

Level 4 Potential Conservation Area (PCA) Report

Name Cottonwood Creek-Western Sangres

Site Code S.USCOHP*10840

IDENTIFIERS

Site ID 778 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>
1956	S.USCOHP*5778	Sangre de Cristo

LOCATORS

Nation United States Latitude 375604N
 State Colorado Longitude 1053831W

<u>Quad Code</u>	<u>Quad Name</u>
37105-H6	Crestone
37105-H5	Crestone Peak

County

Saguache (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
13010003	San Luis

SITE DESCRIPTION

Minimum Elevation	7,700.00 Feet	2,346.96 Meters
Maximum Elevation	11,320.00 Feet	3,450.34 Meters

Site Description

This site starts at the base of the Sangre de Cristo Mountains where Cottonwood Creek begins to flow into the San Luis Valley. As the slope becomes more gradual at about 8,100 feet (2,470 m), in the lower montane riparian zone, the creek becomes a lower gradient more meandering stream and this change in geomorphology results in the occurrence of a narrowleaf cottonwood (*Populus angustifolia*) and Rocky Mountain juniper (*Juniperus scopulorum*) woodland. This mature community seems to be undergoing some regeneration of cottonwood, particularly within areas where the recent drought has resulted in cottonwood die-off. However, very few young juniper are present. Although the regeneration of native saplings and seedlings is less than expected, cover of native plants is extensive. Further upstream in the montane zone, there is an occurrence of a Douglas-fir (*Pseudotsuga menziesii*) and water birch (*Betula occidentalis*) riparian woodland along the creek. This community is located at the entrance to a moderately wide canyon with granite walls and it is in pristine condition without nonnative species. The only threat appears to be recreational use, mainly hiking. The lowest elevations demarcate the point at which the juniper ceases to remain a part of the riparian community. The landscape adjacent to the occurrence includes pinon pine (*Pinus edulis*) and Rocky Mountain juniper (*Juniperus scopulorum*) in the middle third of the site and at higher elevations it grades into a mixed montane forest. At the lowest elevations the adjacent upland is comprised of grassland that includes western wheatgrass (*Pascopyrum smithii*), muhly (*Muhlenbergia* sp.), and blue grama (*Bouteloua gracilis*). There are patches of rubber rabbitbrush (*Ericameria nauseosa*) scattered within this grassland at the edges of the riparian woodland. Upstream, the subalpine zone is a mixed conifer and deciduous forest and shrubland that includes Douglas-fir (*Pseudotsuga menziesii*), white fir (*Abies concolor*), blue spruce (*Picea pungens*), Engelmann spruce (*Picea engelmannii*), aspen (*Populus tremuloides*), water birch (*Betula occidentalis*), Rocky Mountain maple (*Acer glabrum*), and mountain spray (*Holodiscus dumosus*). The current condition of the riparian woodland is good, but it is within the Baca Grande subdivision and the potential for disturbance from increased residential development is high, which could increase sedimentation in the creek and fragmentation of the riparian corridor. Also, nutrient enrichment within the creek from septic systems has the potential to increase with additional development, and enrichment may already be causing algal blooms as evidenced by the abundant algae observed in the creek. In addition, increasing water demand associated with development will require more diversion of surface and groundwater, which will impact the hydrology of the riparian woodland as well as downstream wetlands on the Baca NWR. Such development would stress water resources, fragment the riparian community, and increase sediment and nutrient enrichment from erosion and septic systems leaching into the creek. Water is already being drawn from two pumping stations on the creek and an increasing human population on the Baca Grande will add additional stress to the system. There are no reservoirs in the drainage upstream of the occurrence, however, there is one diversion present on the stream. The natural flood regime appears intact, but the bank stability is compromised where three roads bisect the creek. In other areas the streambank is covered by stabilizing plant species. The soils within are

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defined by the sandsheet that underlies the eastern portion of the San Luis Valley and which formed from the prevailing southwest winds that blow across the valley. Consequently, soils include sandy loams and loamy sand.

Key Environmental Factors

No Data

Climate Description

Annual precipitation ranges from 6-20 inches (15-50 cm). Most of the annual precipitation (60 to 70 percent) falls during the growing season from May through September. Mean temperatures during July (the hottest month) are highs of 80° F (27° C) and lows of 50° F (10° C), while January (the coldest month), experiences mean highs of 35° F (2° C) and lows of 10° F (-12° C).

Land Use History

The property was under the control of numerous owners from 1860 to 1971, a period in which it was a cattle ranch with a championship cattle rearing operation. In 1971 the Baca Grande was established as a resort/retirement development, but it has grown slowly. The last few years have seen an increase in development on the Baca as its remote mountain location has attracted a diverse community of people including retirees, second home buyers, and younger people attracted to the spiritual and environmental education organizations that have settled in the area. This is an unusually diverse demographic endeavor to create a sustainable development that is environmentally friendly with principles of land stewardship that will identify and preserve priority natural resources.

Cultural Features

No Data

SITE DESIGN

Site Map P - Partial

Mapped Date 05/19/2006

Designer Sovell, J.R.

Boundary Justification

The boundary was developed primarily using distribution information from field surveys identifying the extent of the narrowleaf cottonwood - Rocky Mountain juniper (*Populus angustifolia* - *Juniperus scopulorum*) woodland. The site includes the length of Cottonwood Creek, buffered by 656 feet (200 m) on each side, from the lowest point of the cottonwood - juniper woodland to an area upstream where the Sangre de Cristo Mountains begin their ascent from the valley floor. The buffer and length of the site will protect the floodplain and the sources of both surface and groundwater recharge and flow, which are responsible for supplying water to the riparian plant community. This boundary will also protect the upstream slopes from disturbances such as logging or development that would increase surface water runoff and erosion and protect the adjacent uplands from residential development and consequent effects to the stream corridor such as leaching of organic nutrients from septic systems and increased erosion and sedimentation caused by surface disturbances.

Primary Area 971.14 Acres

393.01 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

This site supports a good (B-ranked) occurrence of a globally imperiled (G2G3/S2S3) narrowleaf cottonwood - Rocky Mountain juniper plant community, *Populus angustifolia* - *Juniperus scopulorum* forest, and an excellent (A-ranked) occurrence of a globally vulnerable (G3?/S3) Douglas fir - water birch plant community, *Pseudotsuga menziesii* / *Betula occidentalis* forest.

Other Values Rank V2 - High values

Other Values Comments

The boundaries follow the riparian zone, floodplain, and some upland habitats of the middle third of Cottonwood Creek. Some of the water in the wetlands of the Baca NWR, which is west of the Baca Grande, is supplied by Cottonwood Creek. The health, viability, and water quality of the reserve's wetlands are dependent upon the six creeks supplying their water, and on the activities that occur along those creeks from their source, in the Sangre de Cristo Mountains, to their terminus on the reserve. Protection of the riparian corridor along Cottonwood Creek will help in maintaining the water quality of the wetlands on the Baca NWR.

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LAND MANAGEMENT ISSUES

Land Use Comments

Areas within the Baca Grande are proposed for residential development.

Natural Hazard Comments

No Data

Exotics Comments

Scattered within are patches of grassland dominated by Kentucky bluegrass (*Poa pratensis*) and smooth brome (*Bromus inermis*). Canada thistle (*Cirsium arvense*) is also present.

Offsite

To the south of the site is Great Sand Dunes National Park, to the north and west is the Baca Grande development, and to the east is national forest.

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global</u>	<u>State</u>	<u>Driving</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Rank</u>	<u>Rank</u>	<u>Site Rank</u>
24962	<i>Pseudotsuga menziesii</i> / <i>Betula occidentalis</i> Woodland	Montane Riparian Forest	G3?	S3	No
24963	<i>Populus angustifolia</i> - <i>Juniperus scopulorum</i> Woodland	Montane Riparian Forest	G2G3	S2S3	Yes

REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
194342	Sovell, J.R. 2006. Final Report: Baca Grande Biological Assessment. Colorado Natural Heritage Program, Fort Collins, CO.

ADDITIONAL TOPICS

Additional Topics

Original site design by Kittel, G.M. 1998-02-14.

VERSION

Version Date	05/19/2006
Version Author	Sovell, J.R.

Disclaimer

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