

Level 4 Potential Conservation Area (PCA) Report

Name San Juan River at Juanita

Site Code S.USCOHP*25832

IDENTIFIERS

Site ID 2273 Site Class PCA
 Site Alias None

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 370221N
 State Colorado Longitude 1071128W

<u>Quad Code</u>	<u>Quad Name</u>
37107-A1	Trujillo
37107-A2	Pagosa Junction

County

Archuleta (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
14080101	Upper San Juan

SITE DESCRIPTION

Minimum Elevation	6,450.00 Feet	1,965.96 Meters
Maximum Elevation	6,800.00 Feet	2,072.64 Meters

Site Description

The San Juan River is a major tributary to the Colorado River in the southwest United States, whose headwaters begin in Mineral and Archuleta counties in Colorado. Within the San Juan River at Juanita site, the river flows 9.5 miles generally east to west, passing through canyon, mesa and foothill topography in the south-central part of Archuleta County. Several miles below the site to the west, the river enters Navajo Reservoir at the state line. The site passes through a patchwork of privately owned properties and Southern Ute Indian Tribal lands. At the upper end, Montezuma Creek feeds into the San Juan River. Montezuma Creek is a small, low-elevation creek flowing east to west down a small valley between a sandstone-outcrop mesa to the north and ponderosa pine - Rocky Mountain juniper - Douglas-fir (*Pinus ponderosa* - *Juniperus scopulorum* - *Pseudotsuga menziesii*) forested hills to the south. Large sandstone boulders dot the canyon, and a window or arch has been carved by wind and water in the sandstone cap of the mesa about midway up the canyon. Montezuma Creek runs intermittently at its headwaters, but it is spring-augmented one mile upstream from its confluence with the San Juan River and flows perennially from that point to the confluence. The community is characterized by open-canopy mature and mid-aged narrowleaf cottonwood (*Populus angustifolia*) intermixed with mid-aged Rocky Mountain juniper and sandbar willow (*Salix exigua*). The herbaceous understory is mostly weedy, with a few native species. Montezuma Creek is confined within an arroyo-like drainage that has steep, highly erosive soils and flashy hydrology, which regularly exposes and deposits bare soil and probably allows for weed establishment. A private dirt road runs mostly high above and parallel to the creek, but is adjacent to the creek near its confluence with the San Juan River. Below this confluence, the San Juan River flows alternately through narrow canyons and broad valleys, and the channel migrates over time within its floodplain, especially in the broader valleys where it is less constricted by topography. The natural flooding regime in this portion of the San Juan River above Navajo Reservoir is intact, with the exception of many small irrigation diversions. The river carries a high bedload of cobble and gravel, depositing these materials on many large islands and point bars. Throughout, a pattern of robust riparian communities fragmented by agricultural activities leapfrogs along the banks of the river. Where present, the riparian communities occur on one or both sides of the San Juan River, dominated by galleries of mature narrowleaf cottonwood and Rocky Mountain juniper above the bankfull level, and often with a dense component of silver buffaloberry (*Shepherdia argentea*) and mixed willows (*Salix* spp.) along the immediate floodplain. Hay grasses such as cheatgrass, smooth brome, and Kentucky bluegrass (*Bromus tectorum*, *Bromus inermis*, and *Poa pratensis*) nearly always dominate the herbaceous understory, along with weedy forbs like musk thistle (*Carduus nutans*), black medic (*Medicago lupulina*), and yellow sweetclover (*Melilotus officinalis*). Where cattle have not grazed regularly or cannot access the riparian zone, the riparian cottonwood - willow - buffaloberry community tends to be more dense and vigorous. Adjacent hillsides along the river have frequent sandstone and shale outcrops, and are dominated by Rocky Mountain juniper, Utah juniper (*Juniperus osteosperma*), Gambel oak (*Quercus gambelii*), skunkbush sumac (*Rhus trilobata*), mountain

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mahogany (*Cercocarpus* spp.), and ponderosa pine. A major unpaved county road parallels the river at various distances from the riverbank. Agriculture and new residential development occurs throughout the river valley, typically fragmenting the riparian zone into large sections. A small population of roundtail chub (*Gila robusta*) occupies a 22-mile stretch of the San Juan River between the small community of Trujillo and Navajo Reservoir, as documented by an electroshocking survey. However, the presence of smallmouth bass (*Micropterus dolomieu*) poses a significant threat to the ongoing viability of this small population.

Key Environmental Factors

The surface geology of the uppermost portion of the site on Montezuma Creek is mapped as Kirtland Shale and Fruitland Formation at the upper end of the creek, Pictured Cliffs Sandstone and Lewis Shale, and Animas Formation proceeding down the creek to its confluence with the San Juan River. The majority of the site on the San Juan River is mapped as Animas Formation containing Arkosic sandstone, shale and conglomerate and with abundant volcanic materials throughout the formation. Beginning just above Pagosa Junction, the lowest two miles of the river within the site are then mapped as Modern Alluvium (Tweto 1979). No soil surveys currently cover this portion of Archuleta County to give an overview of soil types for this report. However, soils tested on site are typically alluvial and highly erosive from sandstone and shale parent material. Soils on the terraces are deep loam, loamy sand, or sandy clay loams, sometimes recently deposited. Within the floodplain, soils will likely be deposited yearly or semi-yearly or scoured with flood or runoff waters. This pattern of flooding disturbance and sediment deposition is essential in supporting a regenerating cottonwood and willow component of the included plant community element occurrences (Carsey et al. 2003). Angular and rounded cobble with gravel paves the riverbed, islands, and point bars, and there are pockets of Mancos shale-derived clay on the floodplain in some locations. Large rock outcrops occurs infrequently, typically on the south bank of the river.

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 01/07/2006

Designer Freeman, K.M.

Boundary Justification

The boundary incorporates an area that will allow natural hydrological processes such as seasonal flooding, channel migration, and sediment deposition to continue, and to maintain viable populations of the riparian communities along the San Juan River and Montezuma Creek. The broad floodplain and the steep slopes adjacent to the occurrence that would most likely impact the riparian zone if altered are also included. The boundary also reflects an approximate 1,000 foot buffer on the San Juan River and a 500 foot buffer on Montezuma Creek, which includes nearby roads, houses, and hay meadows where surface runoff may contribute excess nutrients, sediment (Karr and Schlosser 1978), and weed invasion. It should be noted that all the hydrological processes necessary to support the riparian communities and the fish population are not fully contained by the site boundaries. Given that the riparian communities are dependent on natural hydrological processes associated with the river and its tributaries, upstream activities such as water diversions and impoundments, improper livestock grazing, logging, and development are detrimental to the hydrology of the riparian area. Although this site was not designed for the roundtail chub (*Gila robusta*) occurrence, these riparian communities also may provide adequate riparian vegetation for cover and possible prey (insect) needs for the fish habitat, though this may not be sufficient to ensure the persistence of the population. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 1,767.51 Acres

715.29 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site supports three fair (C-ranked) occurrences of the globally imperiled to vulnerable (G2G3/S2S3) narrowleaf cottonwood - Rocky Mountain juniper (*Populus angustifolia* - *Juniperus scopulorum*) montane riparian forest. This plant association is characterized by an open canopy of cottonwood and a subcanopy of

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juniper, frequently with a sparse understory. This community is often found on the terraces and islands within broad meandering floodplains of lower elevation rivers. The site also supports a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) narrowleaf cottonwood / strapleaf willow - silver buffaloberry (*Populus angustifolia* / *Salix ligulifolia* - *Shepherdia argentea*) riparian forest. This occurrence is common on the terraces of alluvial floodplains in broad, low-elevation river valleys, and is found within Colorado in western and southwestern counties. As of 2005, several known occurrences are within Archuleta County along the Piedra River and the San Juan River.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

Residential housing and agricultural development in the form of irrigated pastures, hay meadows, and livestock grazing are the most common land uses. Fishing access points occur along the SUIT lands. Irrigation diversions are common, and adjacent upland terraces are commonly irrigated for hay meadows or irrigated pasture. Scattered residences as well as clustered residential areas also occur. Small communities occur at Juanita and at Pagosa Junction, with associated residential and community buildings, as well as numerous sizes and types of outbuildings. An old railroad grade parallels the river through the lower 1/3 of the site, and Trujillo Road (County Road 500), a maintained gravel road, parallels the San Juan River. River rafting trips float through this stretch of river, but typically do not disembark within the riparian zone during their trips.

Natural Hazard Comments

No Data

Exotics Comments

Several locations along the San Juan River have small stands of saltcedar (*Tamarix ramosissima*) or Russian olive (*Elaeagnus angustifolia*), and taking immediate steps to eradicate these very invasive, quickly spreading species is essential to prevent further spread of the species. Unfortunately, larger populations of both saltcedar and Russian olive are known to occur downstream at Navajo Reservoir, but eradication would benefit the community occurrences and prevent further spread. At the upper end of the site on Montezuma Creek, the understory is mostly weedy, presumably due to the flashy hydrology and erosive soils that constantly present ideal bare soil conditions for weed establishment. In addition, the riparian communities along the San Juan River typically exhibit an herbaceous layer that is quite weedy and lacks native species due to the many years of grazing pressure and agricultural development. Typical weeds found within the understory include but are not limited to: cheatgrass (*Bromus tectorum*), redtop (*Agrostis gigantea*), Kentucky bluegrass (*Poa pratensis*), musk thistle (*Carduus nutans*), black medic (*Medicago lupulina*), yellow sweetclover (*Melilotus officinalis*), white sweetclover (*Melilotus alba*), common dandelion (*Taraxacum officinale*), rough cocklebur (*Xanthium strumarium*), and common sunflower (*Helianthus annuus*). In addition, smallmouth bass (*Micropterus dolomieu*) have been identified as a potential predatory species for the roundtail chub within the river (Japhet 2003).

Offsite

No Data

Information Needs

This area could serve as excellent restoration projects focusing on maintenance of native riparian shrub cover and eradication of noxious weeds and non-native grasses. Landowners may benefit from restoration assistance programs provided by the Colorado Division of Wildlife-sponsored Southwest Wetlands Focus Group, or the Natural Resources Conservation Service (NRCS).

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24496	<i>Populus angustifolia</i> / <i>Salix ligulifolia</i> - <i>Shepherdia argentea</i> Woodland	Narrowleaf Cottonwood Riparian Forests	G3	S3	No
24963	<i>Populus angustifolia</i> - <i>Juniperus scopulorum</i> Woodland	Montane Riparian Forest	G2G3	S2S3	Yes
24963	<i>Populus angustifolia</i> - <i>Juniperus scopulorum</i> Woodland	Montane Riparian Forest	G2G3	S2S3	Yes
24963	<i>Populus angustifolia</i> - <i>Juniperus scopulorum</i> Woodland	Montane Riparian Forest	G2G3	S2S3	Yes

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REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
160903	Carsey, K., D. Cooper, K. Decker, D. Culver, and G. Kittel. 2003. Statewide wetlands classification and characterization: Wetland plant associations of Colorado. Prepared for Colorado Department of Natural Resources, Denver, CO by Colorado Natural Heritage Program, Fort Collins, CO.
193633	Freeman, K.M., March, M.A. and D.R. Culver. 2006. Final Report: Survey of Critical Wetlands and Riparian Areas in Archuleta County. Colorado Natural Heritage Program, Fort Collins, CO.
172808	J. R. Karr and I. J. Schlosser. 1978. Water resources and the land-water interface. Science 201: 229-234.
169400	Japhet, M. 2003. Archuleta County Biological Inventory. Personal communication to J. Sovell of the Colorado Natural Heritage Program.
193578	NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.6. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer . (Accessed: December 8, 2005).
193555	State of Colorado, Department of Agriculture. No date. State Conservation Board Noxious Weed Program: Archuleta County. << http://www.ag.state.co.us/CSD/Weeds/mapping/counties/Archuleta.html >> Accessed 7 Nov 2005.
192747	Tweto, O. 1979. Geologic Map of Colorado, 1:500,000. United States Geological Survey, Department of Interior, and Geologic Survey of Colorado, Denver, CO.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 01/07/2006

Version Author Freeman, K.M.

Disclaimer

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