

Level 4 Potential Conservation Area (PCA) Report

Name Elk Meadows Fen

Site Code S.USCOHP*24972

IDENTIFIERS

Site ID 2141 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 370003N
State Colorado Longitude 1052107W

<u>Quad Code</u>	<u>Quad Name</u>
36105-H3	Big Costilla Peak
37105-A3	La Valley

County

Costilla (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
13010002	Alamosa-Trinchera

SITE DESCRIPTION

Minimum Elevation	-	Feet	-	Meters
Maximum Elevation	-	Feet	-	Meters

Site Description

The topography of this site appears to have been glaciated. Spruce-fir dominates north-facing slopes while a diverse mix of conifers occurs on the opposing south-facing slopes. The landform is unique in that a large wetland (some of which is a fen) sits at the base of the "tongue" of a concave ridge between two drainages. An impermeable layer appears to direct groundwater downslope along the long axis of the ridge, as opposed to flowing down to one of the drainages on either side of the ridge. Groundwater discharges along the entire base of this ridge supporting the wetland. What appears to be a terminal moraine constrains the groundwater to a small basin. Topographic maps show this area as open water, however very little open water was observed during the site visit. Only a few locations show signs of holding small pools. The seeps support sedge meadows, some of which have developed organic soils (peat) and are considered fens. Scientists call both fens and bogs "peatlands." Peatlands are wetlands with organic soils that consist of at least 12-18% organic-carbon content (by weight) (USDA 1994). They form where the rate of plant growth exceeds the rate of decomposition of litter. Both saturated soils and cool climates contribute to the conditions necessary for peatland formation. Peat accumulates slowly in all southern Rocky Mountain peatlands, anywhere from 4.3 to 16.2 inches per thousand years (Cooper 1990; Chimner and Cooper 2002). The slow accumulation rates suggest that peatlands cannot be restored to historic conditions after massive disturbance in any time period relevant to humans. Fens are peatlands that remain saturated primarily as a result of water percolating up from the ground with some contribution from surface water runoff. Peatlands are often classified along a chemical gradient (pH and concentration of cations such as Ca²⁺, Na⁺, K⁺, and Mg²⁺) (Cooper and Andrus 1994). The gradient is typically as follows: ombrotrophic bogs and poor fens are characterized by low pH and low cation concentration, whereas rich and extreme rich fens are characterized by high pH and high cation concentration. Most fens in Colorado would be considered "intermediate" or "rich" fens. The fen in this site falls within this category. These terms do not refer to the number of species in the wetland. They refer instead to the levels of nutrients (calcium, magnesium, etc.) in the water. Most of the fen at this site is dominated by water sedge (*Carex aquatilis*) and to a lesser extent beaked sedge (*Carex utriculata*). Near the eastern portion of the fen, groundwater discharge supports a small but high quality stand of blister sedge (*Carex vesicaria*). Bluejoint reedgrass (*Calamagrostis canadensis*) and tufted hairgrass (*Deschampsia cespitosa*) are also common in this area. Further toward the north end of the wetland, soils are not organic rather have a mollic epipedon. The site is very remote. A few old roads lead to the wetland, but are not used often as the site sits on a private ranch. Livestock graze the area but impacts were only observed along the periphery of the wetland where soil compaction may be occurring.

Key Environmental Factors

Groundwater discharge. Grazing.

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Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 01/04/2004

Designer Rocchio, F.J.

Boundary Justification

Boundaries incorporate those areas where groundwater discharges and intermediate areas to allow for dispersal and movement of vegetation. It should be noted that the hydrological processes necessary to the elements are not fully contained by the boundaries. Additional research should identify critical areas to protect for groundwater recharge, as groundwater is critical to the viability of the wetland. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 172.95 Acres

69.99 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

A good (B-ranked) occurrence of the state critically imperiled (G4Q/S1) blister sedge (*Carex vesicaria*) plant association occurs at this site. This association has a wide regional distribution, but has only been documented in very small patches on the landscape and is documented from only a few stands in Colorado, which may represent its southern distribution. The association forms open meadows similar to the beaked sedge plant association. As with beaked sedge, it occurs along the shores of lakes and ponds in shallow water, as well as in poorly drained basins and along rivers and streams. The water table typically remains above the ground surface throughout the year. Fens, which are formed by stable discharge of groundwater, are one of Colorado's rare wetland types. They require wet, anaerobic soils, carbon accumulation from vigorous plant growth, low soil temperatures, and thousands of years to form their characteristic organic soils. Once formed, these organic soils are essentially irreplaceable in any management time frame. Due to their rarity and status as a non-renewable resource, the U.S. Fish and Wildlife Service has placed fens in Resource Category One, which requires "no loss of habitat value" and CNHP has elevated the biodiversity rank to B3 as opposed to B4.

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

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>			
18964	<i>Carex vesicaria</i> Herbaceous Vegetation	Montane Wetland	G4Q	S1	Yes

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REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
184708	Chimner, R.A. and D.J. Cooper. 2002. Modeling carbon accumulation in Rocky Mountain fens. Wetlands 22: 100-110.
184694	Cooper, D. J. and R. Andrus. 1994. Peatlands of the west-central Wind River Range, Wyoming: Vegetation, flora and water chemistry. Canadian Journal of Botany 72: 1586-1597.
159769	Cooper, D.J. 1990. An evaluation of the effects of peat mining on wetlands in Park County, Colorado. Unpublished report prepared for Park County, Colorado. 31 pp.
184706	Rocchio, J. 2004. Final Report: Survey of Critical Wetlands and Riparian Areas in Southern Alamosa and Costilla Counties, San Luis Valley, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
184703	United State Department of Agriculture (USDA). 1994. Keys to Soil Taxonomy. Soil Survey Staff, Soil Conservation Service, U.S. Department of Agriculture. Sixth Edition. Pocahontas Press, Inc. Blacksburg, Virginia.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 01/04/2004
Version Author Rocchio, F.J.

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