

Level 4 Potential Conservation Area (PCA) Report

Name Gunnison River

Site Code S.USCOHP*270

IDENTIFIERS

Site ID 1258 Site Class PCA
 Site Alias Gunnison River Macrosite

Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

LOCATORS

Nation United States Latitude 385251N
 State Colorado Longitude 1082541W

<u>Quad Code</u>	<u>Quad Name</u>
38108-F2	Roubideau
38108-G3	Dominguez
38108-G2	Point Creek
38108-H4	Whitewater
38108-F3	Good Point
38108-F1	Delta
38108-G1	North Delta
38107-G8	Orchard City
38107-G7	Lazear
38108-G4	Triangle Mesa
38108-H5	Island Mesa
39108-A4	Clifton
39108-A5	Grand Junction

County

Delta (CO)
 Mesa (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
14020006	Uncompahange
14020005	Lower Gunnison
14020002	Upper Gunnison
14020004	North Fork Gunnison

SITE DESCRIPTION

Minimum Elevation 4,500.00 Feet 1,372.00 Meters
 Maximum Elevation 5,100.00 Feet 1,554.00 Meters

Site Description

The Gunnison River drains all of Delta County, as well as a large part of Gunnison and Montrose counties. The section of the river below the confluence with the Uncompahgre River in Delta has been designated as critical habitat for the endangered Colorado pikeminnow (*Ptychocheilus lucius*) and razorback sucker (*Xyrauchen texanus*). Other fish that have been found in the Gunnison River include the roundtail chub (*Gila robusta*) and the endangered humpback chub (*Gila cypha*). The fish have been much studied, and tremendous effort has been put into their recovery. A fish ladder was constructed at Redlands, near the confluence with the Colorado, to allow upstream migration of fish from the Colorado River, and genetic mixing with the Gunnison River population. Non-native fishes have increased with lowered water levels and threaten the survival of native fish. Of twenty-one species of fish collected in the warm water reaches of the Gunnison River, seven were native and fourteen were non-native. However, the native fish comprised 79% of the total fish collected (Burdick 1995). In a two year study, densities of native fish were higher in a high-water year, while non-natives were denser in a low water year. Increasing spring flows in the river is essential to restore natural floodplain functions, provide habitat for native fish, and control non-native fish. Natural riparian plant associations of the Gunnison are dominated by Rio Grande cottonwood (*Populus deltoides* ssp. *wislizeni*) and coyote willow (*Salix exigua*). Other native species that are common along the river include skunkbrush (*Rhus trilobata*), big sagebrush (*Artemisia tridentata*), greasewood (*Sarcobatus vermiculatus*), rubber rabbitbrush (*Chrysothamnus nauseosus*), spearleaf rabbitbrush (*Chrysothamnus linifolius*), bulrushes (*Schoenoplectus*

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spp.), cattails (*Typha* sp.), spikerush (*Eleocharis* sp.), Baltic rush (*Juncus balticus*), wild licorice (*Glycyrrhiza lepidota*), saltgrass (*Distichlis spicata*), alkali sacaton (*Sporobolus airoides*) and sand dropseed (*Sporobolus cryptandrus*). Much of the river has been highly altered, and cottonwood regeneration is not occurring as it should. Because of diversions for irrigation, much of the floodplain which once periodically flooded is no longer inundated during the spring runoff. Areas that were once covered with dense cottonwood forest have been invaded by non-native species such as tamarisk (*Tamarix ramosissima*), Russian olive (*Elaeagnus angustifolia*), Siberian elm (*Ulmus pumila*), Russian knapweed (*Acroptilon repens*), cheatgrass (*Bromus tectorum*), and reed canarygrass (*Phalaris arundinacea*). When the water table is lowered, tamarisk and Russian olive gain an advantage over native species. Remaining cottonwood groves often have an understory of Russian knapweed and other non-native species. An area a couple miles downstream from Delta had a mature, open cottonwood forest, with concentric bands of younger trees and willows which were established as the river meandered and built up new gravel bars. Undisturbed cottonwood groves are essential for the nesting sites of the Great Blue Heron. Rookeries observed along the Gunnison were in mature cottonwoods just downstream of Confluence Park and Escalante Creek. Soils are derived from alluvium and vary in texture depending on geomorphic position. Organic matter accumulation is minimal except around wetlands and near the banks of sloughs where small O- and thick A-horizons may form. Soils along the Gunnison River are mapped mostly as the Youngston and Glenberg Series. The Youngston is classified as a Fine-loamy, mixed, (calcareous), mesic Typic Torrifluvents. The Youngston consists of deep, well-drained soils that have formed in alluvium on floodplains and alluvial fans (Soil Conservation Service 1978). The Glenberg series is classified as a Coarse-loamy, mixed (calcareous), mesic, Ustic Torrifluvents (Soil Conservation Service 1978). These soils mainly occur on secondary floodplain terraces and thus are more common upstream of the Mesa/Delta county line since the river is restricted in a narrow canyon downstream to Grand Junction and secondary floodplain terraces are not common.

Key Environmental Factors

No Data

Climate Description

Arid semi-desert.

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 12/01/1997

Designer Lyon, M.J.

Boundary Justification

The site boundary encompasses the mainstem of the Gunnison River and its floodplain. The boundaries incorporate an area that will allow natural hydrological processes such as seasonal flooding, sediment deposition, and new channel formation to maintain viable populations of many of the elements. The boundaries also provide a small buffer from nearby agriculture fields, roads, and houses where surface runoff may contribute excess nutrients, sediment, and herbicides/pesticides. The site contains areas where old oxbows, sloughs, and ponds could provide a source of recruitment for native wetland and riparian plant species and provide critical fish habitat. It should be noted that the hydrological processes necessary to the elements are not fully contained by the site boundaries. Given that many of the elements are dependent on natural hydrological processes associated with the Gunnison River, any upstream activities such as water diversions, impoundments, and development could potentially be detrimental to the elements. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 31,546.28 Acres

12,766.38 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

The site includes multiple occurrences of three of the endangered fish of the Colorado River, the razorback sucker, Colorado pikeminnow, and humpback chub. Razorbacks are considered globally critically imperiled (G1). The razorback sucker is listed as endangered by the USFWS and Colorado Division of Wildlife. The razorback sucker is extremely rare in Colorado. Fewer than seventy specimens have been collected since 1979, and these have all been adult fish, which may live for thirty years (Woodling 1985). This suggests that

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reproductive failure is the cause of their decline. Lack of recruitment of young into the population has been attributed to predation by non-native species including catfish and carp. Dams may block access to spawning habitats, change suitable juvenile habitat, block upstream migration, and lower water temperatures. There are confirmed spawning areas in Mesa County at Clifton, and the Colorado River between Grand Junction and Clifton is one of the main concentration areas of the fish. Habitats for the fish include backwaters, eddies, and impoundments. The fish are often associated with sand, mud and rock substrates in areas with sparse aquatic vegetation and moderate to warm temperatures (Sigler and Miller 1963). Colorado pikeminnow are considered globally critically imperiled (G1). The Colorado pikeminnow is listed as endangered by the USFWS and Colorado Division of Wildlife. The Colorado pikeminnow was once an important food and commercial fish, living throughout the Colorado River drainage in mainstream channels, including the Green, Yampa, White, Colorado, Gunnison, Dolores, and Animas rivers. Its current distribution is restricted to the lower reaches of the these rivers, except the Dolores and Animas (Woodling 1985). The decline of the fish is not fully understood. It is thought that dams have restricted spawning migrations, and that lowered water temperatures resulting from cold water releases prevent the development of fertilized eggs. Biotic interactions with other introduced fish species may also have impacted their decline (Woodling 1985). The young pikeminnows prefer small, quiet backwaters. Adults use various habitats, including deep, turbid, strongly flowing water, eddies, runs, flooded bottoms, or backwaters (especially during high flow). Lowlands inundated during spring high flow appear to be important habitats (Tyus and McAda 1984). Efforts for the recovery of the pikeminnow include reintroduction and the construction of fish ladders to facilitate their natural migration (R. Anderson, CDOW, personal communication.). Humpback chub are considered globally critically imperiled (G1). The Humpback chub is listed as endangered by the USFWS and Colorado Division of Wildlife. The humpback chub was historically widely distributed throughout the Colorado River Basin to which it is endemic. Its habitat has been altered by the construction of dams, and today it is found in widely separated river areas in the upper and lower Colorado Basin. Not only is the species rare, but it is threatened by hybridization with the roundtail chub (*Gila robusta*). Reduced river flows allow the round tail chub to successfully inhabit some deepwater areas during low water periods where humpback chubs were previously isolated, resulting in competition and hybridization. Intermediates between the species occur in altered river systems, but not in unaltered rivers, emphasizing the importance of natural riverine environments for the recovery of the species (Tyus and Karp 1989). In addition, this site supports a good (B-ranked) occurrence of the globally vulnerable (G3/S3) Fremont's Cottonwood riparian forest (*Populus deltoides* ssp. *wislizeni* / *Rhus trilobata*) and numerous populations of the Colorado hookless cactus (*Sclerocactus glaucus*), which is listed as Threatened by the U.S. Fish and Wildlife Service. It is the only plant in Mesa County to have federal protection under the Endangered Species Act.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

Tamarisk, Russian olive, reed canary grass, Russian knapweed, Siberian elm are common.

Offsite

No Data

Information Needs

Need updated information on many of the fish occurrences.

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>			
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No

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16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	Yes
19424	<i>Gila cypha</i>	Humpback Chub	G1	S1	Yes
20765	<i>Gila robusta</i>	Roundtail Chub	G3	S2	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
23729	<i>Xyrauchen texanus</i>	Razorback Sucker	G1	S1	Yes
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	Yes
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
20765	<i>Gila robusta</i>	Roundtail Chub	G3	S2	No
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
24600	<i>Populus deltoides</i> ssp. <i>wislizeni</i> / <i>Rhus trilobata</i> Woodland	Fremont's Cottonwood Riparian Forests	G3	S3	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	Yes
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	Yes
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No
21815	<i>Carex pellita</i> Herbaceous Vegetation	Montane Wet Meadows	G3	S3	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
20983	<i>Ptychocheilus lucius</i>	Colorado Pikeminnow	G1	S1	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	Yes
20765	<i>Gila robusta</i>	Roundtail Chub	G3	S2	No
16984	<i>Sclerocactus glaucus</i>	Colorado hookless cactus	G2G3	S2S3	No
18389	<i>Rana pipiens</i>	Northern Leopard Frog	G5	S3	No

REFERENCES

Reference ID	Full Citation
193456	Briggs, M.K. 1996. Riparian Ecosystem Recovery in Arid Lands. Strategies and References. The University of Arizona Press. Tuscon, AZ.
166918	Lyon, P. 1997. Colorado Natural Heritage Program Field Surveys.
198627	Lyon, P. and B. Kuhn. 2010. Rare Plant Survey of Dominguez-Escalante National Conservation Area.
169188	Rocchio, Joe. 2001. Colorado Natural Heritage Program Survey of Critical Wetlands of Mesa County.
163237	Sigler, W. F., and R. R. Miller. 1963. Fishes of Utah. Utah State Department of Fish and Game, Salt Lake City, Utah.
193466	Smith, S.D. and D.A. Devitt. 1996. "Physiological ecology of saltcedar: why is it a successful invader". Presentation at Saltcedar Management and Riparian Restoration Workshop, Las Vegas, NV. September 1996.
160208	Woodling, J. 1985. Colorado's Little Fish: A Guide to the Minnows and Other Lesser Known Fishes in the State of Colorado. Colorado Division of Wildlife, Denver.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date	12/09/2010
Version Author	Kuhn, B. and M.J. Lyon

Disclaimer

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