

Level 4 Potential Conservation Area (PCA) Report

Name Pikes Peak

Site Code S.USCOHP*195

IDENTIFIERS

Site ID 1735 Site Class PCA
Site Alias None

Network of Conservation Areas (NCA)

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

LOCATORS

Nation United States Latitude 384856N
State Colorado Longitude 1050242W

Quad Code	Quad Name
38105-H1	Woodland Park
38105-G1	Pikes Peak
38104-G8	Manitou Springs

County

Teller (CO)
El Paso (CO)

Watershed Code	Watershed Name
11020002	Upper Arkansas
11020003	Fountain

SITE DESCRIPTION

Minimum Elevation	10,800.00 Feet	3,291.84 Meters
Maximum Elevation	14,110.00 Feet	4,300.73 Meters

Site Description

Pikes Peak, at 14,109 feet, dominates the horizon along the entire Front Range. Pikes Peak with its numerous granite outcrops, is a distinctive granitic massif that is part of a 1,300 square mile batholith that marks the southern end of the Colorado Front Range (Benedict 2008). Bedrock geology is composed of Pikes Peak granite which is extremely friable and readily erodes into the porous gravels that characterize soils throughout the landscape (Tweto 1979). Decomposition of Pikes Peak granite into coarse, angular gravels (called grus), consisting mostly of feldspar and quartz, is conspicuous throughout the site (Benedict 2008). The true alpine zone, an expanse of dry meadows and boulder fields, extends from treeline around 11,400 to the summit of Pikes Peak at 14,109 (Kelso 2008). The alpine meadows are dominated by large patch systems that include Kobresia - curly sedge (*Kobresia myosuroides* - *Carex rupestris*) and curly sedge - Ross' avens (*Carex rupestris* - *Geum rossii*) herbaceous vegetation interspersed with forbs such as alpine bluebells (*Mertensia alpina*) snowball saxifrage (*Saxifraga rhomboidea*), alpine dryad (*Dryas octopetala*), alpine clover (*Trifolium dasyphyllum*), Rocky Mountain columbine (*Aquilegia saximontana*), Parry lousewort (*Pedicularis parryi*), and numerous mustards (*Draba* spp.). The Pike's Peak spring parsley (*Oreoxis humilis*), found in the alpine zone, is one of the world's rarest plants. The entire global population of the Pikes Peak spring parsley is located within this site. The fellfield communities dominate adjacent rocky ridges and rock outcrops where chasmophytes (plants that inhabit rock crevices), such as James telesonix (*Telesonix jamesii*), occupy crevices. 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*) and limber pine (*Pinus flexilis*) occur at the lower limit of the alpine zone and mark the transition to the subalpine. The subalpine zone is a mosaic of conifer forests dominated by Engelmann spruce (*Picea engelmannii*) on moist north- and west-facing slopes, and by ancient Bristlecone pine (*Pinus aristata*) woodlands on drier, south-facing slopes. Willow shrublands occur characterized by wolf willow (*Salix wolfii*) carrs. Several stream headwaters (e.g. Boehmer East Fork, West Fork, Beaver Creek and French Creek) flow down to the elaborate network of reservoirs which supply Victor, Cripple Creek, and Colorado Springs with water.

Key Environmental Factors

Key factors include physical characteristics, especially geology, and edaphic properties and specifically the friable Pikes Peak granite that erodes into porous gravel soils; Climate as related to the alpine zone precludes tree growth and spatial characteristics. Snow distribution is a key determinant of the distribution of alpine plant communities. Indirect consequences of climate change include vegetation changes including an increase in

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tree-limit which will decrease the alpine zone.

Climate Description

Due to elevation and complex topography climate on Pikes Peak is dramatically different from climate at relatively nearby locations at lower elevations. Due to geography, precipitation in Front Range ecosystems in Teller County comes primarily during summer months. On Pikes Peak, at an elevation of 14,109 feet, the alpine climate is substantially different from the mid-elevation climate in Woodland Park at an elevation 8,600 feet and only 14.5 miles away. At this site on this west-facing slope of Pikes Peak at an average elevation of 12,500 feet, from 1971 to 2000, coldest temperatures occurred in January with an average maximum of 23.77 °F and a minimum of 0.52 °F. Warmest temperatures occurred in July with an average maximum of 58.06 °F and an average minimum of 31.68 °F. Annual average maximum precipitation was 39.16 inches. April through August were the wettest months of the year with July having the greatest average precipitation with 5.38 inches. Driest months are November through February with January and February having the least precipitation with 0.84 and 0.83 inches respectively (Prism 2010).

Land Use History

In 1859, the discovery of gold in the area prompted many pioneers to post "Pikes Peak or Bust" banners on their wagons. Pikes Peak is also touted as the inspiration for the song, "America the Beautiful". Pikes Peak was the first biological survey conducted in the Colorado alpine by Edwin James, a member of the 1820 Longs Expedition (Kelso 2008).

Cultural Features

In 1806 President Thomas Jefferson dispatched an expedition to explore the Pikes Peak region. The party was led by Zebulon Pike, who called the peak "Grand Peak". Pikes Peak was then mapped first by USGS as "James Peak", but was commonly called Pikes Peak by trappers and military men (Chronic and Williams 2002). The mountain was also the inspiration for the anthem "America the Beautiful: with its "purple mountain majesties above the fruited plain." (Chronic and Williams 2002).

SITE DESIGN

Site Map Y - Yes

Mapped Date 12/20/2010

Designer Malone, D.G.

Boundary Justification

The boundary encompasses known element plant species occurrences and likely potential habitat as well as surrounding habitat sufficient to enable the maintenance of essential ecological processes, including snowmelt and snow distribution and edaphic erosional processes. Additional consideration was given to Colorado's changing climate (CWCB 2010) and the need for the ability of native species to be able migrate upward in elevation in order to survive changing environmental conditions.

Primary Area

17,690.82 Acres

7,159.25 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B1: Outstanding Biodiversity Significance

Biodiversity Significance Comments

This site includes all known occurrences for the globally critically imperiled (G1/S1) Pikes Peak spring parsley (*Oreoxis humilis*). Three of these occurrences are in excellent (A-ranked) condition. The site also supports good (B-ranked) and fair (C-ranked) occurrences of the Rocky Mountain columbine (*Aquilegia saximontana*). This columbine is a globally vulnerable (G3/S3) Colorado endemic. Excellent (A-ranked) occurrences of the globally imperiled (G2/S2) James' teleonix (*Telesonix jamesii*) have also been documented. James' teleonix is known only from Colorado and New Mexico. In Colorado it is scattered sporadically on granite tors of the easternmost mountains; in northern New Mexico, it has been reported from one mountain area. Excellent (A-ranked) and good (B-ranked) occurrences of the state rare (G4/S1) alpine bluebells (*Mertensia alpina*) have also been found in the site. Alpine bluebells are documented solely from Pikes Peak in Colorado. Another state rare (G4/S2S3) alpine species, the arctic draba (*Draba fladnizensis*) has been documented. Alpine plant community occurrences in this site include good (B-ranked) occurrences of the globally apparently secure (G4/S4) curly sedge - alpine avens (*Carex rupestris* - *Geum rossii*) herbaceous vegetation, a good (B-ranked) occurrence of the globally demonstrably secure (G5/S5) nailwort-moss campion (*Paronychia pulvinata* - *Silene acaulis*) herbaceous vegetation, and a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) wolf willow (*Salix wolfii*) / mesic forb shrubland. A good (B-ranked) occurrence of the globally secure (G5/S5) Kobresia - alpine avens (*Kobresia myosuroides* - *Geum rossii*) turf meadow is documented and as well as a good (B-ranked) occurrence of a globally

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imperiled (G2/S2) bristlecone pine / alpine clover (*Picea engelmannii* / *Trifolium dasyphyllum*) woodland. This type is a regional endemic with only a few recorded occurrences within its potential range. It requires relatively xeric subalpine slopes between 11,250 and 11,645 feet (just below timberline) with skeletal mineral soils and adequate drainage. Stands are threatened by recreational use, mining, and possibly effects of atmospheric deposition of pollutants (NatureServe 2010). Animal occurrences include Brown-capped finch (*Leucosticte australis*) (G4/S3B,S4N) and White-tailed Ptarmigan (*Lagopus leucurus*) (G5/S4).

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

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
21354	<i>Oreoxis humilis</i>	Pikes Peak spring parsley	G1	S1	Yes
19017	<i>Draba fladnizensis</i>	arctic draba	G4	S2S3	No
23906	<i>Mertensia alpina</i>	alpine bluebells	G4?	S1	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
23906	<i>Mertensia alpina</i>	alpine bluebells	G4?	S1	No
18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
23906	<i>Mertensia alpina</i>	alpine bluebells	G4?	S1	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
21354	<i>Oreoxis humilis</i>	Pikes Peak spring parsley	G1	S1	Yes
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
21354	<i>Oreoxis humilis</i>	Pikes Peak spring parsley	G1	S1	Yes
21354	<i>Oreoxis humilis</i>	Pikes Peak spring parsley	G1	S1	No
18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
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18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
21354	<i>Oreoxis humilis</i>	Pikes Peak spring parsley	G1	S1	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
18092	<i>Aquilegia saximontana</i>	Rocky Mountain columbine	G3	S3	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
19611	<i>Telesonix jamesii</i>	James' telesonix	G2	S2	No
22929	<i>Leucosticte australis</i>	Brown-capped Rosy-finch	G4	S3B,S4N	No
24462	<i>Lagopus leucurus</i>	White-tailed Ptarmigan	G5	S4	No
24530	<i>Picea engelmannii</i> / <i>Trifolium dasyphyllum</i> Forest	Timberline Forests	G2?	S2	No

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24572	<i>Salix wolfii</i> / Mesic Forbs Shrubland	Subalpine Riparian Willow Carr	G3	S3	No
24966	<i>Carex rupestris</i> - <i>Geum rossii</i> Herbaceous Vegetation	Alpine Meadows	G4	S4	No
24698	<i>Paronychia pulvinata</i> - <i>Silene acaulis</i> Dwarf-shrubland	Alpine Fellfields	G5	S5	No
24953	<i>Kobresia myosuroides</i> - <i>Geum rossii</i> Herbaceous Vegetation	Alpine Meadows	G5	S5	No

REFERENCES

Reference ID	Full Citation
198726	Benedict, Audrey D. 2008. The Naturalist's Guide to the Southern Rockies: Colorado, southern Wyoming, and northern New Mexico. Fulcrum Publishing, Golden, CO.
198295	Chronic, H. and F. Williams. 2002. Roadside Geology of Colorado. Second Edition. Mountain Press Publishing Company. Missoula, MT.
198644	Colorado Water Conservation Board (CWCB) (Web Page). Accessed 2010. Climate Change in Colorado: A Synthesis to Support Water Resources Management and Adaptation. http://cwcb.state.co.us/
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.
193479	Doyle, G., J. Armstrong, Gionfriddo, J., Anderson, D., Stevens, J., and R. Schorr. 2001. Final Report: Survey of Critical Biological Resources of El Paso County, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
193478	Fayette, K.K. 1999. Final Report: Biological Survey of the Pikes Peak Area. Colorado Natural Heritage Program, Fort Collins, CO.
198725	Kelso, Tass . 2008. Botany of the Pikes Peak Region: Green Landscapes and the Mountain of Red Ochre. Unpublished report. Colorado College, Colorado Springs, CO.
198314	NatureServe Explorer (Web Page). Accessed 2010. An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. http://www.natureserve.org/explorer .
198649	Prism Climate Group (Web Page). Accessed 2010. Spatial Climate Analysis. http://www.prism.oregonstate.edu/
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

Original site design by Fleming, C.C. 1997-09-03. Updated by Fayette, K.K. 1998-09-08.

VERSION

Version Date	12/20/2010
Version Author	Malone, D.G.

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