

Level 4 Potential Conservation Area (PCA) Report

Name Romley

Site Code S.USCOHP*1670

IDENTIFIERS

Site ID 130 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 384103N
 State Colorado Longitude 1062143W

Quad Code Quad Name

38106-F3 Saint Elmo
 38106-F4 Cumberland Pass

County

Chaffee (CO)

Watershed Code Watershed Name

11020001 Arkansas Headwaters

SITE DESCRIPTION

Minimum Elevation	10,000.00	Feet	3,048.00	Meters
Maximum Elevation	10,440.00	Feet	3,182.11	Meters

Site Description

The site occurs in the lower subalpine and upper montane zone in riparian habitat and adjacent forested hillslopes along Chalk Creek. The creek drains the eastern slope of the Collegiate Range, with the confluence with the Arkansas River approximately 10 miles downstream of Buena Vista. This site is located downslope of extensively mined hillsides and an abandoned mining operation with large tailings piles occurs along the mid-reaches of the site. Within the site, the valley trends southwest to northeast. Hillslopes on both sides of the valley are steep and the valley floor is relatively narrow. Surrounding ridges and peaks on the east side of the valley reach 12,536 ft and on the west side of the valley 12,870 ft; upstream elevation in the valley is 10,440 ft and downstream elevation is 10,000 ft. Stream gradient is 2%-3% and the stream is a characteristic Rosgen "B" type stream with rapids dominated bed morphology. Abundant beaver activity in the upper and lower reaches has increased stream sinuosity and decreased gradient thereby increasing out-of-bank flows which helps maintain sufficient soil moisture in those reaches. Geology of the surrounding landscape is formed of middle tertiary intrusive rocks (age 20-40 M.Y.) with intermediate to felsic composition. Substrate is metamorphic or igneous units with a dominantly silicic composition of all ages (Tweto 1979). Soils on forested toeslopes are moist to saturated with a deep organic layer and are overlain with a thick cover of mosses. Soils on the flatter gradient riparian valley floor are moist to inundated with open water ponds scattered throughout. Riparian soils are highly organic and, wherever they are not inundated, are hummocky and covered with a thick and dense layer of mosses including sphagnum. Peat formation, up to approximately 17 inches, is typical of these hummocky sites. Shallow groundwater and surface flow is abundant and is essential to maintaining soil moisture in both forested and riparian habitat. Forested upland habitat on north-facing slopes is characterized by 2nd growth spruce - fir (*Picea engelmannii* - *Abies lasiocarpa*) forest and on south-facing slopes by a mix of spruce, subalpine fir (*Abies lasiocarpa*) and Douglas-fir (*Pseudotsuga menziesii*). The shrub understory is characterized by a mix of willow species such as planeleaf (*Salix planifolia*) and barenground (*Salix brachycarpa*) and non-willow shrubs such as bog birch (*Betula nana*), gooseberry (*Ribes inerme*), twinberry honeysuckle (*Lonicera involucrata*) and shrubby cinquefoil (*Dasiphora floribunda*). Herbaceous cover is characterized by a thick layer of mosses and a mix of forbs and graminoids including pink pyrola (*Pyrola asarifolia*), heart-leaf arnica (*Arnica cordifolia*), bishops cap (*Mitella stauropetala*), meadow rue (*Thalictrum fendleri*), lesser wintergreen (*Pyrola minor*), one-sided wintergreen (*Ramischia secunda*), Richardson's geranium (*Geranium richardsonii*), and northern twayblade (*Listera borealis*). Riparian plant communities vary with stream gradient in a linear mosaic along the stream corridor. Wider, flatter reaches are characterized by willow carrs, non-willow shrublands and wet meadows whereas narrower, steeper stream riparian habitat is typically forested with spruce and fir. Willow shrublands are dominated by a mix of planeleaf, barenground and wolf willow (*Salix wolfii*). Non-willow shrublands are dominated by bog birch in association with planeleaf, barenground and wolf willow and shrubby cinquefoil (*Dasiphora floribunda*). The herbaceous layer is a rich and diverse mix of forbs with a few graminoids. Forb characterize herbaceous growth on

Level 4 Potential Conservation Area (PCA) Report

Name Romley

Site Code S.USCOHP*1670

moss-covered hummocks and include alpine meadow rue (*Thalictrum alpinum*), white bog-orchid (*Limnorchis dilatata*), marsh marigold (*Caltha leptosepala*), elephant head (*Pedicularis groenlandica*), cowbane (*Oxypolis fendleri*), grass-of-parnassus (*Parnassia fimbriata*), and star gentian (*Swertia perennis*). Graminoids are dominant in inundated areas and include water sedge (*Carex aquatilis*) and bluejoint reedgrass (*Calamagrostis canadensis*).

Key Environmental Factors

Soil moisture and water quality characteristics are the driving factors that exert a major influence on biota at the site.

Climate Description

Climate records in the town of Pitkin, located approximately 11.5 miles to the southwest of Grizzly Gulch but on the west side of the Continental Divide, indicate that in general winters are 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).

Land Use History

Hard rock mining with associated impacts was extensive and included deforestation, stream channelization, road building, and water quality degradation due to acid mine drainage.

Cultural Features

The nearby Ghost Town of St. Elmo originated in 1879 and is widely considered Colorado's best preserved ghost town.

SITE DESIGN

Site Map Y - Yes

Mapped Date 04/01/2009

Designer Malone, D.G.

Boundary Justification

The boundary encompasses the element occurrences and the ecological processes essential to sustaining them and provides a buffer against direct disturbance. The primary ecological process essential to long-term community viability is hydrology, specifically shallow groundwater or surface flow with annual episodic flooding (Rondeau 2001 and NatureServe 2009). Snowmelt runoff from the surrounding watershed and/or beaver activity maintains this hydrologic system (Rondeau 2001 and NatureServe 2009) and are important processes to include in the site.

Primary Area 550.92 Acres

222.95 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site is drawn to include a good (B-ranked) occurrence of the globally vulnerable (G3G4/S3) Bog birch (*Betula nana*) / mesic forb - mesic graminoids shrubland. The state imperiled (G4G5/S1) low northern sedge (*Carex concinna*) and the state rare (G4/S2) northern twayblade (*Listera borealis*) are historically known from the site.

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

No Data

Offsite

Mine site reclamation was recently conducted by the U.S. Environmental Protection Agency (USEPA) to

Level 4 Potential Conservation Area (PCA) Report

Name Romley

Site Code S.USCOHP*1670

remediate acid mine drainage that was resulting in heavy metal pollution (zinc and cadmium) in Chalk Creek (USEPA 2009). The Mary Murphy Mine, which is located on the northwest-facing slope above Chalk Creek, contains steeply dipping gold-silver deposits and lead-zinc sulfide fissure-vein deposits through extensive underground workings on 14 different levels in the Tertiary-aged Mount Princeton quartz-monzonite (USEPA 2009). In 1986 the mine was identified by the USEPA as the single greatest contributor of heavy metals (zinc and cadmium) to Chalk Creek and was subsequently listed as impaired and scheduled for reclamation. An extensive reclamation project was undertaken in 1998 and completed in 2006; although zinc levels were dramatically decreased they continue to exceed Colorado water quality standards (USEPA 2009).

Information Needs

Current field surveys are needed to locate low northern sedge (*Carex concinna*) and the Northern twayblade (*Listera borealis*).

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
18558	<i>Listera borealis</i>	northern twayblade	G4	S2	No
17689	<i>Carex concinna</i>	low northern sedge	G4G5	S1	No
24497	<i>Betula nana</i> / Mesic Forbs - Mesic Graminoids Shrubland	Subalpine Riparian Shrubland	G3G4	S3	Yes

REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
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 .
190863	Rondeau, R. 2001. Ecological system viability specifications for Southern Rocky Mountain ecoregion. First Edition. Colorado Natural Heritage Program, Colorado State University, Fort Collins, CO. 181 pp.
192747	Tweto, O. 1979. Geologic Map of Colorado, 1:500,000. United States Geological Survey, Department of Interior, and Geologic Survey of Colorado, Denver, CO.
198321	U.S. Environmental Protection Agency. 2009. Mining Remediation in the Chalk Creek Watershed. < http://www.epa.gov/owow/nps/Success319/index.htm >. (Accessed: March, 2009).
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 Burkhard, D.R. 1993-09-30. Updated by Fleming, C.C. 1997-09-03.

VERSION

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

Disclaimer

Level 4 Potential Conservation Area (PCA) Report

Name Romley

Site Code S.USCOHP*1670

These data are a product and property of Colorado State University, Colorado Natural Heritage Program (CNHP). These data are strictly "on loan" and should be considered "works in progress". Data maintained in the Colorado Natural Heritage Program database are an integral part of ongoing research at CSU and reflect the observations of many scientists, institutions and our current state of knowledge. These data are acquired from various sources, with varying levels of accuracy, and are continually being updated and revised. Many areas have never been surveyed and the absence of data in any particular geographic area does not necessarily mean that species or ecological communities of concern are not present. These data should not be regarded as a substitute for on-site surveys required for environmental assessments. Absence of evidence is NOT evidence of absence. Absence of any data does not mean that other resources of special concern do not occur, but rather CNHP files do not currently contain information to document this presence. CNHP is not responsible for whether other, non-CNHP data providers have secured landowner permission for data collected.

These data are provided for non-commercial purposes only. Under no circumstances are data to be distributed in any fashion to outside parties. To ensure accurate application of data, tabular and narrative components must be evaluated in conjunction with spatial components. Failure to do so constitutes a misuse of the data. The Colorado Natural Heritage Program shall have no liability or responsibility to the data users, or any other person or entity with respect to liability, loss, or damage caused or alleged to be caused directly or indirectly by the data, including but not limited to any interruption of service, loss of business, anticipatory profits or indirect, special, or consequential damages resulting from the use of operation of the data. Data users hereby agree to hold CNHP, Colorado State University, and the State of Colorado harmless from any claim, demand, cause of action, loss, damage or expense from or related to data users use of or reliance on the data, regardless of the cause or nature thereof, and even in the event that such cause is attributable to the negligence or misconduct of CNHP.

These data are provided on an as-is basis, as-available basis without warranties of any kind, expressed or implied, INCLUDING (BUT NOT LIMITED TO) WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. Although CNHP maintains high standards of data quality control, CNHP, Colorado State University, and the State of Colorado further expressly disclaim any warranty that the data are error-free or current as of the date supplied