

Level 4 Potential Conservation Area (PCA) Report

Name Niwot Ridge

Site Code S.USCOHP*27415

IDENTIFIERS

Site ID 2525 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 400327N
State Colorado Longitude 1053502W

Quad Code Quad Name

40105-A5 Ward

County

Boulder (CO)

Watershed Code Watershed Name

10190005 St. Vrain

SITE DESCRIPTION

Minimum Elevation	10,660.00	Feet	3,249.17	Meters
Maximum Elevation	12,385.00	Feet	3,774.95	Meters

Site Description

Niwot Ridge is an east-west trending alpine ridge near the Continental Divide in southwest Boulder County. It is characterized by glacial landforms including sharp ridges and glacial cirques, moraines, glacial lakes, and talus slopes. The site is entirely above 10,000 feet (3,050 m) in the alpine zone. There is both permafrost and patterned ground. The alpine area was studied intensively by Komarkova and Webber (1978) who mapped the vegetation mosaic. Vegetation follows patterns of moisture and snow accumulation and persistence, which is largely driven by wind and topography. The majority of the ridge is a mosaic of alpine turf and wet meadow vegetation. Alpine turf is a diverse mix of creeping sibbaldia (*Sibbaldia procumbens*), Ross' avens (*Geum rossii*), tufted hairgrass (*Deschampsia caespitosa*), curly sedge (*Carex rupestris*), alpine dryad (*Dryas octopetala*), Bellardi bog sedge (*Kobresia myosuroides*), dwarf bilberry (*Vaccinium caespitosum*) and whortleberry (*V. scoparium*). Treeline occurs at approximately 11,150 ft (3,400 m) depending on exposure and aspect. Engelmann spruce (*Picea engelmannii*) krummholz transitions to subalpine forest below.

Key Environmental Factors

Alpine environment; glaciated landforms.

Climate Description

Due to its alpine elevations, Niwot Ridge has relatively low temperatures throughout the year. Annual mean temperature at high elevation is 25.3 degrees F (-3.7 degrees C) with a January mean temperature of 8.2 degrees F (-13.2 degrees C) and a July mean of 46.8 degrees F (8.2 degrees C). There is high solar radiation (and thus high levels of ultraviolet radiation), high wind velocities, and a very short growing season. Precipitation is highly variable annually, spatially, and seasonally. Mean annual precipitation is about 3.75 inches (930 mm). Most of the precipitation occurs as snow falling in winter and spring months. Summer precipitation occurs as brief convective storms. One-third of annual precipitation is lost via evapotranspiration and the rest leaves as runoff. Snow accumulation patterns result from interaction between precipitation, wind, and topography. The mosaic of snow accumulation creates variability in the quantity and timing of meltwater release.

Land Use History

Niwot Ridge has been a site of scientific research for decades; it became a designated Long-Term Ecological Research (LTER) site in 1980. Meteorological data have been collected from a network of stations that span 8,500-12,275 feet (2590-3742 m) since 1953. Ongoing major research topics include pattern, depth, and chemical composition of snow accumulation and its impacts on biological and biogeochemical questions; climate change; and ecosystem processes such as atmospheric nitrogen deposition.

Cultural Features

No Data

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SITE DESIGN

Site Map Y - Yes Mapped Date 10/30/2008

Designer Neid, S.L.

Boundary Justification

This site encompasses the alpine tundra area of Niwot Ridge with some of the adjacent treeline and subalpine forest as a buffer.

Primary Area 2,821.59 Acres 1,141.86 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

This site is drawn for an excellent (A-ranked) occurrence of the globally imperiled (G2G3/S2S3) downy indian-paintbrush (*Castilleja puberula*), an excellent (A-ranked) occurrence of a globally vulnerable (G3/S3) alpine tundra community, *Kobresia myosuroides* - *Carex rupestris* var. *drummondiana*, and a good (B-ranked) occurrence of the globally vulnerable (G3G4/S3) Patterson's wormwood (*Artemisia pattersonii*). There are presumed extant occurrences of the state imperiled (G4/S2S3) arctic draba (*Draba fladnizensis*), state critically imperiled (G3G4/S1) Porsild's whitlow-grass (*Draba porsildii*), and state critically imperiled (G5T5/S1) tundra saxifrage (*Saxifraga cespitosa* ssp. *monticola*) but these occurrences are imprecise and field surveys are needed to verify the populations.

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

Field surveys are needed to verify extent and quality of rare plant populations.

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24736	<i>Kobresia myosuroides</i> - <i>Carex rupestris</i> var. <i>drummondiana</i> Herbaceous Vegetation	Dry Alpine Meadows	G3	S3?	No
17753	<i>Castilleja puberula</i>	downy indian-paintbrush	G2G3	S2S3	Yes
17484	<i>Artemisia pattersonii</i>	Patterson's wormwood	G3G4	S3	No

REFERENCES

Reference ID	Full Citation
195190	Neid, S., J. Lemly, K. Decker and D. Culver. 2009. Final Report: Survey of Critical Biological Resources in Boulder County 2007-2008. Colorado Natural Heritage Program, Fort Collins, CO.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 10/30/2008

Version Author Neid, S.L.

Disclaimer

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