

# Level 4 Potential Conservation Area (PCA) Report

Name Sevenmile Creek

Site Code S.USCOHP\*27754

## IDENTIFIERS

Site ID 2631 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 385310N  
 State Colorado Longitude 1060452W

<u>Quad Code</u>	<u>Quad Name</u>
38106-G1	Buena Vista East
38106-H1	Marmot Peak

County  
 Chaffee (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
11020001	Arkansas Headwaters

## SITE DESCRIPTION

<b>Minimum Elevation</b>	8,200.00	<b>Feet</b>	2,499.36	<b>Meters</b>
<b>Maximum Elevation</b>	9,800.00	<b>Feet</b>	2,987.04	<b>Meters</b>

### Site Description

The Sevenmile site is located in the foothills of the Mosquito Range on the east side of the Arkansas River Valley and to the northeast of the City of Buena Vista. The foothills rise to approximately 9,800 ft and are formed of Precambrian granitic rocks (1,700 M.Y.) whereas the highest peaks in the range reach elevations in excess of 14,000 ft and are typically formed of pre-Pennsylvanian and Pennsylvanian aged sedimentary rocks and late cretaceous and tertiary-aged intrusive igneous rock (Tweto 1979). The Mosquito Range, which forms the eastern border of the Arkansas River Valley, is part of the Sawatch uplift and was historically continuous with the Sawatch Range which forms the west border of the valley. During the Laramide orogeny, 35 M.Y.A., the formation of a fault-bounded rift valley separated the Mosquito Range from the Sawatch Range which subsequently resulted in the development of the Arkansas River (Topper et al. 2003). Faulting has created extensive fractures in the granite rocks that form the foothills of the Mosquito Range. This fracturing has created a system with greater groundwater recharge than would otherwise occur (Emerick pers. comm. 2009). Surface discharge from this groundwater system supplies water to several creeks in these foothills including Sevenmile Creek. The highly fractured landscape erodes more quickly and into the more rounded land shapes that characterize the foothills (Emerick pers. comm. 2009). Granite typically weathers and disintegrates into grus that consists of large feldspar and quartz crystals that are highly porous with little moisture holding capacity. Moisture holding capacity has typically increased on hilltops as the grus has further weathered into clay and organic matter accumulated. On hillslopes, as the granite weathered, the eroded granite crystals have been carried to the valley floor leaving hillslope soils thin and eroding. In valley bottoms, the combination of increased moisture from fracture discharge and rich plant growth has enabled the development of deeper soils. Consequently hilltops and low-gradient slopes typically have deeper soils with greater vegetation cover than steeper hillslopes. Valley bottoms, where moisture and soils have accumulated, are well-vegetated and frequently drained by ephemeral or permanent streams. In stream valleys, riparian soils vary from coarse sand to fine-grained, highly organic soil depending on the characteristics of adjacent slopes and the presence or absence of beaver activity. Uplands are characterized by rounded hilltops cut with steep canyons and ridge-tops punctuated by granite boulder outcrops. Upland plant communities are in stark contrast with the lush riparian habitat. Soils are well drained and support a mosaic of drought-tolerant woodland, shrubland and grassland communities. Forested habitat is characterized by a widely scattered mix of ponderosa pine (*Pinus ponderosa*) and pinon - juniper (*Pinus edulis* - *Juniperus scopulorum*) woodlands, with Douglas-fir (*Pseudotsuga menziesii*) and aspen (*Populus tremuloides*) on north-facing slopes and in gullies and draws. Shrublands and herbaceous meadows interfinger with the woodlands. Shrublands are characterized by a mosaic of mountain mahogany (*Cercocarpus montanus*) in association with antelope bitterbrush (*Purshia tridentata*) and large patches of sagebrush (*Artemisia* spp.) shrubland. Herbaceous meadows are characterized by a mix of mesic to xeric graminoids with a few forbs depending on soil, moisture, and exposure. Common graminoids include needle-and-thread (*Hesperostipa comata*), Indian ricegrass (*Stipa*

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*hymenoides*), spike fescue (*Leucopoa kingii*) and blue gramma (*Bouteloua gracilis*). Common forbs include miner's candle (*Oreocarya virgata*), prickly pear (*Opuntia* spp.), Indian paintbrush (*Castilleja* spp.) and blazing star (*Nuttalia* spp.). Riparian habitat is characterized by a linear mosaic of woodlands that alternate with shrublands, wet meadows and open water ponds. Beaver activity is prolific and their dams are an important structural feature of stream and riparian habitat to help conserve scarce water resources which then also contributes to creating and expanding riparian and wetland plant communities. Riparian woodlands are species rich and structurally complex. In more open canyons riparian woodlands are characterized by associations of narrowleaf cottonwood (*Populus angustifolia*) with a variety of willow species (*Salix* spp.) including shining willow (*Salix lucida*), mountain willow (*Salix monticola*) and coyote willow (*Salix exigua*) and non-willow shrubs including river birch (*Betula occidentalis*), thinleaf alder (*Alnus incana*), Wood's rose (*Rosa woodsii*), gooseberry and currant (*Ribes* spp.). The herbaceous layer here is dominated by a mix of graminoids and forbs including arctic rush (*Juncus balticus*), Canada reedgrass (*Calamagrostis canadensis*), field horsetail (*Equisetum arvense*), meadow rue (*Thalictrum fendleri*), and horsemint (*Agastache urticifolia*). In narrower canyons, woodlands are characterized by a tree layer that is dominated by conifers including Douglas-fir (*Pseudotsuga menziesii*), blue spruce (*Picea pungens*) and ponderosa pine (*Pinus ponderosa*). The shrub understory includes river birch (*Betula occidentalis*), mountain maple (*Acer glabrum*), red-osier dogwood (*Cornus sericea*) and coyote willow (*Salix exigua*). Herbaceous cover in these moist canyons is a diverse mix of graminoids and forbs typical of those species found in the deciduous woodlands and shrublands. Wider, lower gradient reaches of the site where beaver have been active are characterized by willow carrs that are dominated by one or two willow species, non-willow shrublands and open water ponds. Dominant willow species include shining willow (*Salix lucida*), coyote willow (*Salix exigua*), Geyer willow (*Salix geyeriana*) and mountain willow (*Salix monticola*). Non-willow shrublands include associations of river birch with a variety of willow species and thinleaf alder. The shrub canopy is typically dense and the herbaceous understory is confined mostly to canopy openings where it is dominated by graminoids such as arctic rush (*Juncus balticus*), beaked sedge (*Carex utriculata*), water sedge (*Carex aquatilis*) and cattail (*Typha angustifolia*) with a few forbs including willowherb (*Epilobium* spp.) and northern green orchid (*Platanthera aquilonis*). Open water ponds often have a dense growth of water smartweed (*Polygonum natans*) interspersed with stands of cattail and bulrush (*Schoenoplectus acutus*).

## Key Environmental Factors

Driving environmental factors that exert a major influence on biota at the site include geology, climate, hydrology and a keystone species, beaver (*Castor canadensis*). Topographic characteristics and climate have created arid upland ecosystems that are in stark contrast with the narrow bands of riparian and stream systems that drain the valleys and steep canyons. Geological activity that resulted in highly fractured granites also results in increased groundwater recharge that maintains stream flow. A natural flooding regime and out-of-bank flows are important to the maintenance of riparian communities, especially narrowleaf cottonwood (*Populus angustifolia*) woodlands. Beaver damming activity is especially important in this arid landscape to slowing stream flows, conserving water and increasing out of bank flows that help maintain high soil moisture in the riparian zone.

## Climate Description

Climate in the foothills of the Mosquito Range is warmer and drier compared to the mountains in the Sawatch Range on the west side of the Arkansas River valley but is wetter and cooler than that of the valley floor. The Mosquitoes are in the rain shadow of the Sawatch Range but may intercept some Pacific moisture as storms track to the east but they also intercept moisture from the Gulf of Mexico that is flowing from the southeast to the west and intercept thunderstorms that come out of the west in the summer (Siemer 1977). So, although not as wet and cool as the Sawatch Range, the Mosquitoes are wetter and cooler than the river valley which is in the rain shadow of both the Sawatch and Mosquito mountains. Climate information for Buena Vista, which is on the valley floor, records a mean annual precipitation 9.79 inches; the wettest months are July and August with 1.7 and 1.65 inches of precipitation per month respectively; the driest month is January with 0.34 inches; the warmest month is July at 64 deg F and the coldest month is January at 24 deg F (Western Regional Climate Center 2009). In Antero, to the east of the Mosquitoes, at an elevation of 8,920 ft, records indicate that the wettest months are July and August with a mean precipitation of 2.30 inches, the driest is January at 0.21 inches; the warmest month is July at 76.2 deg F and the coldest is January at 32.5 deg F (Western Regional Climate Center 2009).

## Land Use History

Historic agricultural uses of the site, including grazing, continue to impact biota and ecosystem function.

## Cultural Features

No Data

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## SITE DESIGN

Site Map Y - Yes Mapped Date 03/31/2009  
 Designer Malone, D.G.

### Boundary Justification

Boundaries encompass the element occurrences and the immediate watershed to protect hydrological processes, especially shallow groundwater recharge, and physical characteristics including soil moisture and the ecological processes of energy flow and nutrient cycling that maintain riparian and stream ecosystems. They also provide a buffer against direct disturbance from recreation and grazing. The natural processes are not completely contained in the boundary and off-site activities, especially motorized recreation, within the larger watershed have the potential to impact the elements of biodiversity in the riparian area.

Primary Area 2,370.53 Acres 959.32 Hectares

## SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

### Biodiversity Significance Comments

The site supports a good (B-ranked) occurrence of a globally vulnerable (G3/S3) *Pseudotsuga menziesii* / *Betula occidentalis* montane riparian forest, a good (B-ranked) occurrence of a globally vulnerable (G3/S2) *Betula occidentalis* / mesic graminoids lower montane riparian shrubland, a good (B-ranked) occurrence of a globally vulnerable (G3/S3) *Salix geyeriana* / mesic forbs montane willow carr, and a good (B-ranked) occurrence of a globally vulnerable (G3/S3) *Populus angustifolia* / *Salix (monticola, drummondiana, lucida)* montane riparian forest.

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

Exotic species are present throughout the understory and include cheatgrass (*Bromus tectorum*), Canada thistle (*Cirsium arvense*), clover (*Trifolium repens*), Kentucky bluegrass (*Poa pratensis*), houndstongue (*Cynoglossum officinale*) and, in the uplands, Russian thistle (*Salsola iberica*).

### Offsite

No Data

### Information Needs

No Data

## ASSOCIATED ELEMENTS OF BIODIVERSITY

Element	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24808	<i>Populus angustifolia</i> / <i>Salix (monticola, drummondiana, lucida)</i> Woodland	Narrowleaf Cottonwood/Mixed Willows Montane Riparian Forest	G3	S3	Yes
24629	<i>Salix geyeriana</i> / Mesic Forbs Shrubland	Montane Willow Carr	G3	S3	Yes
24637	<i>Betula occidentalis</i> / Mesic Graminoids Shrubland	Lower Montane Riparian Shrublands	G3	S2	Yes
24962	<i>Pseudotsuga menziesii</i> / <i>Betula occidentalis</i> Woodland	Montane Riparian Forest	G3?	S3	Yes

## REFERENCES

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<u>Reference ID</u>	<u>Full Citation</u>
198290	Culver, D.R., D. Malone, S.L. Neid, and J. Handwerk. 2009. Final Report: Survey of Critical Biological Resources in Chaffee County. Colorado Natural Heritage Program, Fort Collins, CO.
198322	Emerick, J.C. 2009. Colorado School of Mines. Personal Communication to Dee Malone of the Colorado Natural Heritage Program.
198318	Siemer, E. 1977. Colorado Climate. Colorado Experiment Station, Colorado State University.
198325	Topper, R., K.L. Spray, W.H. Bellis, J.L. Hamilton, and P.E. Barkman. 2003. Groundwater Atlas of Colorado. Colorado Geological Survey, Denver, CO.
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.
198320	Western Regional Climate Center. 2009. Record Climate Summaries. Accessed in 2009. <a href="http://www.wrcc.dri.edu/">http://www.wrcc.dri.edu/</a>

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

**Version Date** 03/31/2009  
**Version Author** Malone, D.G.

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