

Level 4 Potential Conservation Area (PCA) Report

Name Sangre de Cristo Creek

Site Code S.USCOHP*24977

IDENTIFIERS

Site ID 2146 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 372940N
State Colorado Longitude 1051959W

Quad Code Quad Name

37105-D4 Fort Garland
37105-D3 Trinchera Ranch
37105-E3 Russell

County

Costilla (CO)

Watershed Code Watershed Name

13010002 Alamosa-Trinchera

SITE DESCRIPTION

| | | |
|-------------------|---------------|-----------------|
| Minimum Elevation | 7,800.00 Feet | 2,377.44 Meters |
| Maximum Elevation | 8,200.00 Feet | 2,499.36 Meters |

Site Description

This site encompasses a portion of Sangre de Cristo Creek near the town of Fort Garland. This reach of Sangre de Cristo Creek has a moderately wide floodplain and is very sinuous. Near the upstream extent of the site, the floodplain narrows. Although bounded by railroad tracks, bridges, etc., this occurrence is wider than those seen on lower reaches where agriculture is constricting vegetation to very narrow stands. Much of the creek and old channels are dominated by a dense stand of strapleaf willow (*Salix ligulifolia*) and sandbar willow (*S. exigua*). Other species present in these stands include red-osier dogwood (*Cornus sericea*), river birch (*Betula occidentalis*), slimstem reedgrass (*Calamagrostis stricta*), and false Solomon's seal (*Maianthemum stellatum*). To a much lesser extent, stands of sandbar willow and wild licorice (*Glycyrrhiza lepidota*) and numerous mesic forbs are also prevalent. Narrowleaf cottonwood (*Populus angustifolia*) is occasionally present along the creek. Some non-native species and native increasers are present throughout the riparian area. The uplands are dominated by rabbitbrush (*Chrysothamnus nauseosus*) and sagebrush (*Artemisia* sp.). Surrounding hilltops are covered with pinyon-juniper woodlands. Pocket gopher mounds are common. Much of the immediate watershed is scattered with homes. A county park is nearby as well as many roads. Hwy. 160 parallels the creek through the entire site. The site appears to have been disturbed in the past, but is now exhibiting luxurious growth. Sangre de Cristo Creek supports a fair, genetically pure, historic (native) population of the Rio Grande cutthroat trout (*Oncorhynchus clarki virginalis*) (Harig and Fausch 1996; Alves 1998). Alves (2004) estimates that there are approximately 275 fish/acre in the creek. The population is at risk because of low population numbers (biomass) and competition with brook trout (*Salvelinus fontinalis*) (Alves 2004; Alves 1998). Harig and Fausch (1996) note that rainbow trout (*Oncorhynchus mykiss*) were previously stocked in the stream.

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes Mapped Date 05/04/2004
Designer Rocchio, F.J.

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Boundary Justification

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 the elements along Sangre de Cristo Creek. The boundaries also provide a small buffer from nearby trails where surface runoff may contribute excess nutrients and sediment. It should be noted that the hydrological processes necessary to the elements are not fully contained by the site boundaries. Given that the elements are dependent on natural hydrological processes associated with the Sangre de Cristo Creek and its tributaries, upstream activities such as water diversions, impoundments, and improper livestock grazing are detrimental to the hydrology of the riparian area. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 5,597.21 Acres 2,265.12 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) natural community and a fair (C-ranked) occurrence of a globally vulnerable (G4T3/S3) fish subspecies. The globally imperiled montane willow carr (*Salix ligulifolia*) is only known from Colorado, but it is expected to occur in New Mexico. The association is a medium- to tall-willow shrubland occurring on saturated floodplains and streambanks of montane elevations. It occurs in moderately wide valleys along low terraces and floodplains, streambanks of narrower streams, below active beaver ponds where multiple channels create vegetated islands, along slightly sinuous, broad channels, and along more sinuous channels with well developed floodplains. Strapleaf willow is highly palatable to livestock; therefore, season-long grazing, especially late summer and early fall browsing, should be avoided in order to maintain the vigor of woody species (Hansen et al. 1995). Overuse by livestock may cause the site to dry and become dominated by introduced grass species such as Kentucky bluegrass (*Poa pratensis*) or smooth brome (*Bromus inermis*) (Manning and Padgett 1995). With continued overuse, the willow species will decline and eventually become eliminated from the site (Hansen et al. 1995). Beaver are important in maintaining this plant association. Beaver dams raise the water table, which is beneficial to willow and sedge species as well as other hydrophytic plants. Beaver dams also help control bank erosion, channel downcutting, and the loss of sediment downstream (Hansen et al. 1995). The Rio Grande cutthroat trout's range once included the entire Rio Grande and Pecos River watersheds, and possibly the upper Canadian River as well (Trotter 1987). In Colorado, the species occupies less than 1% of its former range (Alves 1996), and wild, genetically pure stock populations are especially imperiled. Artificial habitat including wells, farm ponds, and extensive canal systems as well as human activities including dewatering, fishing and stocking, transbasin diversions, release of domestic sewage, stream channelization, and agricultural chemical applications have greatly modified the original aquatic ecosystem of the San Luis Valley (Zuckerman 1984). These modifications may have contributed directly to the decline in range of the native fishes of the Rio Grande drainage. Free-flowing streams with good quality water, healthy banks, and streamside vegetation within the upper Rio Grande watershed are vital habitat for this subspecies of trout.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

[Rocchio 2004:] The County park is used recreationally, mostly by horse riders.

Natural Hazard Comments

No Data

Exotics Comments

[Rocchio 2004:] Native plant increasers are prevalent and should be monitored as they may indicate a need to implement and or shift management.

Offsite

No Data

Information Needs

No Data

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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> |
| 24155 | <i>Salix ligulifolia</i> Shrubland | Montane Willow Carr | G2G3 | S2S3 | Yes |
| 20205 | <i>Oncorhynchus clarkii virginalis</i> | Rio Grande Cutthroat Trout | G4T3 | S3 | No |

REFERENCES

| <u>Reference ID</u> | <u>Full Citation</u> |
|---------------------|--|
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| 184652 | Alves, J.A. 1996. Fisheries Inventories: Rio Grande River Basin. Unpublished Report to Colorado Department of Natural Resources-Division of Wildlife. Denver, CO 152 pp. |
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| 167028 | Hansen, P. L., R. D. Pfister, K. Boggs, B. J. Cook, J. Joy, and D. K. Hinckley. 1995. Classification and management of Montana's riparian and wetland sites. Montana Forest and Conservation Experiment Station Miscellaneous Publication No. 54. The University of Montana, Missoula, MT. |
| 173155 | Harig, A. L. and K. D. Fausch. 1996. Compilation of data on Colorado waters containing Rio Grande cutthroat trout. Report to Colorado Division of Wildlife. MOU Project No. 904-906. |
| 165556 | Manning, Mary E., and Wayne G. Padgett. 1995. Riparian Community Type Classification for Humboldt and Toiyabe National Forests, Nevada and Eastern California. United States Department of Agriculture, Forest Service, Intermountain Region. 306 pages. |
| 184706 | Rocchio, J. 2004. Final Report: Survey of Critical Wetlands and Riparian Areas in Southern Alamosa and Costilla Counties, San Luis Valley, Colorado. Colorado Natural Heritage Program, Fort Collins, CO. |
| 171604 | Trotter, P. C. 1987. Cutthroat: native trout of the west. Colorado Associated Univ. Press, Boulder. 219 pp. |
| 168150 | Zuckerman, Larry. 1984. Rio Grande fishes management. Annual report. July 1983 to June 1984. |

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

| | |
|-----------------------|---------------|
| Version Date | 05/04/2004 |
| Version Author | Rocchio, F.J. |

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