

Level 4 Potential Conservation Area (PCA) Report

Name Devil Creek at Middle Mountain

Site Code S.USCOHP*9319

IDENTIFIERS

Site ID 1322 Site Class PCA
 Site Alias West Fork at Devil Creek

Network of Conservation Areas (NCA)

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

LOCATORS

Nation United States Latitude 371728N
 State Colorado Longitude 1071431W

Quad Code	Quad Name
37107-C3	Devil Mountain
37107-C2	Chris Mountain

County

Archuleta (CO)

Watershed Code	Watershed Name
14080102	Piedra

SITE DESCRIPTION

Minimum Elevation	7,320.00 Feet	2,231.14 Meters
Maximum Elevation	8,440.00 Feet	2,572.51 Meters

Site Description

Devil Creek at Middle Mountain site is located in central Archuleta County, west of Pagosa Springs and north of Highway 160. It incorporates two somewhat climatically different drainages, the open, sunny Devil Creek and the cool and shady West Fork of Devil Creek. These creeks converge just south of the site boundary on a privately owned parcel and subsequently flow as Devil Creek to the southwest, nearly 10 miles to join with the Piedra River. This montane site is strongly defined by Devil Mountain, rising to 9,922 feet west of the site, and Chris Mountain (elev. 8,879 ft.), which lies to the east of the site. Middle Mountain (elev. 9,716 ft.) splits the site, occurring due north of the confluence of the two creeks. Three uncommon riparian communities are located within the site, which occurs mostly on USFS lands. The private land at the confluence of the two creeks has heavy horse use and a gravel mining operation. Exotic species occur on the uplands, especially near the south boundary adjacent to the private inholding; proceeding upstream the percent of exotic species cover drops rapidly. Access is limited to the site and its associated canyons since permission must be gained to cross the private property at the south boundary. Unmaintained trails occur along each of the creeks, and it is unknown whether the Forest Service plans to increase maintenance on these trails. Although the site is not a pristine area, its secluded location has left it in good ecological condition. On the west side of Middle Mountain, the West Fork of Devil Creek is a montane perennial stream flowing southeast through a cool, shady, moderately narrow canyon with steep side walls and a narrow floor. An infrequent riparian community, thinleaf alder (*Alnus incana*) / mesic forb riparian shrubland occurs along the immediate floodplain and creek banks. An overstory of blue spruce (*Picea pungens*) and narrowleaf cottonwood (*Populus angustifolia*) shades thinleaf alder and mixed willows (*Salix* spp.) along the creek. A mix of forbs and graminoids, such as bluejoint reedgrass (*Calamagrostis canadensis*), fowl mannagrass (*Glyceria striata*), cutleaf coneflower (*Rudbeckia laciniata* var. *ampla*), heartleaf bittercress (*Cardamine cordifolia*), common cowparsnip (*Heracleum maximum*), and Franciscan bluebells (*Mertensia franciscana*), provides a dense groundcover. On the terrace above the creek, a diverse, fairly dense and shady shrub understory occurs, containing a mix of Gambel oak (*Quercus gambelii*), Saskatoon serviceberry (*Amelanchier alnifolia*), twinflower honeysuckle (*Lonicera involucrata* var. *involucrata*), roundleaf snowberry (*Symphoricarpos rotundifolius*) and Woods' rose (*Rosa woodsii*). The surrounding forest is dominated by Douglas-fir (*Pseudotsuga menziesii*) and blue spruce. On the east side of Middle Mountain, Devil Creek is a moderately sloped montane tributary flowing southwest, occupying a somewhat broad, sunny canyon. The slopes of the canyon are steep, dropping over 600 feet from the canyon's rim to its floor. The upper slopes of the canyon and adjacent mountains have been logged, but good ponderosa pine (*Pinus ponderosa*) and spruce-fir (*Picea* spp.- *Abies* spp.) forests occur within the canyon. Very large ponderosa pines still exist in the canyon bottom especially at the higher reaches of the community, and the upland understory in the upper canyon is a nice example of mostly native grasses and forbs. The riparian areas on Devil Creek are dominated by blue spruce, narrowleaf cottonwood, and boxelder (*Acer negundo*), with a dense shrub layer. Bluestem willow (*Salix irrorata*) dominates the stream channel and

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immediate floodplain throughout, mixed with sandbar willow (*Salix exigua*), thinleaf alder, and red-osier dogwood (*Cornus sericea*) higher on the streambanks. The understory is mostly native mesic forbs and mesic graminoids, generally with few exotic species. This sunny riparian area along Devil Creek is the site of two rare plant communities, the boxelder - narrowleaf cottonwood / red-osier dogwood riparian forest, which occupies the benches, abandoned channels, and secondary floodplains. It occurs in mosaic with narrowleaf cottonwood / bluestem willow foothills riparian woodland, which dominates the immediate streambanks and cobble bars within the stream channel.

Key Environmental Factors

No known hydrological alterations occur upstream of either creek. The West Fork of Devil Creek is shaded and runs at various depths with pool/riffle complexes. The bed is mostly cobble and angular rock, 1" diameter and larger to 18" diameter. The banks show signs of natural erosion. Devil Creek has similar substrate and morphology. Large woody debris that has been transported by the creek remains downed in the channel, and there is evidence of channel migration, such as abandoned channels with riparian vegetation, and signs of flooding. A few areas of the channel are deeper, ponded, and slow moving, with abundant algae growth.

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 12/08/2005

Designer Freeman, K.M.

Boundary Justification

The site boundary encompasses the element occurrences on Devil Creek and West Devil Creek, and includes a buffer of approximately 1,000 feet. This boundary protects the occurrence from direct disturbance, and is thought to protect the avian, macroinvertebrate and periphyton communities (Noel et al. 1986, Spackman and Hughes 1995) associated with the riparian communities. The boundary also incorporates an area that will allow natural hydrological processes such as groundwater discharge, seasonal flooding, natural levels of sediment deposition, and new channel formation to continue, thereby maintaining viable populations of the elements along each creek. It should be noted that the hydrological processes necessary to support the riparian communities are not fully contained by the site boundaries. Recharge of both Devil Creek and West Devil Creek from snowmelt and groundwater occurs at a scale larger than the site's size, and is important for long-term survival of the riparian community. Given that the riparian communities are dependent on natural hydrological processes, upstream activities such as water diversions and impoundments, improper livestock grazing, logging, and road development are detrimental to the hydrology of the riparian area. These activities may divert necessary surface and subsurface water, contribute excess sediment and nutrients to the creeks, and increase erosion within the watershed (Karr and Schlosser 1978). The boundary also covers extra area beyond the 1,000-foot buffer above the main stem of Devil Creek, where large old growth ponderosa pines on the steep east-facing hillside are still subject to the threat of logging. The entire site boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 1,153.56 Acres

466.83 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

The rank for this site is based on a good (B-ranked) occurrence of a boxelder - narrowleaf cottonwood / red-osier dogwood (*Acer negundo* - *Populus angustifolia* / *Cornus sericea*) riparian forest and a good (B-ranked) occurrence of narrowleaf cottonwood / bluestem willow (*Populus angustifolia* / *Salix irrorata*) foothills riparian woodland, both globally imperiled (G2/S2) communities. The boxelder - narrowleaf cottonwood / red-osier dogwood community type is a late-seral association that appears to be restricted to western Colorado and is not known from outside the state (NatureServe 2005). Most areas that may have supported past occurrences of this community type have been altered by agriculture and development. The narrowleaf cottonwood / bluestem willow community appears to be an early-seral community, occurring in the immediate floodplain of lower montane streams only in Colorado and New Mexico, and in limited distribution (NatureServe 2005). This site also supports a good (B-ranked) example of the globally vulnerable

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(G3/S3) thinleaf alder (*Alnus incana*) / mesic forb riparian shrubland. This plant association was once common and widespread, but is now declining. It is rarely found in good condition without non-native species in the undergrowth.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

Land use is restricted to non-motorized recreational usage by hikers, horseback riders, and hunters, although the trails within the site are neither maintained nor accessible from the south end due to private property ownership.

Natural Hazard Comments

Western poison ivy (*Toxicodendron rydbergii*) is present and vigorous along the main stem of Devil Creek. It was not noted in the cooler, shadier habitats along the West Fork of Devil Creek.

Exotics Comments

Exotic species occur on the uplands, especially at the downstream extent of the two creeks adjacent to the private inholding. The dominant exotics found onsite include forbs such as thistles (*Cirsium* spp.), common dandelion (*Taraxacum officinale*), and oxeye daisy (*Leucanthemum vulgare*), and pasture grasses such as orchardgrass (*Dactylis glomerata*), Kentucky bluegrass (*Poa pratensis*), and cheatgrass (*Bromus tectorum*).

Offsite

Hydrological processes originating outside of the planning boundary, including water quality, quantity, timing and flow must be managed to maintain site viability. Monitoring of cumulative watershed impacts may be necessary (see Preston and Dudley 1981, Coats and Miller 1981). Gravel mining currently occurs downstream of the element occurrences on the private property at the south end of the site (Snow Angel Ranch).

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
24479	<i>Acer negundo</i> - <i>Populus angustifolia</i> / <i>Cornus sericea</i> Forest	Narrowleaf Cottonwood Riparian Forests	G2	S2	Yes
24645	<i>Alnus incana</i> / Mesic Forbs Shrubland	Thinleaf Alder/Mesic Forb Riparian Shrubland	G3	S3	No
24827	<i>Populus angustifolia</i> / <i>Salix irrorata</i> Woodland	Foothills Riparian Woodland	G2	S2	Yes

REFERENCES

Reference ID	Full Citation
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.
172808	J. R. Karr and I. J. Schlosser. 1978. Water resources and the land-water interface. <i>Science</i> 201: 229-234.
193578	NatureServe. 2005. NatureServe Explorer: An online encyclopedia of life [web application]. Version 4.6. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer . (Accessed: December 8, 2005).
165959	Noel, D.S., C.W. Martin and C.A. Federer. 1986. Effects of Forest Clearcutting in New England on Stream Macroinvertebrates and Periphyton. <i>Environmental Management</i> 10: 661-670.
170844	Randolph, D., Smith, Kettler, Redders, Roy, and Aitken. 1994. San Juan National Forest Riparian Site Survey.
159511	Spackman, S. C. and J. W. Hughes. 1995. Assessment of Minimum Stream Corridor Width for Biological Conservation: Species Richness and Distribution Along Mid-Order Streams in Vermont, USA. <i>Biological Conservation</i> 71:325-332.

ADDITIONAL TOPICS

Additional Topics

Original site design by Kettler, S.M. 1997-05-23.

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VERSION

Version Date 12/08/2005

Version Author Freeman, K.M.

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