Level 4 Potential Conservation Area (PCA) Report

Name Cement Creek **Site Code** S.USCOHP*23640

IDENTIFIERS

Site ID 799 **Site Class** PCA

Site Alias None

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

LOCATORS

Nation United States **Latitude** 385041N

State Colorado **Longitude** 1064836W

Quad Code	Quad Name
38106-G7	Cement Mountain
38106-H7	Pearl Pass

County

Gunnison (CO)

Watershed Code	Watershed Name
14020001	East-Taylor

SITE DESCRIPTION

Minimum Elevation	9,400.00	**Feet**	2,865.00	**Meters**
Maximum Elevation	12,172.00	**Feet**	3,710.00	**Meters**

Site Description

This site sits in a moderately large valley. Just downstream of the site, Cement Creek has carved a narrow, box canyon before entering a steep V-shaped valley prior to its confluence with the East River near Crested Butte South. The upland slopes are steep and sparsely vegetated with spruce-fir. Some horse and cattle ranching occur within the floodplain both within the site and upstream. Forest Road 740 traverses the northern side of the site. Upstream of the box canyon, a large travertine deposit exists on the northern side of the creek. The deposit was formed by groundwater, rich in carbon dioxide, discharging to the surface. This results in the release of large quantities of carbon dioxide creating a disequilibrium between carbon dioxide, carbonate ions, and carbonic acid in the groundwater (Wetzel 1983). As a result of this disequilibrium, calcium bicarbonate precipitates from the groundwater and encrusts the substrate near the spring source. Following hundreds or thousands of years, the precipitate has formed a large solid mound of calcium carbonate. Numerous structures now exist on top of the mound, including many small guest cabins, a barn, stable, and an inhabited home. Some of the groundwater discharge has been rerouted to an artificial pool, which then flows over the travertine mound as a beautiful waterfall. The current landowners utilize a nearby spring as their domestic water source. There are many seeps discharging on top of the travertine mound, along slopes, and in sporadic patches on the floodplain. East of the guest cabins is an area of standing water, which likely represents a discharging point. The state rare green sedge (Carex viridula) is abundant here. Upstream of this pool, along the north-northeastern slopes of the travertine mound, are a series of seeps. An extreme rich fen plant community (Kobresia myosuroides-Thalictrum alpinum) (Cooper and Sanderson 1997) along with rare plants such as Rolland's bulrush (Trichophorum pumilum), variegated scouring rush (Equisetum variegatum), and greensedge are found in these seeps. There are also pockets of the extreme rich fen and the aforementioned rare plants, in various locations within the floodplain. These fens are conspicuously parallel with the seeps near the travertine mound. In other words, upstream from where the travertine mound ends, there are no pockets of extreme rich fen in the floodplain, clearly suggesting that groundwater discharge near the travertine mound is either resurfacing or connected with the same upwelling of groundwater. The floodplain fen patches are surrounded by either a Booth willow/Mesic forb riparian shrubland (Salix boothii/mesic forb) or water or beaked sedge wet meadows (Carex aquatilis and C. utriculata, respectively). The occurrence of these extreme rich fens at Cement Creek is very exciting as this is the first documentation of this unique wetland type outside of South Park in Colorado. Any conservation and/or educational activities that could occur at this site would be of great value for the conservation of one of Colorado's most unique wetland ecosystems.

Key Environmental Factors

No Data

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Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes **Mapped Date** 12/20/2002

Designer Rocchio, F.J.

Boundary Justification

Boundaries are drawn to include the potential groundwater recharge zones, which must be maintained to preserve the hydrological integrity of the extreme rich fens. These boundaries, however, are preliminary and additional research on the recharge zones is warranted. The boundaries also 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 Cement Creek. The boundaries provide a small buffer from nearby agriculture fields, roads, and houses where surface runoff may contribute excess nutrients, sediment, and herbicides/pesticides. The site contains areas where old oxbows, sloughs, and ponds could provide a source of recruitment for native wetland and riparian plant species and provide fish habitat. 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 Cement Creek and its tributaries upstream activities such as water diversions, impoundments, improper livestock grazing, and development 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 4,406.45 **Acres** 1,783.24 **Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

Very High Biodiversity Significance. This site supports a good (B-ranked) example of the globally critically imperiled (G1?/S1) extreme rich fen plant community and numerous state rare plants. Extreme rich fens appear restricted to a small area in Colorado, primarily the west and north portions of South Park (Cooper 1996) and the new location at Cement Creek. Even on a global basis extreme rich fens appear to be quite uncommon. Only three other small locations of extreme rich fens exist in the Western U.S.: in northwestern Montana (Lesica 1986), in California at Convict Creek Basin (Major and Taylor 1977), and in northwestern Wyoming (Fertig and Jones 1992). They are also known from the foothills of the Rocky Mountains eastern slope in Canada (Slack et al. 1979, Karlin and Bliss 1984), from northern Ontario (Sjörs 1961), and from Scandinavia (Nordqvist 1965). Only the Wyoming and California sites appear to be floristically similar to the South Park extreme rich fens. The extreme rich fens located at Cement Creek are the first documented occurrence of this plant community outside of South Park in Colorado. The extreme rich fen (Kobresia myosuroides-Thalictrum alpinum) plant community (Cooper and Sanderson 1997), or a very closely related one, was reported in the Convict Creek Basin in California (Major and Taylor 1977). Nothing similar to it has been reported from any other extreme rich fens outside of South Park and Cement Creek, Colorado. Numerous state rare plants are also found in these extreme rich fens. For example, Rolland's bulrush (Trichophorum pumilum) is a circumboreal species with disjunct populations in Colorado, Wyoming, Montana, and California (Hitchcock and Cronquist 1973; Fertig and Jones 1992). Within Colorado all known occurrences of this species are found in and around South Park and the newly documented occurrence at Cement Creek. Green sedge (Carex viridula) is found only in peatlands, and is reported from Newfoundland to Alaska, southward to New Jersey, Indiana, Colorado, and California (Hermann 1970). A total of seven occurrences are located in Colorado. The Booth willow/mesic forb (Salix boothii/mesic forb) plant association is a tall (4-5 ft., 1-2 m) shrubland that often forms extensive thickets, or willow carrs, on broad montane floodplains. It occurs in Idaho, Wyoming (Youngblood et al. 1985), Utah (Padgett et al. 1989) and Colorado (Colorado Natural Heritage Program 1997). Variegated scouring rush is circumboreal in distribution in the northern hemisphere but is near its southern extent in Colorado.

Other Values Rank No Data

Other Values Comments

No Data

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LAND MANAGMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24734	*Salix boothii* / Mesic Forbs Shrubland	Booth's Willow/Mesic Forb	G3	S3	No
21527	*Trichophorum pumilum*	little bulrush	G5	S2	No
24980	*Kobresia myosuroides - Thalictrum alpinum* Herbaceous Vegetation	Extreme Rich Fens	G2	S1	Yes
21454	*Hippochaete variegata*	variegated scouringrush	G5	S1	No
21103	*Carex viridula*	green sedge	G5	S1	No

REFERENCES

Reference ID	Full Citation
173839	Rocchio J., G Doyle, and R. Rondeau. 2003. Final Report: Survey of Critical Wetlands and Riparian Areas in Gunnison County, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
173182	Rocchio, J. 2002. Colorado Natural Heritage Program Field Survey of Critical Wetlands in Gunnison County.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 12/20/2002

Version Author Rocchio, F.J.

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