

# Level 4 Potential Conservation Area (PCA) Report

Name Jenny Lake

Site Code S.USCOHP\*28180

## IDENTIFIERS

Site ID 2712 Site Class PCA  
 Site Alias Needle Eye Tunnel

## Network of Conservation Areas (NCA)

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

## LOCATORS

Nation United States Latitude 395603N  
 State Colorado Longitude 1053958W

Quad Code Quad Name  
 39105-H6 East Portal

## County

Boulder (CO)  
 Gilpin (CO)  
 Grand (CO)

Watershed Code Watershed Name  
 10190005 St. Vrain  
 14010001 Colorado headwaters

## SITE DESCRIPTION

Minimum Elevation	9,100.00 Feet	2,773.68 Meters
Maximum Elevation	11,800.00 Feet	3,596.64 Meters

## Site Description

This site is located on the east slope of the Front Range in the James Peak Wilderness. The site is the head of the Jenny Creek sub-watershed which is delineated on the east by the glacially sculpted Continental Divide, on the west by a topographical transition to steep, valley walls accompanied by an ecosystem transition to subalpine forest, and on the north and south by east-west trending arêtes. At upper elevations, the Jenny Lake site encompasses alpine ecosystems down to lower subalpine systems. Glacial action during the Pleistocene carved the alpine landscape into cirques, arêtes, and steep valley walls, creating the template for the development of current day ecosystems. Alpine uplands are a mosaic of alpine tundra ecosystems including turf meadows, fellfields, snowfields, stands of scrub aspen, and talus and scree fields. Engelmann spruce (*Picea engelmannii*) and subalpine fir (*Abies lasiocarpa*) krummholz marks the transition between alpine and subalpine systems. Habitat in the subalpine is dominated by expansive stands of Engelmann spruce - subalpine fir forest. Canopy openings are characterized by herbaceous forb and graminoid meadows and wetlands. Wetlands in this site include slope wetlands, wet meadows and riparian and lacustrine wetlands. Riparian wetlands in the alpine are characterized by a lush cover of mesic forb species such as heartleaf bittercress (*Cardamine cordifolia*), tall chiming bells (*Mertensia ciliata*), marsh marigold (*Caltha leptosepala*), and elephantella (*Pedicularis groenlandica*). From the upper to the lower subalpine, riparian wetlands are typically characterized either by forested wetlands or willow carr communities. Forested wetlands are characterized by Engelmann spruce - subalpine fir / tall fringed bluebell forest (*P. engelmannii* - *A. lasiocarpa* / *Mertensia ciliata*) and Engelmann spruce - subalpine fir / Drummond's willow (*P. engelmannii* - *A. lasiocarpa* / *S. drummondiana*) forest. Lacustrine wetlands, at the inundated margins of Jenny Lake, are characterized by a mix of mesic graminoids and forbs such as water sedge, bluejoint reedgrass (*Calamagrostis canadensis*), and rock sedge (*Carex scopulorum*) and queen's crown (*Sedum rhodanthum*), elephantella and marsh marigold. In the lower subalpine, lacustrine wetlands on the margins of Zarlengo Lake, are characterized by willow dominated communities including planeleaf willow / bluejoint reed grass (*Salix planifolia* / *Calamagrostis canadensis*) and planeleaf willow / water sedge (*S. planifolia* / *C. aquatilis*) shrublands. Wet meadows occur on low-gradient sites throughout the subalpine. Meadow communities include small, forb-dominated fens with a lush cover of species such as bog saxifrage (*Saxifraga oregana*) and marsh marigold and graminoid dominated sites, with shallow accumulations of peat. Graminoid communities include water sedge, bluejoint reedgrass, and few-flower spikerush (*E. quinqueflora*) herbaceous vegetation. In the alpine zone, above Jenny Lake, slope wetlands, dominated by willow shrublands, characterize the low slopes of a broad glacial cirque at the head of the valley. Habitat here is a mosaic of dense willow (*Salix spp.*) shrubland, krummholz stands of Engelmann spruce (*Picea engelmannii*), open water ponds and lush herbaceous cover in canopy openings.

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Wolf willow (*Salix wolfii*) with an understory of mesic forbs dominates the carr but includes other willow and non-willow shrubs especially short-fruit (*S. brachycarpa*) and planeleaf (*S. planifolia*) willow and Colorado currant (*Ribes coloradense*) and prickly currant (*R. montigenum*). Habitat patchiness results in complex vegetation physiognomy adding to the overall habitat complexity created by the wide diversity of surrounding upland communities. Herbaceous cover is light under the willow canopy, but dense in canopy openings. Herbaceous cover is dominated by forbs but no one forb species is more abundant than another. Forb species occur primarily under the canopy and include arctic gentian (*Gentiana algida*), rose gentian (*Gentianella amarella*), saffron senecio (*Senecio crocatus*), viviparous bistort (*Polygonum viviparum*), American bistort (*P. bistortoides*), fireweed (*Chamerion angustifolium*), king's crown (*Sedum integrifolium*), queen's crown (*S. rhodanthum*), star gentian (*Swertia perennis*), alpine parsley (*Oreoxis alpina*), globeflower (*Trollius albiflorus*), marsh marigold (*Caltha leptosepala*), elephantella (*Pedicularis groenlandica*), hemlock parsley (*Conioselinum scopulorum*) and subalpine arnica (*Arnica mollis*). Graminoids occur primarily in canopy openings and include mountain sedge (*Carex scopulorum*), water sedge (*C. aquatilis*), ebony sedge (*C. ebenea*), new sedge (*C. nova*), Norway sedge (*C. norvegica*), tufted hairgrass (*Deschampsia caespitosa*), Drummond's rush (*Juncus drummondiana*), Merten's rush (*J. mertensianus*), alpine timothy (*Phleum alpinum*), bluejoint reedgrass (*Calamagrostis canadensis*), shortawn foxtail (*Alopecurus aequalis*) and few-flower spikerush (*Eleocharis quinqueflora*). Increaser herbaceous species occur at the east margin of the carr where trampling is high and include western yarrow (*Achillea millefolium*) and rosy pussytoes (*Antennaria rosea*). Geology in the alpine zone and down into the subalpine is characterized as primarily either Quaternary age younger alluvium and unconsolidated surficial deposits from glacial drift of Pinedale and Bull Lake glaciations or Precambrian age metamorphic rocks derived principally from sedimentary rocks. Additionally, the lower subalpine zone has a few small areas of early Tertiary and late Cretaceous age intrusive rocks and Precambrian age metamorphic rocks derived principally from volcanic rocks (Tweto 1979). Soils on the Continental Divide and on the headwalls of the cirque below the Divide are comprised of Bross-Matcher families-Lithic Cryorthents complex. On lower gradient slopes at the base of the cirque, soils underlying the willow carr slope wetland are comprised of Leighcan family-Cryaquolls-Moran family complex. In the subalpine zone riparian soils adjacent to Jenny Creek are Cryaquolls-Gateview complex. Upland soils, adjacent to riparian habitat are Leighcan family, till substratum. In the lower subalpine, lacustrine and meadow wetland soils are characteristically Goosepeak-Catamount families, moist complex (USDA 2010). Local wetland hydrology is influenced by the interaction of climate, geomorphology, and biotic processes. In this site, hydrology is strongly connected to shallow ground and surface water flow, which is dependent on snowmelt. Snowmelt contributes the largest proportion of water to these wetlands through its influence on ground and surface water dynamics. Snowmelt interacts with local geomorphology to maintain high water tables in slope wetlands, wet meadows and also exerts major control over riparian and lacustrine wetlands by influencing soil saturation characteristics (flooding frequency, duration, timing, and depth) that results from groundwater flow and out-of-bank flooding (Rocchio 2005). Snowmelt sustains the wetlands that lie above Jenny Lake. Water that flows through these wetlands discharges into Jenny Lake and from there into Jenny Creek making an important contribution to late-summer flows stream base flow as well as to lake and riparian habitat. Additionally, beaver (*Castor canadensis*) are primary maintainers of these wetland ecosystems (Rondeau 2001) and contribute to water storage and sediment removal. Although historic beaver activity is indicated, no recent signs of beaver activity are in evidence.

## **Key Environmental Factors**

Climate, hydrology, geology, and biota are key driving factors that have enabled the development and maintenance of the element plant communities and animal species present in the site. A natural hydrologic regime is essential to the sustainability of elements in this site. Especially essential to wetland and stream sustainability is shallow ground and surface water flow derived from the melting snowpack and, secondarily, out-of-bank streamflows. Beaver (*Castor canadensis*) evolved with western aquatic ecosystems and are an essential environmental factor in stream and riparian wetland sustainability.

## **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

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1977). The site is located in the most western part of the county at elevations between approximately 9,000 and 11,000 feet elevation. At uppermost elevations in this site average annual precipitation from 1971 through 2000 was 35.08 inches; coldest temperatures occurred in January with an average maximum temperature of 25.45 °F and an average minimum of 6.30 °F; warmest temperatures occurred in July with an average maximum of 65.75 °F and an average minimum temperature of 33.33 °F; at the lower elevations to the east average annual precipitation from 1971 through 2000 was 28.72 inches; coldest temperatures occurred in January with an average maximum temperature of 31.41 °F and an average minimum of 8.58 °F; warmest temperatures occurred in July with an average maximum of 73.18 °F and an average minimum temperature of 41.72 °F (Prism 2010).

## Land Use History

Although much of Gilpin County was impacted by mining exploration, most of the high elevations landscape near the Continental Divide, including this site, did not see mining activity (Gilpin County 2010). The first humans to use the land in this site were likely Native Americans. Numerous sites in alpine ecosystems along the Continental Divide of the Front Range, including near the Rollins Pass area, have been identified as Paleoindian and Prehistoric age game drive sites (Benedict 2005).

## Cultural Features

Paleoindian sites are potentially present.

## 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 plants and communities as well as to provide a buffer against disturbance. Climate change was also considered in boundary delineation; alpine ecosystems are especially vulnerable and species that depend on tundra may disappear as alpine tundra diminishes with the advance of trees and shrubs (USFWS 2010). Hydrology is the primary process essential to long-term wetland plant community viability. Alpine/subalpine wetlands are often isolated hydrologically from other wetlands, and easily impacted by surrounding land use (Rondeau 2001). Thus maintaining an intact and unfragmented hydrologic regime is essential to element viability. The alpine and subalpine element wetland plant communities in this site are reliant on water levels at or near the surface for much or all of the growing season (Rondeau 2001). Snowmelt from nearby surrounding ridges and slopes maintains abundant shallow ground and surface flow which contributes the primary source of water to slope and riparian wetlands.

Primary Area 385.56 Acres

156.03 Hectares

## SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

## Biodiversity Significance Comments

This site is drawn for a good (B-ranked) occurrence of the globally vulnerable (G3/S3) wolf willow (*Salix wolfii*) / mesic forbs shrubland and a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) plant, Rocky Mountain columbine (*Aquilegia saximontana*).

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

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>
18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
24572	<i>Salix wolfii</i> / Mesic Forbs Shrubland	Subalpine Riparian Willow Carr	G3	S3	Yes

## REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
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198645	Gellhorn, J. 2002. Song of the Alpine. Johnson Books, Boulder, Colorado. 259 pp.
198646	Gilpin County (Web Page). Accessed 2010. Gilpin County Office of the Assessor. <a href="http://co.gilpin.co.us/assessor">http://co.gilpin.co.us/assessor</a> .
198649	Prism Climate Group (Web Page). Accessed 2010. Spatial Climate Analysis. <a href="http://www.prism.oregonstate.edu/">http://www.prism.oregonstate.edu/</a>
198650	Rocchio, J. 2005. Rocky Mountain Subalpine-Montane Fen Ecological System: Ecological Integrity Assessment. Colorado Natural Heritage Program, Colorado State University. Fort Collins, Colorado.
198655	Rocky Mountain National Park, Colorado. U.S. Fish and Wildlife Service, Biological Report 90(15).
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.
198318	Siemer, E. 1977. Colorado Climate. Colorado Experiment Station, Colorado State University.
198683	Stevens, J. E., D.R. Culver and D.G. Malone. 2011. CNHP Final Report: Survey of Critical Biological Resources in Gilpin County, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
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.
198651	U.S. Department of Agriculture (Web Page). Accessed 2010. Natural Resource Conservation Service, Soil Data Mart. <a href="http://soils.usda.gov/survey/">http://soils.usda.gov/survey/</a>
198652	U.S. Fish and Wildlife Service (Web Page). Accessed 2010. The State of the Birds: 2010 Report on Climate Change. <a href="http://www.stateofthebirds.org">http://www.stateofthebirds.org</a>

## ADDITIONAL TOPICS

### Additional Topics

Previously updated by Neid, S. et al. 2009-01-23. Original site design by Pague, C.A. 1994-09-12.

## VERSION

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

## Disclaimer

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