

Level 4 Potential Conservation Area (PCA) Report

Name Willow Creek-Western Sangres

Site Code S.USCOHP*26415

IDENTIFIERS

Site ID 2364 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 375833N
 State Colorado Longitude 1053932W

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

County

Saguache (CO)

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

SITE DESCRIPTION

Minimum Elevation	7,740.00 Feet	2,359.15 Meters
Maximum Elevation	11,480.00 Feet	3,499.10 Meters

Site Description

This site starts at the base of the Sangre de Cristo Mountains where Willow Creek begins to flow into the San Luis Valley. As the slope becomes more gradual at about 8,120 feet (2,475 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. Although the regeneration of native saplings and seedlings is less than expected, cover of native plants is extensive. 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-juniper (*Pinus edulis* - *Juniperus* sp.) 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*), Rocky Mountain maple (*Acer glabrum*), and mountain spray (*Holodiscus dumosus*). There is some pinon pine (*Pinus edulis*) and ponderosa pine (*Pinus ponderosa*) at this elevation. The herbaceous understory within the cottonwood - juniper woodland is comprised of grasses, sedges, and forbs. The nonnative Kentucky blue grass (*Poa pratensis*) is common both in the uplands surrounding the site and within the understory of the riparian woodland. The current condition of the riparian woodland is fair, 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, increased water demand to support the human population resulting from development will require more diversion of surface and groundwater and would impact the hydrology of the riparian woodland as well as downstream wetlands on the Baca NWR. There are no reservoirs in the drainage upstream of the site, nor are there any diversions present on the stream. The natural flood regime appears intact, but stability of the streambank is compromised in spots where a horse stable intercepts the creek and where three roads cross the creek, all of which breaks the continuity of the riparian corridor. In other areas the streambank is covered by stabilizing plant species. The soils are defined by the sandsheet that underlies the eastern portion of the San Luis Valley and which formed from the prevailing southwest winds blowing across the valley. Consequently, soils include sandy loams and loamy sand.

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Key Environmental Factors

Seasonal flooding of the floodplain along the riparian corridor is important to the viability of the riparian woodland. Alteration in the patterns of natural stream and groundwater flows from water diversion projects, ground water pumping and the construction of dams will reduce ground water recharge, lower the water table and eventually reduce water available to riparian vegetation. Ultimately this will compromise the integrity of the riparian plant community.

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 over 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 residential development on the Baca as its remote mountain location has attracted a diverse community of peoples 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 Y - Yes Mapped Date 05/11/2006
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. It includes the length of Willow 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 area directly adjacent to the riparian community from development and disturbances such as leaching of organic nutrients into the stream corridor from septic systems and increased erosion and sedimentation caused by surface disturbances.

Primary Area 1,117.64 Acres 452.30 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site supports a fair (C-ranked) occurrence of a globally imperiled (G2G3/S2S3) narrowleaf cottonwood - Rocky Mountain juniper plant community, *Populus angustifolia* - *Juniperus scopulorum* woodland.

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 Willow Creek. The waters of this creek assist with recharging the wetlands of the Baca NWR, which borders the Baca on its western boundary. 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 Willow Creek will help in maintaining the quality of the wetlands on the Baca NWR.

LAND MANAGEMENT ISSUES

Land Use Comments

Areas within the Baca Grande are proposed for residential development; however, some of the parcels have

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been consolidated into a community park.

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Natural Hazard Comments

No Data

Exotics Comments

There are scattered patches of grass dominated by Kentucky bluegrass (*Poa pratensis*).

Offsite

The areas surrounding the site outside of the Baca Grande to the south and west are protected either within the Great Sand Dunes National Park or the Baca NWR. The area to the north is ranchland with an active livestock operation.

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>
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

No Data

VERSION

Version Date	05/11/2006
Version Author	Sovell, J.R.

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