

# Level 4 Potential Conservation Area (PCA) Report

Name East Side of Chalk Mountains

Site Code S.USCOHP\*25771

## IDENTIFIERS

Site ID 2263 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 370713N  
State Colorado Longitude 1064225W

## Quad Code Quad Name

37106-A6 Chama Peak  
37106-B6 Elephant Head Rock

## County

Archuleta (CO)

## Watershed Code Watershed Name

14080101 Upper San Juan

## SITE DESCRIPTION

Minimum Elevation	8,080.00 Feet	2,462.78 Meters
Maximum Elevation	9,520.00 Feet	2,901.70 Meters

## Site Description

The Chalk Mountains are a small, north-south mountain range in the southeast corner of Archuleta County, bound on the north by Flattop Mountain (11,436') and on the south by Navajo Peak (11,323'). The Navajo River drains the east side of the Chalk Mountains, and the west side drains to the Rio Blanco and the Little Navajo River. All are tributaries to the San Juan River. The Chalk Mountains display an array of colored cliff faces as they rise dramatically from more gently sloping foothills. The toe and mid slopes east of the Chalk Mountains contain highly erosive surface geology resulting in hillslopes that are slumpy with hummocky soils. Many steep montane streams flow eastward from the mountains, and depressional wetlands have formed in the breaks of the slope and are fed by groundwater and/or surface water (streams) or sheet flow. Uplands are dominated by pine (*Pinus ponderosa*) or spruce-fir forests (*Picea pungens* - *Abies concolor*, *Abies lasiocarpa*), aspen groves (*Populus tremuloides*), and grasslands dominated by Thurber's fescue (*Festuca thurberi*) and pasture grasses. The depressional wetlands across the toe and mid slopes of the Chalk mountains support many scattered populations of retrorse sedge (*Carex retrorsa*), usually occurring with beaked sedge (*Carex utriculata*), American mannagrass (*Glyceria grandis*), bluejoint reedgrass (*Calamagrostis canadensis*) on the mudflats and within shallow water. Emergent vegetation includes common spikerush (*Eleocharis palustris*) and narrowleaf bur-reed (*Sparganium emersum*). There is typically little aquatic vegetation present and open water in the center of the pond. At the foot of some dramatic colored cliffs, a thinlineaf alder (*Alnus incana*) / mesic graminoid community surrounds a large pond called Dolomite Lake, and follows the outlet drainage eastward down the hillside to larger Grayhackle Lake, where it surrounds the latter lake as a fringe. The plant association is characterized by a dense canopy cover of alder and a dense canopy cover of mesic graminoids, dominated by beaked sedge, American mannagrass, common spikerush, and bluejoint reedgrass.

## Key Environmental Factors

Field ecologists in 2005 found that in Archuleta County, retrorse sedge often occupies clayey soils on muddy shorelines, and sometimes within shallow standing water, of depressional wetlands roughly between 8,000 and 9,500 feet elevation. It is also often found on slightly higher ground along perennially wet areas, especially preferring banks along small channels, small to mid-size depressional wetlands, open mudflats at pond edges, and surface-drying mud. Retrorse sedge is nearly always found with beaked sedge, but seems to occupy slightly higher ground or the mudflat niche that beaked sedge doesn't colonize as aggressively. The surface geology is comprised of Quaternary aged landslide deposits that are locally comprised of talus, rock glacier, and thick colluvial deposits (Tweto 1979), which often form hummocky soils and have poorly developed drainage patterns (USDA 1981). Dominant soil types include Castelleia loams, which are moderately deep and well drained, but often limited by an underlying layer of impervious shale or sandstone. Large pockets of Hunchback clay loams, which are deep, poorly drained and occurring on fans and toe slopes, appear to be directly related to locations of ponds mapped on the USGS 7.5 minute topographic quadrangle. The third

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dominant soil type in the area is Corta silt loam, a deep and well drained soil with low permeability, again limited by an underlying layer of impervious shale or sandstone (USDA 1981). Soil samples taken at the various retrorse sedge occurrences sometimes have a surface layer of muck, but then nearly all samples generally display a deep layer of silty-clay soils saturated to the surface, with mottling indicating fluctuating water levels. Specific soil samples taken within the alder/mesic graminoid community display a shallow surface horizon of loamy sand with mottling and a high percentage of roots. The next horizon was deeper with a loamy sand texture with a very dark color. Water collected at 30 cm depth in the soil pit.

## Climate Description

No Data

## Land Use History

The site is located in an area of Archuleta County that was part of the original Tierra Amarilla Mexican Land Grant. Fifty-thousand acres of this land grant at the northern extent of the Navajo River are now divided into 3 private ranches: Banded Peak Ranch, Catspaw Ranch, and Navajo Headwaters Ranch.

## Cultural Features

No Data

### SITE DESIGN

Site Map Y - Yes

Mapped Date 01/02/2006

Designer Freeman, K.M.

## Boundary Justification

The boundary was drawn to encompass all known retrorse sedge occurrences as well as the alder/mesic graminoid occurrence, along with additional areas that offer similar geology, soils, drainages, and groundwater discharges suitable for supporting additional populations or allowing populations to expand. The boundaries were additionally determined by the edge of loam/silt-loam/clay loam soil types (USDA 1981) which support the populations, and landslide deposit surficial geology (Tweto 1979), which is essential in creating the hummocky soils intercepted by groundwater that support the small ponds and the retrorse sedge populations. Natural fluvial processes such as seasonal flooding, sediment deposition, and beaver activity will help maintain viable population of the alder/mesic graminoid component along the montane drainages (Sanderson and Kettler 1996, Carsey et al. 2003).

Primary Area 1,965.39 Acres

795.37 Hectares

### SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

## Biodiversity Significance Comments

The site supports a good occurrence (B-ranked) of the globally vulnerable (G3/S3) thinleaf alder (*Alnus incana*) / mesic graminoids montane riparian shrubland. This is the only documented occurrence of this association in Archuleta County as of 2005. Often this association is found with a high percentage of non-native grasses in the graminoid understory (Carsey et al. 2003), but this occurrence is relatively undisturbed and supports mostly native graminoid species with the exception of the ubiquitous Kentucky bluegrass (*Poa pratensis*). The site also supports two good (B-ranked) populations of the globally secure (G5) but state critically imperiled (S1) retrorse sedge (*Carex retrorsa*). Retrorsed sedge has a broad distribution throughout the north half of North America, but, as of 2005, is known only in Colorado from several locations in Archuleta County. This site contains a large concentration of subpopulations.

Other Values Rank No Data

## Other Values Comments

No Data

### LAND MANAGEMENT ISSUES

## Land Use Comments

The area is primarily for wildlife use. The site crosses three private ranches that grazed cattle historically; however there have been no cattle on the property for approximately 10 years. Small areas of forestry delimited by the owners occur within the site. A very large (minimum 4,000 head) elk herd migrates through this area each year and often over-winters on the ranches, which accounts for any heavy grazing or browsing that might be observed.

## Natural Hazard Comments

No Data

# Level 4 Potential Conservation Area (PCA) Report

Name East Side of Chalk Mountains

Site Code S.USCOHP\*25771

## Exotics Comments

Canada thistle and musk thistle (*Cirsium arvense* and *Carduus nutans*) occur on the uplands surrounding many of the small ponds and riparian drainages. Musk thistle is considered a noxious weed in the county (State of Colorado, no date). Pasture grasses such as smooth brome, Kentucky bluegrass, timothy, and redtop (*Bromus inermis*, *Poa pratensis*, *Phleum pratense*, and *Agrostis gigantea*) are common on the surrounding uplands as well. Weeds occurring within several of the pond areas include devil's beggar-tick (*Bidens frondosa*), Canada thistle, common dandelion (*Taraxacum officinale*), and Mexican dock (*Rumex triangulivalvis*).

## Offsite

No Data

## Information Needs

The current owners are very conservation minded, and the ranch managers are very interested in learning as much about the natural elements on the property as possible. Excellent opportunities exist here for future surveys and/or inventories by CNHP staff, and maintaining the established, positive environment of information exchange with the ranch owners/managers would be encouraged in order to ensure future access the ranches and their resources.

## ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24976	<i>Alnus incana</i> / Mesic Graminoids Shrubland	Montane Riparian Shrubland	G3	S3	Yes
20504	<i>Carex retrorsa</i>	retorse sedge	G5	S1	No
20504	<i>Carex retrorsa</i>	retorse sedge	G5	S1	No

## REFERENCES

Reference ID	Full Citation
193596	Allison, Leslie. 2005. Ranch Manager, Banded Peak Ranch. Personal communication to Karin Freeman of the Colorado Natural Heritage Program.
160903	Carsey, K., D. Cooper, K. Decker, D. Culver, and G. Kittel. 2003. Statewide wetlands classification and characterization: Wetland plant associations of Colorado. Prepared for Colorado Department of Natural Resources, Denver, CO by Colorado Natural Heritage Program, Fort Collins, CO.
193633	Freeman, K.M., March, M.A. and D.R. Culver. 2006. Final Report: Survey of Critical Wetlands and Riparian Areas in Archuleta County. Colorado Natural Heritage Program, Fort Collins, CO.
193597	Relyea, R.A. 2005. The impact of insecticides and herbicides on the biodiversity and productivity of aquatic communities. <i>Ecological Applications</i> 15:618-627.
158563	Sanderson, J. and S. Kettler. 1996. A preliminary wetland vegetation classification for a portion of Colorado's West Slope. Unpublished final report submitted to the Colorado Department of Natural Resources and the U.S. Environmental Protection Agency. Colorado Natural Heritage Program, Fort Collins.
193555	State of Colorado, Department of Agriculture. No date. State Conservation Board Noxious Weed Program: Archuleta County. << <a href="http://www.ag.state.co.us/CSD/Weeds/mapping/counties/Archuleta.html">http://www.ag.state.co.us/CSD/Weeds/mapping/counties/Archuleta.html</a> >> Accessed 7 Nov 2005.
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.
193423	USDA, SCS. 1981. Soil Survey of Piedra Area, Colorado; Parts of Archuleta, Hinsdale, La Plata, Mineral, and Rio Grande Counties. In cooperation with the United States Forest Service and the Colorado Agricultural Experiment Station.

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

Version Date	01/02/2006
Version Author	Freeman, K.M.

# Level 4 Potential Conservation Area (PCA) Report

Name East Side of Chalk Mountains

Site Code S.USCOHP\*25771

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