

# Level 4 Potential Conservation Area (PCA) Report

Name Navajo River at Banded Peak

Site Code S.USCOHP\*25772

## IDENTIFIERS

Site ID 2264 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 370536N  
 State Colorado Longitude 1064124W

<u>Quad Code</u>	<u>Quad Name</u>
37106-A6	Chama Peak
37106-B6	Elephant Head Rock

## County

Archuleta (CO)

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

## SITE DESCRIPTION

Minimum Elevation	7,800.00 Feet	2,377.44 Meters
Maximum Elevation	11,200.00 Feet	3,413.76 Meters

## Site Description

The Navajo River is a sinuous river in extreme southeast Archuleta County, originating at the Continental Divide and flowing within a broad, U-shaped valley between two high mountain ranges. The Chalk Mountains and Navajo Peak rise immediately to the west of the river, and to the east, the slopes rise dramatically to the Continental Divide, Banded Peak, and Chama Peak, all above 12,000' elevation. Dramatic, exposed rock cliffs of varying colors occur high on the slopes on both sides of the valley, and the mountain slopes are blanketed with spruce - fir (*Picea* spp. - *Abies* spp., *Pseudotsuga menziesii*) and aspen (*Populus tremuloides*) forests, with ponderosa pine (*Pinus ponderosa*), Gambel oak (*Quercus gambelii*) and infrequent Mexican white pine (*Pinus strobiformis*) occurring at lower elevations. The Navajo River and its tributaries carry a high bedload of cobble, gravel and sand, depositing it wherever the stream gradient flattens. On the valley floor, for a nearly six-river-mile stretch of the Navajo River, mature, vigorous and healthy narrowleaf cottonwood (*Populus angustifolia*) and blue spruce (*Picea pungens*) with a thinleaf alder (*Alnus incana*) understory occur on the floodplain and first terrace. Cottonwood, alder, Pacific willow and sandbar willow (*Salix lucida* ssp. *lasiandra* and *S. exigua*) are regenerating on the floodplain, but the first terrace supports the majority of the cottonwood, as well as the blue spruce and a few ponderosa pine. The understory on the floodplain and terrace contains mostly native shrubs, mesic forbs, and graminoids with some weedy forbs and pasture grasses. On the terraces above the riparian community, a mix of blue spruce, ponderosa pine and aspen are interspersed with large, grassy meadows. At the upstream end of the site, the East Fork of the Navajo River descends southwest from the Continental Divide below Fets Peak (12,127') and Gramps Peak (12,792') and eventually joins the main stem of the Navajo River. Several mapped and unmapped waterfalls occur along its run. Just above where the river enters the broad floor of the Navajo River valley, a small but fairly pristine white fir (*Abies concolor*) - blue spruce - narrowleaf cottonwood / Rocky Mountain maple (*Acer glabrum*) community occurs within a narrow canyon with steep rock walls. Mature and regenerating cottonwood, blue spruce, Douglas-fir (*Pseudotsuga menziesii*), and white fir dominate the canopy and shade the understory in the narrow, deep canyon. The understory shrub layer at the riverbank consists of thinleaf alder and red-osier dogwood (*Cornus sericea*), with sporadic willows (*Salix* spp.), and Rocky Mountain maple is scattered throughout the community. The herbaceous understory is quite sparse in this shady canyon, but common species are false lily-of-the-valley (*Maianthemum* spp.), few-flower meadow-rue (*Thalictrum sparsiflorum*), fringed brome (*Bromus ciliatus*) and bluejoint reedgrass (*Calamagrostis canadensis*). Downstream on the Navajo River, below the midpoint of the site, Headache Creek descends to the west from the Continental Divide, passing through alpine meadows, mixed Engelmann spruce - subalpine fir forests and aspen stands, and near its confluence with the Navajo River it passes through Douglas-fir and ponderosa pine forests with a Gambel oak understory. This creek supports a 90% genetically pure, viable, and reproducing population of Colorado River cutthroat trout (*Oncorhynchus clarkii pleuriticus*). Restoration activities are currently taking place on Headache Creek to create barriers to non-native trout species that could potentially interbreed with

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the cutthroat trout population.

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## Key Environmental Factors

No Data

## Climate Description

No Data

## Land Use History

Headache Creek joins with the Navajo River at the site of Gramps Oil Field. This oil field has produced over 5 million barrels of oil since 1935 (USDA 2004), but was decommissioned and closed in recent years; the closure included Phase I, II and III environmental assessments, well plugging, removal of equipment, and decompaction and restoration of roads and facility sites (Trident Environmental, no date). Additionally, 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 incorporates an area that will allow natural hydrological processes such as seasonal flooding, sediment deposition, and new channel formation to maintain viable populations of the riparian woodlands along the East Fork of the Navajo River and the main stem of the Navajo River. Additionally, since the cutthroat trout population depends exclusively on the local hydrology for their life needs, the extent of the watershed was included from the headwaters of Headache Creek to its confluence with the Navajo River. Thus, the floodplain and immediate watershed, which are necessary to support natural hydrological processes, are included to ensure the long-term maintenance of the riparian ecosystems and the fish population. Activities within the boundary have the potential to impact the local hydrology and dependent ecology. The boundary also includes an approximate 500 foot buffer on the tributaries, and a 1,000 foot buffer on the main stem of the Navajo River, which includes nearby ranch roads, old development sites, hay meadows, and primitive campgrounds where surface runoff may contribute excess nutrients, sediment (Karr and Schlosser 1978), and weed invasion. These upland buffers are also provided to limit direct disturbance and local hydrologic alteration. It should be noted that the hydrological processes necessary to the riparian communities are not fully contained by the site boundary. This boundary indicates the minimum area that should be considered for any conservation management plan.

Primary Area 2,337.62 Acres 946.00 Hectares

### SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

## Biodiversity Significance Comments

The site supports several unique riparian communities as well as a rare fish subspecies. A fair (C-ranked) occurrence of the globally imperiled (G2/S2) white fir - (Blue spruce) - narrowleaf cottonwood / Rocky Mountain maple (*Abies concolor* - (*Picea pungens*) - *Populus angustifolia* / *Acer glabrum*) montane riparian forest is located within the site. This plant association is a mid- to late-seral community occurring on active floodplains of montane valleys, often within narrow shady canyons (Carsey et al. 2003). Large occurrences of two other montane riparian forests occur in a mosaic: a good (B-ranked) occurrence of narrowleaf cottonwood / thinleaf alder (*Populus angustifolia* / *Alnus incana*), a globally vulnerable (G3/S3) community and a good (B-ranked) occurrence of narrowleaf cottonwood - blue spruce / thinleaf alder (*Populus angustifolia* - *Picea pungens* / *Alnus incana*), another globally vulnerable (G3/S3) community. The site also supports a good (B-ranked) occurrence of Colorado River Cutthroat Trout (*Oncorhynchus clarkii pleuriticus*), a globally vulnerable (G4T3/S3) subspecies. This population is considered 90% genetically pure, showing minimal hybridization with other introduced (non-native) trout species. Currently, projects are being implemented by the private property owners in conjunction with the Colorado Division of Wildlife to install barriers to prevent further hybridization (Allison 2005).

Other Values Rank No Data

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## Other Values Comments

No Data

## LAND MANAGEMENT ISSUES

### Land Use Comments

The area is primarily for wildlife use. The site crosses two 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 owner(s) 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. Ranch roads with several small bridge crossings, and several irrigation diversions occur within the site. These diversions serve to irrigate adjacent meadows, supplying feed and hay for the ranch and forage for migrating elk and deer. On the East Fork, a large shed exists with cars parked within and various equipment and tools nearby. Another large shed, other outbuildings, and several old holding ponds occur at the site of the old Gramps oil field, which has been closed and decommissioned. A river gauge is installed on the Navajo River just upstream of its confluence with Headache Creek. At the downstream end of the site, a small portion of USFS land and BLM land occur along the Navajo River. A primitive campground is located on the USFS land.

### Natural Hazard Comments

No Data

### Exotics Comments

Few if any weeds occur in the understory along the riparian community on the East Fork of the Navajo River. However, weedy species increase as the tributary enters the broad valley meadows, which were once grazed, and joins with the main stem of the Navajo River. The understory on the floodplain and terrace of the Navajo River often contains Canada thistle (*Cirsium arvense*), common dandelion (*Taraxacum officinale*), and hay grasses such as timothy, smooth brome, and Kentucky bluegrass (*Phleum pratense*, *Bromus inermis* and *Poa pratensis*), but also supports native shrubs, mesic forbs, and graminoids. Headache Creek was not botanically surveyed, and no weed information is available at this time; however, the Colorado Division of Wildlife, in association with the property owners and ranch manager of the Banded Peak Ranch, are actively working on projects to prevent invasion of exotic trout species into the Headache Creek drainage which threaten the existing population of Colorado River cutthroat trout.

### 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

<u>Element</u>			<u>Global</u>	<u>State</u>	<u>Driving</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Rank</u>	<u>Rank</u>	<u>Site Rank</u>
21796	<i>Oncorhynchus clarkii pleuriticus</i>	Colorado River Cutthroat Trout	G4T3	S3	No
24810	<i>Abies concolor</i> - <i>Picea pungens</i> - <i>Populus angustifolia</i> / <i>Acer glabrum</i> Forest	Montane Riparian Forests	G2	S2	Yes
24541	<i>Populus angustifolia</i> / <i>Alnus incana</i> Woodland	Montane Riparian Forest	G3	S3	Yes
24823	<i>Populus angustifolia</i> - <i>Picea pungens</i> / <i>Alnus incana</i> Woodland	Montane Riparian Forests	G3	S3	Yes

## REFERENCES

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<u>Reference ID</u>	<u>Full Citation</u>
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.
172808	J. R. Karr and I. J. Schlosser. 1978. Water resources and the land-water interface. Science 201: 229-234.
193472	Sovell, J., P. Lyon, and L. Grunau. 2003. Final Report: Upper San Juan Biological Assessment. Colorado Natural Heritage Program, Fort Collins, CO.
193622	Trident Environmental. No date. Summaries of Typical Trident Environmental Projects: Price Gramps Oil Field - Southern CO. The Decommissioning and Closure of an Oil Field. <a href="http://www.trident-environmental.com">http://www.trident-environmental.com</a> . Accessed 2006 January 03.
193621	USDA, U.S. Forest Service. 2004. Rio Grande National Forest: History and Culture of the San Luis Valley Area. <a href="http://www.fs.fed.us/r2/riogrande/about/history/index.shtml">http://www.fs.fed.us/r2/riogrande/about/history/index.shtml</a> . Accessed 2006 January 3.

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

Version Date 01/02/2006

Version Author Freeman, K.M.

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