

Level 4 Potential Conservation Area (PCA) Report

Name Elk Park

Site Code S.USCOHP*28175

IDENTIFIERS

Site ID 2707 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 395201N
 State Colorado Longitude 1053549W

Quad Code Quad Name

39105-G5 Central City
 39105-H5 Nederland

County

Gilpin (CO)

Watershed Code Watershed Name

10190004 Clear

SITE DESCRIPTION

Minimum Elevation	10,240.00 Feet	3,121.15 Meters
Maximum Elevation	10,948.00 Feet	3,336.95 Meters

Site Description

The Elk Park site encompasses upper montane ecosystems on the east side of the Continental Divide in the Front Range Mountains of Gilpin County, Colorado. Mid-elevation peaks and ridges surround a broad, southeast trending bowl-shaped park to the north, south, and west. Physiognomy of surrounding uplands varies between gently rounded and steep hillslopes and several low peaks. The valley bottom is a stepped series of low slopes, depressions and swales that are variably saturated. Copious shallow surface and groundwater flow from surrounding hillslopes discharge into the gently sloping park basin and eventually flow into Elk Creek. Elk creek drains the site and is a 1st order, Rosgen A/B class stream that originates as a spring on the north slopes of the site, flowing to the southeast along the northeast side of the park. Here stream habitat and riparian habitat along Elk Creek is in sustainable condition. Streambanks are well vegetated with a dense cover of high quality, bank stabilizing vegetation. Stream habitat is complex and characterized by rapids dominated bed morphology and step-pool structure. Geology of surrounding ridges and peaks and of the park in the site is primarily Precambrian age metamorphic or igneous rocks with a dominantly silicic composition, age 1,700 to 1,800 m.y. These metamorphic rocks are derived principally from sedimentary or volcanic rocks. Sedimentary rocks locally contain hornblende gneiss, calc-silicate rock, quartzite, and marble. Volcanic rocks include metabasalt, metatuff, and interbedded metagraywacke; and locally contain interlayered biotite gneiss (Tweto 1979). Soils in the valley bottom are hummocky, saturated histosols with accumulations of peat to greater than 1 meter. Valley bottom soils are classified as Cryaquolls-Leighcan family, till substratum complex, 0 to 15% slopes. Cryaquolls occur on floodplains and are derived from gravelly glaciofluvial deposits from igneous, metamorphic, and sedimentary rock. Depth to root restrictive layer is greater than 60 inches, the natural drainage class is poorly drained, with available water to a depth of 60 inches. Organic matter content in the surface horizon is about 85%. Soils from the Leighcan family occur on moraines and consist of residuum and/or till from igneous and metamorphic rock (USDA 2010). Soils on toeslopes at the base of surrounding hillslopes are Goosepeak-Catamount families, moist complex, 5 to 40% slopes. Water movement in the class is fairly high and the drainage class is well drained to excessively drained (USDA 2010). Soils on ridge tops and peaks that curve around from the northwest to the southeast, forming the rim of the bowl that encircles the park, are classified as Lithic cryothents-Rubble land complex. Soils on south-facing upland slopes are Leighcan-Catamount families, moist complex. Valley bottom habitat is a mosaic of fens, peatlands, and riparian wetlands with vegetation that is characterized by a complex patchwork of wetland plant communities including willow and non-willow shrublands intermixed with mesic to hydric forb and graminoid meadows. An open canopy of bog birch (*Betula nana*) occupies saturated sites where fens have developed. Here the hummocky soils are covered by a dense and thick layer of mosses dominated by *Sphagnum* spp. intermixed with a few forb and graminoid species including queen's crown (*Sedum rhodanthum*), alpine meadow rue (*Thalictrum alpinum*), viviparous bistort (*Bistorta vivipara*), long-stalked starwort (*Stellaria longipes*), spherical spikerush (*Luzula subcapitata*) and alpine timothy (*Phleum*

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alpinum). Planeleaf willow (*Salix planifolia*) and water sedge (*Carex aquatilis*) occupy the wettest microhabitats in the wetland mosaic. And together form a patchy mosaic of closed willow stands and dense water sedge meadows. The perimeter of the park, where soils are mesic to xeric, are occupied by several shrub/forb plant associations including bog birch, planeleaf willow, bareground willow (*Salix brachycarpa*) and shrubby cinquefoil (*Dasiphora floribunda*). The herbaceous understory associated with each of these shrub species is dominated by a wide diversity of forbs including marsh marigold (*Caltha leptosepala*), arrowleaf ragwort (*Senecio triangularis*), monkshood (*Aconitum columbianum*), hemlock parsley (*Conioselinum scopulorum*), elephantella (*Pedicularis groenlandica*) and star gentian (*Swertia perennis*). Graminoids are also present and include needle spikeweed (*Eleocharis acicularis*), Drummond's rush (*Juncus drummondii*), Merten's rush (*Juncus mertensianus*), bluejoint reedgrass (*Calamagrostis canadensis*), mountain sedge (*Carex scopulorum*) and pale sedge (*Carex canescens*). Upland habitat is characterized by a mosaic of forests, shrublands, and xeric herbaceous meadows. North, south and east facing slopes are characterized by a mosaic of forested and grassland habitats. Krummholz stands of flagged pioneering limber pine (*Pinus flexilis*), dominate and are interspersed with patches of lodgepole pine (*Pinus contorta*) and a few small stands of Engelmann spruce - subalpine fir (*Picea engelmannii* - *Abies lasiocarpa*). Xeric grasslands characterize the herbaceous layer and also occur as large habitat patches. Southwest-facing slopes are dominated by dense stands of Engelmann spruce - subalpine fir (*Picea engelmannii* - *Abies lasiocarpa*) forest interspersed with patches of lodgepole pine and, in moist gullies, with aspen (*Populus tremuloides*). Xeric shrublands form an ecotonal habitat on southwest-facing slopes between spruce - fir forests and valley bottom wetlands. Shrubland - meadow habitat is characterized by a patchy mosaic of mesic shrubs including *Dasiphora floribunda* interspersed with patches of graminoids and forbs. Typical upland graminoids include *Festuca thurberi*. Typical forbs include *Oxytropis* spp., *Harbouria trachypleura* (whisk-broom parsley) and *Campanula rotundifolia*.

Key Environmental Factors

Hydrology is the key environmental factor that maintains the wetland ecosystems and communities in this site. Beaver are the primary biotic factor and shallow surface flow is the primary abiotic factor essential to maintenance of this ecological system (Rondeau 2001). Water that sustains the wetlands is sourced from abundant shallow ground water and surface flow that discharges into the park from surrounding hillslopes.

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). The Elk Park site is located in the western part of the county in the upper montane and subalpine zones at elevations between approximately 10,000 and 11,000 feet. Annual average precipitation at this site from 1971 to 2009 was 30.58 inches; coldest temperatures occurred in January with an average high of 27.07 °F and an average low of 8.08 °F. Warmest temperatures occurred in July with an average high of 67.68 °F and an average low of 40.32 °F (Prism 2010).

Land Use History

With the discovery of native gold in Gilpin County 1858, much of the County, including the area surrounding the Elk Park site was extensively mined for gold and other ore minerals. Additionally, to support the infrastructure and development that accompanied mining, grazing and clearcut logging occurred in the hills surrounding the site and throughout much of the County (Petersen and Borchert 2010). Field observations indicate that surrounding uplands continue to be impacted by historic logging. Some forest patches have naturally reforested with historic species, some with pioneering species such as lodgepole (*P. contorta*) or limber pine (*P. flexilis*) while other areas have crossed an ecological threshold and converted to other habitat types such as xeric meadows.

Cultural Features

None known.

SITE DESIGN

Site Map Y - Yes

Mapped Date 11/29/2010

Designer Malone, D.G.

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Boundary Justification

The boundary was drawn to encompass the ecological and hydrological processes essential to ecosystem maintenance and sustainability of the element occurrences. This wetland complex of fens, peatlands, and riparian habitat is sustained by groundwater inflows that maintain a water table at or near the ground surface for much of the year. These processes include abundant shallow surface and groundwater flow from surrounding hillslopes to enable wetland recharge with a sufficiently high water table and hydroperiod that promotes the ongoing development and maintenance of peat soils. The delineated area should allow for the functioning of ecological and hydrological processes that support the wetland communities and provide a buffer against direct disturbance.

Primary Area 494.46 Acres 200.10 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B4: Moderate Biodiversity Significance

Biodiversity Significance Comments

This site supports a mosaic of several wetland types and plant associations. Plant communities that characterize the wetland fen in this site include a good (B-ranked) occurrence of a globally unranked (GU) but imperiled in Colorado (S2) shrubland community, bog birch / Sphagnum spp. (*Betula nana* / *Sphagnum* spp.) and a good (B-ranked) occurrence of a globally demonstrably secure (G5/S4) shrubland community, planeleaf willow / water sedge (*Salix planifolia* / *Carex aquatilis*). A fair (C-ranked) occurrence of the globally vulnerable (G3/S3) reflected moonwort (*Botrychium echo*) plant species also occurs within this 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 exotic species were observed although a few herbaceous increaser species were present on the periphery of the wetland site including showy pussytoes (*Antennaria pulcherrima*) and silvery cinquefoil (*Potentilla hippiana*).

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>
20475	<i>Botrychium echo</i>	reflected moonwort	G3	S3	Yes
24850	<i>Salix planifolia</i> / <i>Carex aquatilis</i> Shrubland	Subalpine Riparian Willow Carr	G5	S4	Yes
24720	<i>Betula nana</i> / <i>Sphagnum</i> spp. Shrubland	Dwarf Birch/sphagnum Shrubland	GU	S2	Yes

REFERENCES

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<u>Reference ID</u>	<u>Full Citation</u>
198653	Petersen, M. and J. Borchert (Web Page). Accessed 2010. Soil Survey of Georgetown Area, Colorado, Parts of Clear Creek, Gilpin, and Park Counties. U.S. Department of Agriculture, Natural Resources Conservation Service. http://soils.usda.gov/survey/printed surveys
198649	Prism Climate Group (Web Page). Accessed 2010. Spatial Climate Analysis. http://www.prism.oregonstate.edu/
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. http://soils.usda.gov/survey/

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

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

Disclaimer

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