

Level 4 Potential Conservation Area (PCA) Report

Name Fourmile Creek at Quien Sabe

Site Code S.USCOHP*25751

IDENTIFIERS

Site ID 2258 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 372304N
 State Colorado Longitude 1070235W

<u>Quad Code</u>	<u>Quad Name</u>
37107-D1	Pagosa Peak
37107-C1	Pagosa Springs

County

Mineral (CO)
 Archuleta (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
14080101	Upper San Juan

SITE DESCRIPTION

Minimum Elevation	7,980.00	Feet	2,432.30	Meters
Maximum Elevation	8,720.00	Feet	2,657.86	Meters

Site Description

At the north-central edge of Archuleta County, Fourmile Creek drops between Quien Sabe Mountain and Cade Mountain through a narrow V-shaped valley at a moderate gradient with little sinuosity. The floodplain is narrow due to steep hillsides on either side, but the creek is meandering and migrating laterally when it can. The creek overbanks and deposits fine sandy-silty sediment on the floodplain and in secondary channels, but the floodplain consists mostly of boulders and cobble. High flows create drift lines, and carry large woody debris and other litter, depositing it in the creek bed and on the floodplain. The creek has a drop pool-short riffle structure along the length of the community, though the grade becomes gentler at the downstream end of the occurrence. The creek bed is lined by a consistent thinleaf alder-Drummond's willow (*Alnus incana* - *Salix drummondiana*) shrub component, with scattered mountain willow (*Salix monticola*) and narrowleaf cottonwood (*Populus angustifolia*). The riparian shrubs and trees grow close to the creek bed, and dense native mesic forbs and graminoids make up the herbaceous understory, dominated by cutleaf coneflower (*Rudbeckia laciniata* var. *ampla*), Fendler's cowbane (*Oxyopolis fendleri*), and fowl bluegrass (*Poa palustris*). The alder has some branch dieback as noted elsewhere across the county in 2005; otherwise the stands of alder and Drummond's willow are vigorous and dense. No emergent vegetation was noted on the creek edges or within the riparian zone, likely due to lack of soil development. Narrowleaf cottonwoods increase at the downstream end of the site, as does red-osier dogwood (*Cornus sericea*), and the riparian community shifts toward a narrowleaf cottonwood - blue spruce (*Picea pungens*)/alder community, but the alder-Drummond's willow component is still present. The hillsides are forested with a dense and mature subalpine fir - Engelmann spruce - blue spruce-quaking aspen (*Abies lasiocarpa* - *Picea engelmannii* - *Picea pungens* - *Populus tremuloides*) forest complex, with an understory of mesic herbaceous plant material, especially on the west hillside where a leaky irrigation ditch supplies groundwater to the seepy hillside. Wildlife use is common; caddisfly larvae were found under rocks in the creek, and fingerling fish were seen in the creek. Deer tracks were seen in the sediment next to the creek, an Abert squirrel (*Sciurus aberti*) was seen, and Northern Flickers (*Colaptes auratus*), American Crows (*Corvus brachyrhynchos*), chickadees (*Poecile* spp.), and Red-breasted Nuthatches (*Sitta canadensis*) were heard. Cattle grazing occurs in the area and causes erosion in seepy hillside locations. Cattle trails were noted above the creek and down to the creek in a few places, but the riparian area exhibits few direct impacts other than infrequent cattle visitation. Irrigation diversions occur upstream, within, and downstream of the community.

Key Environmental Factors

The geology of the upper third of the site is mapped as Landslide Deposits, and the lower two-thirds is mapped as Pictured Cliffs Sandstone and Lewis Shale (Tweto 1979). Soil within the upper two-thirds of the site is mapped as Pagosa Loam, formed in glacial till overlying shale. The lower third is mapped as Muggins

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Loam, derived from glacial till deposited as moraines (USDA 1981). Soils in the creek bed are alluvial, with large, granitic rounded cobbles (3"-18" diameter, on average) and boulders. Sandy-silty deposition occurs on banks and on cobble point bars.

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 12/29/2005

Designer Freeman, K.M.

Boundary Justification

The boundaries incorporate an area that will allow natural hydrological processes such as seasonal flooding, sediment deposition, and new channel formation to maintain a viable population of the riparian shrubland along Fourmile Creek. It should be noted that the hydrological processes necessary to the riparian community are not fully contained by the site boundaries. Given that the riparian community is dependent on natural hydrological processes associated with Fourmile Creek and its tributaries, upstream activities such as logging, residential or other development, water diversions or impoundments, and improper livestock grazing are detrimental to the hydrology of the riparian area. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 206.31 Acres

83.49 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site supports a good (B-ranked) occurrence of the globally vulnerable (G3/S3) thinleaf alder - Drummond's willow (*Alnus incana* - *Salix drummondiana*) montane riparian shrubland plant association. This plant community is an early- to mid-seral association that is typically confined to the immediate edges of steep, shady streams. Both species produce profuse amounts of seed, and readily colonize areas of bare sediment deposition including areas that have been recently scoured by floodwaters or seasonal runoff. Their inherent flexibility as seedlings allows them to persist through flood events. Drummond's willow may capitalize on the ability of thinleaf alder to fix atmospheric nitrogen and become more populous over time (Carsey et al. 2003).

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

Current land uses include cattle grazing, irrigation diversions, and possibly hunting. The hillsides are too steep for much hiking and definitely prohibitive for OHV use.

Natural Hazard Comments

Much of the terrain within the site is quite steep.

Exotics Comments

The herbaceous understory within the riparian community is mostly native, with dandelions (*Taraxacum officinale*), timothy (*Phleum pratense*) and Kentucky bluegrass (*Poa pratensis*).

Offsite

The site is wholly within USFS lands, but a large private parcel occurs upstream on a tributary to Fourmile Creek, and downstream (after the creek leaves forest land) it travels through many private, agricultural parcels. Dutton Ditch diverts some of the Fourmile Creek flow at the upstream end of the site. The ditch runs parallel to and uphill of the occurrence by 0.25-0.3 mile and is being put into a pipe in 2005, which will alter some of the hydrology in the area since the piping is to offset water loss from the leaky ditch. Temporary sediment impacts during and after construction and long-term hydrologic impacts will be likely, since the leaking ditch supplemented the hydrology of the area from uphill. Approximately 1/2 to 2/3 of the flow of

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Fourmile Creek is diverted into Fourmile Ditch at the lower end of the site, and other similar diversions occur downstream. Forest Road 645 occurs uphill of Fourmile Creek, by about 0.25-0.3 mile.

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>			
24743	<i>Alnus incana</i> - <i>Salix drummondiana</i> Shrubland	Montane Riparian Shrubland	G3	S3	Yes

REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
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.
193575	Sibley, David A. 2000. National Audubon Society The Sibley Guide to Birds, First Edition. New York: Chanticleer Press, Inc.
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	12/29/2005
Version Author	Freeman, K.M.

Disclaimer

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