

Level 4 Potential Conservation Area (PCA) Report

Name Chalk Creek

Site Code S.USCOHP*15839

IDENTIFIERS

Site ID 571 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 384257N
 State Colorado Longitude 1061232W

Quad Code Quad Name
 38106-F2 Mount Antero

County
 Chaffee (CO)

Watershed Code Watershed Name
 11020001 Arkansas Headwaters

SITE DESCRIPTION

Minimum Elevation	8,320.00 Feet	2,535.94 Meters
Maximum Elevation	8,800.00 Feet	2,682.24 Meters

Site Description

The Chalk Creek site encompasses the floodplain of Chalk Creek which drains the eastern slope of the Sawatch Mountains and has its confluence with the Arkansas River approximately ten miles downstream of Buena Vista. At the upstream end, the stream enters a wide, low gradient east-west trending valley. Tall, steep relief peaks and ridges flank the valley to the north and south. Mt. Princeton, with an elevation of 14,177 ft, is to the north and Mt. Antero, with an elevation of 14,269 ft, is to the south. Further downstream, the Chalk Cliffs, which form the southeastern flank of Mt. Princeton, create the north wall of the valley. Surrounding peaks are middle tertiary intrusive rocks (20-40 M.Y.) with intermediate to felsic composition with a substrate of metamorphic or igneous units with dominantly silicic composition. The eroded white Chalk Cliffs on the north valley wall contain kaolinite, a soft white clay mineral formed as hot water rising along faults leached feldspar minerals of the batholith - this powdery white rock gives Chalk Creek its name (Chronic and Williams 2002). In this stream reach the glacially carved Chalk Creek Valley is U-shaped with a generally low gradient that increases in the upstream direction. Valley floor substrate is characterized by glacial deposits that are Quaternary-aged younger alluviums and surficial deposits that are from glacial drift of the Pinedale and Bull Lake glaciations with some unclassified glacial deposits. Floodplain soils are characterized by well-drained and well sorted coarse sand, gravel and cobbles with a thin organic layer. Stream characteristics alternate between a mostly broad and meandering stream to a few short reaches that are steeper and less sinuous. Over the majority of the site stream gradient varies from one to two percent and stream type alternates between a Rosgen type "C" stream with moderate to high sinuosity, and, wherever beaver activity occurs, a highly sinuous "E" type stream (Rosgen 1996). Snowmelt is the primary source of water in Chalk Creek and numerous side streams discharge into Chalk Creek, thus this is likely a gaining stream that depends on shallow groundwater discharge. Typically, wherever stream banks are stable and the channel is not downcut, out-of-bank flows are common and riparian vegetation is vigorous. A perennially high water table is indicated by the plant community that dominates the site (NatureServe 2009). The site is characterized by a lush riparian deciduous community of narrowleaf cottonwood (*Populus angustifolia*) in association with river birch (*Betula occidentalis*) that grows in a wide band along the banks of the stream. Narrowleaf cottonwood dominates but other tree species are present including ponderosa pine (*Pinus ponderosa*), Rocky Mountain juniper (*Juniperus scopulorum*), Douglas-fir (*Pseudotsuga menziesii*) and blue spruce (*Picea pungens*). River birch dominates the upper shrub canopy often forming dense thickets along the stream bank while in the lower shrub layers several other species co-occur including mountain maple (*Acer glabrum*), thinleaf alder (*Alnus incana*), mountain gooseberry (*Ribes inerme*), mountain willow, coyote willow (*Salix exigua*), Geyer willow (*Salix geyeriana*), Drummond's willow (*Salix drummondiana*), Booth's willow (*Salix boothii*), Bebb's willow (*Salix bebbiana*) and shining willow (*Salix lucida*). Herbaceous cover is typically minor but varies with the density of the canopy cover and is characterized by a patchy mosaic of graminoids and forbs. Common forbs include golden glow (*Rudbeckia ampla*), meadow rue (*Thalictrum fendleri*), star solomonplume (*Smilacina stellata*), green gentian (*Frasera speciosa*), northern bog orchid (*Limnorchis hyperborea*) and willowherb

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(*Epilobium hornemanii*). Common graminoids include water sedge (*Carex aquatilis*), beaked sedge (*Carex utriculata*), common spikerush (*Eleocharis palustris*), bluejoint reedgrass (*Calamagrostis canadensis*), redtop (*Agrostis gigantea*) and arctic rush (*Juncus balticus*). Several other plant associations occur as small patches adjacent to or mixed in with the cottonwood / river birch community including river birch / mesic graminoid shrubland, narrowleaf cottonwood / mixed willow (*Populus angustifolia* / *Salix (monticola, drummondiana, lucida)*) woodland, Drummond's willow / mesic forb shrubland and mountain willow / water sedge (*Salix monticola* / *Carex aquatilis*) shrubland. The willow shrublands often occur as a result of beaver activity that enhances flooding of adjacent meadow habitat. These areas are characterized by a mosaic of shrub stands and wet meadows where herbaceous cover is dense and includes both graminoids such as beaked and water sedge and forbs such as pale blue-eyed grass (*Sisyrinchium pallidum*), Idaho blue-eyed grass (*Sisyrinchium idahoense*), white bog-orchid (*Limnorchis dilatata*) and wild iris (*Iris missouriensis*). Plant communities on the valley floor but outside of the active floodplain are dominated by a mosaic of ponderosa pine and narrowleaf cottonwood. Upland vegetation on toeslopes is dominated by pinon - juniper (*Pinus edulis* - *Juniperus scopulorum*) woodlands, while on steep-walled north-facing valley slopes by communities are dominated by Douglas-fir forests and on south-facing slopes by scattered patches of Douglas-fir and bristlecone pine (*Pinus aristata*).

Key Environmental Factors

Hydrology, specifically a natural flow regime with annual episodic flooding, and beaver activities that enable out-of-bank flows and high soil moisture, are key driving factors that exert a major influence on the elements at this site.

Climate Description

The site is located midway between the town of Pitkin and the city of Buena Vista and also likely midway between these two sites with regard to climate. Climate records in the town of Pitkin, located approximately 20 miles to the southwest of this site but on the west side of the Continental Divide, indicate that winters are generally cold with abundant snowfall (114.2 inches annual average) and summers are mild and wet. Mean annual precipitation is 16.92 inches; the wettest months are July and August with an average precipitation of 2.17 and 2.05 inches respectively while the driest are November with 1.01 and June with 1.03 inches; the coldest month is January with an average temperature of 12 deg F and the warmest is July at 55 deg F (Western Regional Climate Center 2009). Climate records for Buena Vista, which is on valley floor and located approximately 9.5 miles to the northeast of the site, indicate a mean annual precipitation 9.79 inches; the wettest months are July and August with 1.7 and 1.65 inches of precipitation per month respectively; the driest month is January with 0.34 inches; the warmest month is July at 64 deg F and the coldest month is January at 24 deg F (Western Regional Climate Center 2009).

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes Mapped Date 04/01/2009
Designer Malone, D.G.

Boundary Justification

The boundary encompasses the riparian plant community and pale blue-eyed grass as well as the landscape that supports the ecological processes essential to their long-term viability. Both public and private lands are included in the boundary.

Primary Area 1,236.05 Acres 500.22 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

The site supports a good (B-ranked) occurrence of the globally vulnerable (G3/S3) *Populus angustifolia* / *Betula occidentalis* montane riparian forest. The riparian community is uncommon and although the association appears stable, the condition of high-quality occurrences is extremely threatened by hydrologic modification and development (NatureServe 2009). There is also a good (B-ranked) occurrence of a globally imperiled (G2G3/S2) plant species, pale blue-eyed grass (*Sisyrinchium pallidum*), however this occurrence was not confirmed in 2009. It was last observed in 1994 and current information is needed to verify the rank. If confirmed, the biodiversity significance rank of this site could be elevated to B2.

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Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

In degraded areas non-native species are common and include oxeye daisy (*Leucanthemum vulgare*), Kentucky bluegrass (*Poa pratensis*), sweetclover (*Melilotus* spp.) and black medic (*Medicago lupulina*).

Offsite

No Data

Information Needs

Additional search needed for the 1994 record of pale blue-eyed grass (*Sisyrinchium pallidum*).

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>
21615	<i>Sisyrinchium pallidum</i>	pale blue-eyed grass	G2G3	S2	Yes
24884	<i>Populus angustifolia</i> / <i>Betula occidentalis</i> Woodland	Montane Riparian Forest	G3	S3	Yes

REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
159854	Carsey, K., G. Kittel, K. Decker, D. Cooper, and D. Culver. 2003. Field guide to the wetland and riparian plant associations of Colorado. Prepared for the Colorado Department of Natural Resources, Denver, CO by the Colorado Natural Heritage Program, Fort Collins, CO.
198295	Chronic, H. and F. Williams. 2002. Roadside Geology of Colorado. Second Edition. Mountain Press Publishing Company. Missoula, MT.
198290	Culver, D.R., D. Malone, S.L. Neid, and J. Handwerk. 2009. Final Report: Survey of Critical Biological Resources in Chaffee County. Colorado Natural Heritage Program, Fort Collins, CO.
198314	NatureServe Explorer (Web Page). Accessed 2010. An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer .
191383	Rosgen, D. 1996. Applied river morphology. Wildland Hydrology, Pagosa Springs, CO.
198320	Western Regional Climate Center. 2009. Record Climate Summaries. Accessed in 2009. http://www.wrcc.dri.edu/

ADDITIONAL TOPICS

Additional Topics

Original site design by Fayette, K.K. 1998-12-21.

VERSION

Version Date 04/01/2009
Version Author Malone, D.G

Disclaimer

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