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. **If condition is outside range or is not described, enter a zero.**

Project Area and Habitat Area: The project area includes the entire area affected by the project. The habitat is the area that will provide (in case of pre-project) or does provide (post-project) habitat for each potential target species within the project area. The habitat area may be the same size as the project area or it might be smaller and it may be defined differently for different target species. If there is contiguous habitat area outside the project area, note the size and whether the ownership of the contiguous areas is the same or different and whether it is under conservation easement or other habitat protection. If the habitat area within your project area is noncontiguous and/or if sections are in very different conditions, consider using multiple scorecards so that each scorecard represents the general conditions. If you use multiple scorecards, identify each habitat area on a map.

Key habitat variable and conditions	Value	Pre-Project	Expected Post-Project	Actual Post-Project
Date of assessment				
Stream feature				
Site has series of pools and riffles	12.7			
Condition can be described between the conditions above and below	8.5			
No well-defined pools and riffles	4.2			
Substrate				
Sand with gravel and/or cobble; sand makes up majority of substrate	12.7			
Sand with gravel and/or cobble; sand does not make up majority of substrate	8.5			
Mostly gravel and/or cobble	4.2			
Cover				
Ample cover in the following categories: instream vegetation, instream woody material, boulders, overhanging vegetation, and undercut banks	12.1			
Sparse cover in the following categories: instream vegetation, instream woody material, boulders, overhanging vegetation, and undercut banks	8.1			
Little to no cover in the following categories: instream vegetation, instream woody material, boulders, overhanging vegetation, and undercut banks	4.0			
Riparian condition				
Riparian area thick with uninterrupted vegetation; livestock fully excluded	11.5			
Riparian area contains patchy vegetation; livestock partially excluded	7.6			
Riparian area contains sparse vegetation and erosive banks; livestock not excluded	3.8			
Landscape context				
Land adjacent to stream is continuously vegetated by primarily native plants and consists mostly of permeable surfaces	11.5			
Land adjacent to stream has a mix of vegetation with some barren areas and/or impermeable surfaces	7.6			
Vegetation is sparse on adjacent land with large areas of impermeable surface	3.8			
Water quality				
No visual evidence of turbidity or pollutants	10.8			
Water is cloudy with localized areas of contamination	7.2			
Water is murky and has oily sheen	3.6			

Continued on next page.

Habitat Scorecard for Rio Grande Chub (v. Nov 2020)

Assessment of habitat before and after restoration or management actions

Rio Grande Chub Scorecard *continued.*

Key habitat variable and conditions	Value	Pre-Project	Expected Post-Project	Actual Post-Project
Stream width				
8–33 feet	10.2			
<8 or >33–75 feet	6.8			
>75 feet	3.4			
Water depth				
10–40 inches	9.6			
>40–70 inches	6.4			
<10 or >70 inches	3.2			
Elevation				
7580–8400 feet	8.9			
>8400 feet	5.9			
<7580 feet	3.0			
Total (of 100 possible): add all numbers in before or after columns				