

# Level 4 Potential Conservation Area (PCA) Report

Name Sheep Mountain at Bison Reservoir

Site Code S.USCOHP\*28274

## IDENTIFIERS

Site ID 2764 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 384709N  
State Colorado Longitude 1050358W

Quad Code Quad Name  
38105-G1 Pikes Peak

County  
Teller (CO)

Watershed Code Watershed Name  
11020002 Upper Arkansas

## SITE DESCRIPTION

Minimum Elevation	10,400.00 Feet	3,169.92 Meters
Maximum Elevation	11,800.00 Feet	3,596.64 Meters

### Site Description

The Sheep Mountain at Bison Reservoir site is located on the west slope of the Front Range on the southwest flanks of Sheep Mountain. The site encompasses ecosystems from the alpine down into the upper montane zone and includes an unnamed stream that is confluent with Bison Creek. The landscape is characterized by steep mountain slopes, sheer-walled cliffs, benches, gullies and swales. Alpine habitat is a complex mosaic of alpine communities including forb meadows, turf meadows, gopher gardens, and boulder fields with plant species such as snowball saxifrage (*Saxifraga rhomboidea*), Parry lousewort (*Pedicularis parryi*), and curly sedge (*Carex rupestris*), rocky ridges and outcrops with species including James' teleonix (*Telesonix jamesii*), and shrublands characterized by wolf willow (*Salix wolfii*) / mesic forb carrs. Alpine soils are a patchy mosaic of gravel and thin turf where cushion plants have established and have begun to develop an organic soil layer. Krummholz stands of Engelmann spruce (*Picea engelmannii*) occur at the lower limit of the alpine zone and mark the transition to the subalpine. Subalpine and montane habitat is characterized by steep, narrow slopes, bordered by sheer-walled cliffs, alternating with low gradient, wider benches. Mixed stands of Engelmann spruce and quaking aspen (*Populus tremuloides*) occupy slopes while benches are vegetated by shrublands that are dominated by willow species including Bebb's willow (*Salix bebbiana*). An unnamed stream that has its beginnings as shallow groundwater discharge flows in a southeast direction down these steep slopes. Where slope gradient decreases and low gradient benches occur, shrub and herbaceous wetlands have developed in response to stream and shallow groundwater discharge. In these wetland sites soils are moist with a deep layer of humus but in surrounding uplands, soils are coarse gravels or occasionally a thin layer of soil on top of exposed bedrock. Bedrock is composed of Pikes Peak granite (Tweto 1979) which has eroded into the coarse gravels that are the origins of the soils in this site.

### Key Environmental Factors

Hydrology is the key ecological process that sustains the willow shrubland element occurrences in this site. Also important is climate, and specifically climate change which, in Colorado, is expected to result in changes in the timing of precipitation and runoff which may reduce late summer stream flows and warmer temperatures which will affect evaporation rates in rivers, streams and reservoirs (CWCB 2010). Direct consequences of climate change include altered stream flows and groundwater regime. Indirect consequences of climate change include vegetation changes including an increase in treelimit which will eliminate many alpine habitats and changes in both riparian and upland community species' composition in response to an altered moisture regime.

### Climate Description

Due primarily to elevational changes and topographic complexity, wide climate variations occur within short distances and local climate in the higher elevations of the Front Range is dramatically different from climate at relatively nearby locations which are at lower elevations. Due to geography, precipitation in Front Range ecosystems in Teller County comes primarily during summer months. At this site on this west slope of the

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Front Range and southwest flanks of Sheep Mountain at an average elevation of 11,100 feet, from 1971 to 2000, coldest temperatures occurred in January with an average maximum of 30.99 °F and a minimum of 7.90 °F. Warmest temperatures occurred in July with an average maximum of 68.02 °F and an average minimum of 42.49 °F. Annual average precipitation was 23.87 inches. July and August were the wettest months of the year with 4.49 and 4.28 inches of precipitation respectively. Driest months are January and February with 0.57 and 0.54 inches of precipitation respectively (Prism 2010).

## Land Use History

No Data

## Cultural Features

No Data

## SITE DESIGN

Site Map Y - Yes

Mapped Date 01/10/2011

Designer Malone, D.G.

## Boundary Justification

The boundary was drawn to include the known element occurrences as well as sufficient landscape to enable hydrologic processes, especially shallow groundwater recharge, that are essential to the long-term sustainability of the elements.

Primary Area 324.83 Acres

131.45 Hectares

## SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

## Biodiversity Significance Comments

The Sheep Mountain site is drawn for a good (B-ranked) occurrence of a globally vulnerable (G3?/S2) riparian shrubland Bebb's willow (*Salix bebbiana*) and a good (B-ranked) occurrence of the globally vulnerable (G3/S3) riparian shrubland wolf willow (*Salix wolfii*) /mesic forb. Bebb's willow shrublands have been altered by changes in historic natural processes, including flooding, and more recent human impacts, such as grazing. Wolf willow / mesic forb shrublands are a widespread association, known from Colorado, Utah, Wyoming and Idaho, although never very abundant where it occurs and is threatened by overuse by livestock and changes in the hydrologic regime that can result in a lower water table (NatureServe 2010).

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</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>
24572	<i>Salix wolfii</i> / Mesic Forbs Shrubland	Subalpine Riparian Willow Carr	G3?	S3	Yes
20994	<i>Salix bebbiana</i> Shrubland	Montane Willow Carrs	G3?	S2	Yes

## REFERENCES

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## Reference ID

## Full Citation

198644	Colorado Water Conservation Board (CWCB) (Web Page). Accessed 2010. Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation. <a href="http://cwcb.state.co.us/">http://cwcb.state.co.us/</a>
198660	Culver, D.R., D. Malone, and A. Shaw. 2011. CNHP Final Report: Survey of Critical Biological Resources in Teller County, Colorado. 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. <a href="http://www.natureserve.org/explorer">http://www.natureserve.org/explorer</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>
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.

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

<b>Version Date</b>	01/10/2011
<b>Version Author</b>	Malone, D.G.

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