

Level 4 Potential Conservation Area (PCA) Report

Name Indian Creek at Piedra River

Site Code S.USCOHP*9326

IDENTIFIERS

Site ID 708 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 371754N
State Colorado Longitude 1072056W

<u>Quad Code</u>	<u>Quad Name</u>
37107-C3	Devil Mountain
37107-C4	Baldy Mountain

County

Archuleta (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
14080102	Piedra

SITE DESCRIPTION

Minimum Elevation	6,750.00 Feet	2,057.40 Meters
Maximum Elevation	7,400.00 Feet	2,255.52 Meters

Site Description

The Indian Creek at Piedra River site is situated in the northwest part of Archuleta County along a moderately sinuous reach of the Piedra River, below First Box Canyon and at the confluence of the river and Indian Creek. The site is mostly within the San Juan National Forest and the congressionally designated, managed-as-wilderness Piedra Area, but also extends south into a privately owned parcel. The Piedra River here is in a narrow, deep, shaded valley with side slopes dropping over 600 feet from steep ridges. Some areas along the Piedra River have no riparian vegetation due to the sheer rock walls with no bank or floodplain. Where a floodplain has room to form, it is dominated by either a dense cover of blue spruce (*Picea pungens*) and thinleaf alder (*Alnus incana*), or by mixed riparian shrubs including red-osier dogwood (*Cornus sericea*). The riverbed contains large boulders as well as transported alluvium, which forms islands and cobble bars that are scoured annually by seasonal flooding and are typically dominated by sandbar willow (*Salix exigua*) with a high percentage of unvegetated surface, or a mixture of native and weedy species. There are scattered narrowleaf cottonwood (*Populus angustifolia*) and boxelder (*Acer negundo* var. *interius*) along the banks of the river. Indian Creek is a tributary to the Piedra River and is a relatively long creek that is fed by springs and runoff, and starts in mountain meadows below Baldy Mountain and flows within a steep, cool V-shaped valley to its confluence with the Piedra River. There are several seeps and springs discharging from adjacent hill slopes, draining into Indian Creek and the Piedra River. Large boulders are strewn along the banks of Indian Creek, and the channel is comprised mostly of angular cobble and gravel, with coarse sands deposited in pockets. The vegetation along Indian Creek is characterized by a sparse overstory canopy of mixed conifers, a dense and vigorous shrub component and a sparse herbaceous layer. The shrub layer is dominated by thinleaf alder and red-osier dogwood. Associated shrubs in moderate canopy cover include bluestem willow (*Salix irrorata*), strapleaf willow (*Salix ligulifolia*), Rocky Mountain maple (*Acer glabrum*) and sandbar willow (mostly occurring at the confluence with the Piedra River). There are scattered mature boxelder and narrowleaf cottonwood throughout Indian Creek. Forbs occurring in the understory include red baneberry (*Actaea rubra* ssp. *arguta*), limestone swamp bedstraw (*Galium brevipes*) and cutleaf coneflower (*Rudbeckia laciniata* var. *ampla*). Upland forests surrounding both Indian Creek and the Piedra River are dominated by ponderosa pine (*Pinus ponderosa*) and spruce - fir - Douglas-fir (*Picea* spp. - *Abies concolor* - *Pseudotsuga menziesii*) forests. The multiple locations of cold and hot springs, contiguous riparian vegetation, and variety of healthy upland plant communities provide a diverse habitat for wildlife, such as deer, elk, coyote, and bear, and various song birds, birds of prey, small mammals and fish can readily be seen. Within Indian Creek itself, trout fingerlings hatch and grow in pools along the lower reaches. The general area is a popular destination for recreation including hiking, fishing, rafting, hot spring soaking, hunting and horse use. Impacts such as weed invasion and erosion tend to be localized near campgrounds, dispersed campsites, trailheads, and trails. There is an irrigation diversion along the Piedra River within the site that apparently services the private land downstream, but doesn't appear active. Near the east boundary is Sheep Creek Trailhead, where

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a popular trail travels down a steep hillside and to a disabled footbridge closed by the USFS. Across the river, a trail runs upstream along the river and up Indian Creek, but due to the inaccessible bridge, it does not get a high amount of usage.

Key Environmental Factors

This reach of the Piedra is in a very deep and narrow canyon with steep, rocky canyon walls in places, and steep, forested slopes in others. Here, the Piedra River and its tributary streams at their confluence with the river are within the Rico/Hermosa Formation, which is comprised of arkosic sandstone, conglomerate, shale and limestone (Tweto 1979). Soils along the Piedra River and Indian Creek are mapped as a mix of Chris gravelly loam and Chris stony loam on steep (25%-65%) slopes, typically formed from sandstone-derived alluvium, as well as Carracas loam on steep (25%-65%) slopes, which is typically formed from shale and sandstone parent materials (USDA 1981). Soils within the riparian zone are alluvial, including large boulders and cobble with gravelly or sandy deposits. The soils on terraces vary, but are typically more developed.

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 10/05/2005

Designer March, M.A.

Boundary Justification

The boundary encompasses the occurrence and an approximate 1,000 foot buffer. Eliminating disturbances within this buffer would aid in reducing impacts from sedimentation (Karr and Schlosser 1978), and assist in maintaining the integrity of the occurrence and its associated avian, macroinvertebrate and periphyton communities (Noel et al. 1986, Spackman and Hughes 1995). The boundary also identifies a buffer including trails and an irrigation ditch where direct disturbance and impacts from recreation or ditch use may contribute to excessive nutrients, sediment, and weed invasion. The boundary incorporates an area that will allow natural hydrologic processes such as seasonal flooding, sediment deposition, and new channel formation to maintain viable populations of the plant community along Indian Creek and the Piedra River. It should be noted that the natural hydrological processes necessary to maintain and support the montane riparian shrubland occurrence are not fully contained by the site boundary. Given that the communities are dependent on natural hydrologic processes associated with Indian Creek and the Piedra River, upstream activities such as water diversions, impoundments, and improper livestock grazing are detrimental to maintaining the supporting hydrology of the riparian areas. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 832.77 Acres

337.01 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

The site supports a good (B-ranked) occurrence of thinleaf alder - red-osier dogwood (*Alnus incana* - *Cornus sericea*) riparian shrubland that is globally vulnerable (G3G4/S3). This riparian plant association is widely spread throughout the western U.S., and in Colorado it is an uncommon association restricted to small tributaries and narrow, constricted reaches of larger rivers. It is a long-lived early-seral stage community that requires a high early season water table and can withstand seasonal flooding (Carsey et al. 2003).

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

Plenty of western poison ivy (*Toxicodendron rydbergii*) occurs along the trails and hillsides all along both sides

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of the Piedra River. The only footbridge across the river in this area is disabled and has been closed by the USFS; fording the river is the only option for accessing the west shore within the site, and even at low flow the river can be knee- or thigh-deep and fast moving.

Exotics Comments

Exotic and invasive flora currently do not pose a large problem; however, the high level of recreational use (including horseback riding and packing) along the Piedra River threatens to introduce exotic species at the dispersed camping areas and along the trails system, including the trail along Indian Creek. Encouragement and enforcement of the use of certified weed seed free feed for horse users would benefit the ongoing viability and quality of the element occurrence by reducing the risk of introduction of exotic species.

Offsite

A natural hot spring immediately upriver draws a lot of foot traffic along an unmarked trail that passes through the site. A dispersed camping area along the Piedra River adjacent to the hot spring also sees heavy use. Both the trail and the camping area are vectors for the spread of invasive species, and contribute to erosion and soil compaction.

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
24773	<i>Alnus incana</i> / <i>Cornus sericea</i> Shrubland	Thinleaf Alder-Red-osier Dogwood Riparian Shrubland	G3G4	S3	Yes

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.
172808	J. R. Karr and I. J. Schlosser. 1978. Water resources and the land-water interface. <i>Science</i> 201: 229-234.
165959	Noel, D.S., C.W. Martin and C.A. Federer. 1986. Effects of Forest Clearcutting in New England on Stream Macroinvertebrates and Periphyton. <i>Environmental Management</i> 10: 661-670.
170844	Randolph, D., Smith, Kettler, Redders, Roy, and Aitken. 1994. San Juan National Forest Riparian Site Survey.
193472	Sovell, J., P. Lyon, and L. Grunau. 2003. Final Report: Upper San Juan Biological Assessment. Colorado Natural Heritage Program, Fort Collins, CO.
159511	Spackman, S. C. and J. W. Hughes. 1995. Assessment of Minimum Stream Corridor Width for Biological Conservation: Species Richness and Distribution Along Mid-Order Streams in Vermont, USA. <i>Biological Conservation</i> 71:325-332.
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.
193559	U.S. Public Law 103-77. 103rd Congress, 1st session, 05 January 1993. Colorado Wilderness Act of 1993. << http://www.wilderness.net/NWPS/documents/publiclaws/103-77.pdf >>. Accessed 9 Nov 2005.
193554	USDA, NRCS. 2002. Orthophoto Mosaic for Archuleta County, CO. USDA-NRCS, National Cartography and Geospatial Center, Geospatial Data Branch, Fort Worth, TX.
193553	USDA, NRCS. 2005. The PLANTS Database, Version 3.5 (http://plants.usda.gov). Data compiled from various sources by Mark W. Skinner. National Plant Data Center < http://npdc.usda.gov/ >, Baton Rouge, LA 70874-4490 USA. Accessed 2005.
193423	USDA, SCS. 1981. Soil Survey of Piedra Area, Colorado; Parts of Archuleta, Hinsdale, La Plata, Mineral, and Rio Grande Counties. In cooperation with the United States Forest Service and the Colorado Agricultural Experiment Station.

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ADDITIONAL TOPICS

Additional Topics

Original site design by Kettler, S.M. 1997-05-23.

VERSION

Version Date 10/05/2005

Version Author March, M.A.

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