

Level 4 Potential Conservation Area (PCA) Report

Name Ralston Creek

Site Code S.USCOHP*28185

IDENTIFIERS

Site ID 2717 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 395014N
 State Colorado Longitude 1052544W

Quad Code Quad Name
 39105-G4 Black Hawk

County
 Gilpin (CO)

Watershed Code Watershed Name
 10190005 St. Vrain
 10190004 Clear

SITE DESCRIPTION

Minimum Elevation	8,130.00	Feet	2,478.02	Meters
Maximum Elevation	10,300.00	Feet	3,139.44	Meters

Site Description

This site is located in the eastern most part of Gilpin County within Golden Gate Canyon State Park. Landscapes in this eastern part of Gilpin County were not glaciated during the last ice age and are characterized by more gently rounded hills and broad valleys. Wind, water, and weather sculpted these lower elevation foothills, creating the rounded granitic outcrops and steep canyons that characterize this montane zone ecosystem. Surrounding upland landscape is complex and characterized by rolling hills and steep hillslopes, with rocky outcrops. North-facing slopes are dominated by a mix of Engelmann spruce (*Picea engelmannii*) and lodgepole pine (*Pinus contorta*). South-facing slopes are dominated by a mosaic of ponderosa (*Pinus ponderosa*) forest, herbaceous meadows, and, in moist gullies, by aspen (*Populus tremuloides*) forests and stands of blue spruce. Uplands have been historically impacted by grazing, fire suppression, and logging. Ponderosa stands were likely more open and widely spaced than they are currently, with large areas dominated by grasses (Veblen and Lorenz 1991). Valley bottoms and meadows were homesteaded and developed for agriculture and ranching with consequent changes to plant species composition and habitat structure. Together, alterations to upland and wetland habitat have likely contributed to changes in the hydrologic regime. Valley bottoms, swales, and gullies are characterized by a mosaic of riparian woodlands, shrublands and herbaceous wetlands and fens. Riparian forests are characterized by aspen (*Populus tremuloides*) or by mixed aspen - blue spruce (*Populus tremuloides* - *Picea pungens*) woodlands with a shrub layer dominated by willow (*Salix* spp.) and an herbaceous layer dominated by forbs. Riparian shrublands are characterized by a dense canopy of willows (*Salix* spp.) with an herbaceous understory typically dominated by graminoids but in some locations dominated by forbs. Several types of forested, willow shrubland and herbaceous wetland communities occur in this site including quaking aspen / Drummond willow (*Populus tremuloides* / *Salix drummondiana*), mountain willow / mesic graminoid (*Salix monticola* / mesic graminoid), mountain willow / water sedge (*S. monticola* / *Carex aquatilis*), Bebb willow (*Salix bebbiana*), and planeleaf willow / beaked sedge (*S. planifolia* / *C. utriculata*) shrublands and fens. Other willow species and communities are also present including Drummond's (*S. drummondiana*), Booth (*S. boothii*) and strapleaf (*S. ligulifolia*) willow. Herbaceous wetlands are a species-rich mix of mesic and hydric graminoids, forbs or both, distributed along a soil moisture gradient. Typical herbaceous communities on inundated sites include beaked sedge and water sedge herbaceous vegetation. Other species occupying saturated sites include common spikerush (*Eleocharis palustris*), Nebraska sedge (*C. nebrascensis*), soft-leaved sedge (*C. disperma*), field horsetail (*Equisetum arvense*), green bog orchid (*Platanthera huronensis*), giant angelica (*Angelica ampla*), elephantella (*Pedicularis groenlandica*) and American brooklime (*Veronica americana*). Typical species in mesic sites include wood rush (*Luzula parviflora*), Fendler's waterleaf (*Hydrophyllum fendleri*), cow parsnip (*Heracleum spondylium*), star Solomonplume (*Maianthemum stellatum*), twisted-stalk (*Streptopus amplexifolius*), shooting star (*Dodecatheon pulchellum*), blue-eyed grass (*Sisyrinchium montanum*), and large-leaved avens (*Geum macrophyllum*). Common native species on drier

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Name Ralston Creek

Site Code S.USCOHP*28185

terraces include golden banner (*Thermopsis montana*), northern bedstraw (*Galium boreale*), scorpionweed (*Phacelia hastata*), kittentails (*Besseyia plantaginea*), and edible valerian (*Valeriana edulis*). Numerous alien species occupy drier sites including especially smooth brome (*Bromus inermis*) and Canada thistle (*Cirsium arvense*). Geology is characterized by two types of rock: Precambrian age igneous granitic rocks with a dominantly silicic composition and includes granodiorite and quartz monzonite; and Precambrian age metamorphic felsic and hornblende gneisses that are derived principally from volcanic rocks (Tweto 1979). Soils in riparian zones are primarily of two types. Along Ralston Creek and on northeast trending tributaries, riparian soils are classified as Cumulic Cryaquolls, 0 to 3 percent slopes; the parent material consists of alluvium derived from igneous and metamorphic rock; the natural drainage class is poorly drained and meets hydric criteria. Riparian soil on the southwest-trending tributary in this site is Kittredge-Guanella complex, 3 to 9 percent slopes; the natural drainage class is well drained, water movement is moderately high and the soil does not meet hydric criteria (USDA 2010). Interestingly, a shrub-dominated fen, with 50 cm of peat, occurs in the drainage in which soils are classified as Kittredge-Guanella complex. Soils on terraces and low slopes adjacent to the riparian zone are comprised primarily of two soil types including: Ohman-Legault very gravelly sandy loams, 30 to 60 percent slopes; and Resort very gravelly sandy loam, 10 to 30 percent slopes. Upland soils are comprised primarily of: Ohman-Legault very gravelly sandy loams, 30 to 60 percent slopes; Legault very gravelly sandy loam, 15 to 30 percent slopes; Legault-Rock outcrop complex, 30 to 80 percent slopes; Rogert-Herbman-Rock outcrop complex, 30 to 70 percent slopes; and Grimstone-Peeler-Rock outcrop complex, 15 to 30 percent slopes. Each of the soil types on terraces and upland slopes are well drained or somewhat excessively drained with water movement in the most restrictive layer high. None of these soils meet hydric criteria (USDA 2010). Hydrologic features include numerous ephemeral and perennial streams, wet meadows and marshes, and ponds. Wetland hydrology is characterized and maintained by several interacting processes including shallow surface and groundwater flow, out-of-bank streamflows and historically by beaver (*Castor canadensis*). Ralston Creek drains the sub-watershed and is a 4th order Rosgen class C stream. Numerous streams flow into Ralston Creek in this site. Typically, these tributary streams begin as shallow groundwater discharge from adjacent slopes creates high soil moisture which eventually increases to create an ephemeral stream that then often becomes a permanently flowing stream. Present development impacts on Ralston Creek have reduced the width of the riparian zone and altered stream channel structure thereby constraining natural stream processes, channelizing the stream, and altering the natural hydrologic regime. These alterations include a road that parallels the streams' left bank resulting in channelization and a power line that has been installed in the floodplain on the right bank resulting in riparian vegetation alteration. Additionally, diversions have diminished flows and dams have been constructed to provide recreational fishing opportunities. Tributary channels have been impacted by grazing and rural development. Recreational development impacts the narrow stream channel that drains Frazier Meadow which is characterized by a quaking aspen / Drummond's willow forested riparian wetland. On stream channels throughout this site sedimentation is excessive and, where vegetation is altered, streambanks are downcut and eroding. Although this site is impacted by historic and current development, the riparian wetlands provide essential breeding and foraging habitat for numerous avian species. Avian species observed during the breeding season included: Spotted Sandpiper (*Actitis macularia*), Common Snipe (*Gallinago gallinago*), White-throated Swift (*Aeronautes saxatalis*), Broad-tailed Hummingbird (*Selasphorus platycercus*), Red-naped Sapsucker (*Spyrapicus nuchalis*), Northern Flicker (*Colaptes auratus*), Downy Woodpecker (*Picoides pubescens*), Cordilleran Flycatcher (*Empidonax occidentalis*), Warbling Vireo (*Vireo gilvus*), Hermit Thrush (*Catharus guttatus*), Swainson's Thrush (*Catharus ustulatus*), American Robin (*Turdus migratorius*), Townsend's Solitaire (*Myadestes townsendi*), Violet-green Swallow (*Tachycineta thalassina*), Barn Swallow (*Hirundo rustica*), Tree Swallow (*Tachycineta bicolor*), Black-capped Chickadee (*Poecile atricapilla*), Mountain Chickadee (*Poecile gambeli*), Ruby-crowned Kinglet (*Regulus calendula*), Yellow Warbler (*Dendroica petechia*), MacGillivray's Warbler (*Oporonis Philadelphia*), Wilson's Warbler (*Wilsonia pusilla*), Common Yellowthroat (*Geothlypis trichas*), Red-winged Blackbird (*Agelaius phoeniceus*), Brown-headed Cowbird (*Molothrus ater*), Song Sparrow (*Melospiza melodia*), Lincoln's Sparrow (*Melospiza lincolni*), Fox Sparrow (*Passerella iliaca*), and White-crowned Sparrow (*Zonotrichia leucophrys*).

Key Environmental Factors

Hydrology, including surface and groundwater flow and annual out-of-bank flows are key environmental factors essential to the maintenance of these montane riparian ecological systems (Rondeau, 2001). Importantly, these riparian systems evolved with and are highly dependent on beaver (*Castor canadensis*) activity to sustain them (Rondeau 2001). Beaver activity is integral to enhancing out-of-bank flows, recharging groundwater and raising the water table to enable maintenance of wetland and stream systems. Recent beaver activity was absent from this site (although anecdotal reports of beaver removal were heard).

Level 4 Potential Conservation Area (PCA) Report

Name Ralston Creek

Site Code S.USCOHP*28185

Climate Description

Climate in Gilpin County varies dramatically with elevation, aspect, and time of year. Higher elevations to the north and west are colder and wetter than lower elevations to the east and south. Temperature and precipitation varies from east to west corresponding to elevation change. Average annual temperature and length of the growing season decrease as elevation increases while average annual precipitation increases. In general, temperatures decrease at a rate of approximately 3 °F for every thousand feet of elevation gain. Additionally, the pattern of precipitation distribution varies from the eastern to the western parts of the county. Western locations at higher elevations receive the majority of their precipitation during late winter and early spring while eastern locations receive the majority of their moisture during early spring and summer (Siemer 1977). At lower elevation, eastern locations the months of April through August are typically the wettest months and July and August the warmest while December, January, and February are typically the coldest and driest months. At this site average annual precipitation from 1971 through 2000 was 23.97 inches with April (3.26 in.), May (3.20 in.), July (2.71 in.) and August (2.59 in.) the wettest months; January (0.89 in) and February (0.95 in.) were the driest months. Coldest temperatures occurred in January with an average maximum temperature of 30.83 °F and an average minimum of 12.03 °F; warmest temperatures occurred in July with an average maximum of 71.60 °F and an average minimum of 44.58 °F (Prism 2010).

Land Use History

The discovery of Gold brought rapid population growth to Gilpin County, which initiated logging, agricultural development, and grazing in areas that were not mined, such as this site. By the end of the 1890's most of the mountains in and around the mining communities and camps were denuded of trees (Petersen and Borchert 2010) and valley bottoms, especially riparian habitat and wetlands were cleared, drained and developed for agriculture.

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes Mapped Date 11/29/2010
Designer Malone, D.G.

Boundary Justification

The site was delineated to include ecological systems and processes that are essential to maintaining the occurrences as well as to provide a buffer against disturbance. Climate change was also considered in boundary delineation. A potential consequence of climate change is reduced late season stream flows. Because sufficient flow is essential to the sustainability of these wetlands a land area large enough to produce abundant groundwater and stream flow is important to element sustainability.

Primary Area 3,962.88 Acres 1,603.73 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

The site is drawn for a fair (C-ranked) occurrence of the globally imperiled (G2G3/S2) pale blue-eyed grass (*Sisyrinchium pallidum*). Additionally present are many fair (C-ranked) occurrences; the globally vulnerable (G3G4) deciduous riparian woodland, quaking aspen / Drummond's willow (*Populus tremuloides* / *Salix drummondiana*), two occurrences of globally vulnerable (G3S3) mountain willow (*Salix monticola*) / mesic graminoids shrubland, an occurrence of the globally vulnerable (G3S3) mountain willow / water sedge (*Salix monticola* / *Carex aquatilis*) shrubland, two occurrences of the globally vulnerable (G3/S2) Bebb willow (*Salix bebbiana*) shrubland, an occurrence of the globally vulnerable (G3/S2) planeleaf willow / beaked sedge (*Salix planifolia* / *Carex utriculata*) shrubland, an occurrence of the globally apparently secure (G4/S4) Drummond's willow (*Salix drummondiana*) / mesic forbs shrubland and an occurrence of the state rare (G5/S2) plant species, broad-leaved twayblade (*Listera convallarioides*).

Other Values Rank No Data

Other Values Comments

Riparian habitat throughout this site provides valuable wildlife resources. Numerous native wildlife species find breeding, foraging and protected habitat in this willow carr wetland. Elk (*Cervus elaphus*) are abundant; lions (*Felis concolor*) are active throughout this site; lady beetles (family *Coccinellidae*) breed here by the thousands; and a high diversity of bird species find suitable nest sites in this riparian habitat.

Level 4 Potential Conservation Area (PCA) Report

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Site Code S.USCOHP*28185

LAND MANAGEMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

Alien plant species are common throughout the site and include: *Poa pratensis*, *Phleum pratense*, *Agrostis gigantea*, *Trifolium pratense*, *Cirsium arvense*, *Carduus acanthoides*, *Taraxacum officinale*, *Linaria vulgaris*, *Cynoglossum officinale*, *Dipsacus fullonum*, and *Bromus inermis*.

Offsite

No Data

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>
17861	<i>Listera convallarioides</i>	broad-leaved twayblade	G5	S2	No
21615	<i>Sisyrinchium pallidum</i>	pale blue-eyed grass	G2G3	S2	Yes
24961	<i>Salix drummondiana</i> / Mesic Forbs Shrubland	Drummonds Willow/Mesic Forb	G4	S4	No
20994	<i>Salix bebbiana</i> Shrubland	Montane Willow Carrs	G3?	S2	No
24585	<i>Salix monticola</i> / Mesic Graminoids Shrubland	Montane Riparian Willow Carr	G3	S3	No
24576	<i>Salix planifolia</i> / <i>Carex utriculata</i> Shrubland	Diamondleaf Willow / Beaked Sedge	GNR	S2	No
24503	<i>Populus tremuloides</i> / <i>Salix drummondiana</i> Forest		G3G4	SU	No
24585	<i>Salix monticola</i> / Mesic Graminoids Shrubland	Montane Riparian Willow Carr	G3	S3	No
20994	<i>Salix bebbiana</i> Shrubland	Montane Willow Carrs	G3?	S2	No
24965	<i>Salix monticola</i> / <i>Carex aquatilis</i> Shrubland	Montane Riparian Willow Carr	G3	S3	No

REFERENCES

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<u>Reference ID</u>	<u>Full Citation</u>
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198649	Prism Climate Group (Web Page). Accessed 2010. Spatial Climate Analysis. http://www.prism.oregonstate.edu/
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198318	Siemer, E. 1977. Colorado Climate. Colorado Experiment Station, Colorado State University.
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ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 11/29/2010
Version Author Malone, D.G.

Disclaimer

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Site Code S.USCOHP*28185

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