

Level 4 Potential Conservation Area (PCA) Report

Name East Elk Creek

Site Code S.USCOHP*21710

IDENTIFIERS

Site ID 1254 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 394147N
State Colorado Longitude 1072823W

<u>Quad Code</u>	<u>Quad Name</u>
39107-F4	Adams Lake
39107-F5	Deep Creek Point

County

Garfield (CO)

<u>Watershed Code</u>	<u>Watershed Name</u>
14010005	Colorado headwaters-Plateau

SITE DESCRIPTION

Minimum Elevation	6,400.00	Feet	1,951.00	Meters
Maximum Elevation	9,600.00	Feet	2,926.00	Meters

Site Description

East Elk Creek forms a steep narrow canyon through the Leadville limestone formation. Limestone outcrops are prevalent throughout the area and the canyon is aesthetically similar to Glenwood Canyon. Upland slopes are sparsely vegetated due to the steep limestone outcrops but Gambel's oak (*Quercus gambelii*), Utah serviceberry (*Amelanchier utahensis*), juniper (*Juniperus osteosperma*), aspen (*Populus tremuloides*), and Douglas-fir (*Pseudotsuga menziesii*) were growing in scattered locations. The riparian area is dominated by a mature overstory of narrowleaf cottonwood (*Populus angustifolia*) and river birch (*Betula occidentalis*) along with scattered blue spruce (*Picea pungens*) and a lush and rich understory of herbaceous species.

Regeneration of narrowleaf cottonwood appears to be occurring on sporadic point bars. Downstream, the riparian community grades into a community dominated by blue spruce and narrowleaf cottonwood with hay meadows and pastures occupying the floodplain. Flooding still occurs along the creek and hydrological processes have not been altered. Grazing does not occur within this site, however, downstream there is grazing within the floodplain. There is an abandoned mine (Gray Eagle Mine) upstream, but no impacts to the stream were observed. Numerous seeps and springs occur along the adjacent hillsides and occasionally within the floodplain. These springs discharge from the Leadville Limestone, which has been shown to be a major local aquifer (Teller 1983). This aquifer is recharged via precipitation, snowmelt, and stream-flow and has a general subsurface flow toward the south, west, and northwest away from the White River Uplift (Teller 1983). These springs are very important in maintaining the hydrological regime of this site. The water from these springs has a fairly high pH (~8.1) near the source due to a high calcium carbonate content. Floodplain springs support stands of river birch with a diverse understory of forbs and graminoids such as interior sedge (*Carex interior*), beaked sedge (*C. utriculata*), field horsetail (*Equisetum arvense*), scouring rush (*Hippochaete hyemalis*), and wild mint (*Mentha arvense*). Springbrooks (the drainage immediately downstream from spring sources) are dominated by American speedwell (*Veronica americana*), watercress (*Naturtium officinale*), beaked sedge, and the canyon bog orchid (*Limnorchis ensifolia*), which is also found along the streambanks of East Elk Creek throughout the site. Oil shale columbine (*Aquilegia barneybi*) is the dominant plant near many spring sources. One particular spring is quite unique in that precipitate of calcium carbonate has formed a steep, terraced, seep wetland that is completely dominated by oil shale columbine and various moss species. The terrace formed as a result of groundwater, rich in carbon dioxide, discharging to the surface. This results in the release of large quantities of carbon dioxide creating a disequilibrium between carbon dioxide, carbonate ions, and carbonic acid in the groundwater (Wetzel 1983). As a result of this disequilibrium, calcium bicarbonate precipitates from the groundwater and encrusts the substrate near the spring source. Following many years, the precipitate has formed a large solid wall of calcium carbonate. Along this terrace wall there are small pools which harbor numerous insects. Northern leopard frogs (*Rana pipiens*) were also observed using these pools and were seen throughout the site. Overall, this site is in excellent condition. Although this site is not as pristine as Deep Creek, compared to most other creeks of a similar elevation, East Elk Creek is

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one of the most intact riparian areas observed during the course of this inventory. The soils along the creek are mapped as Torrifluvents. These soils formed in alluvium and are highly stratified and vary widely in texture and depth (Soil Conservation Service 1985). Soils were fairly coarse near East Elk Creek. Due to a recent large flood in the canyon, the uppermost horizons had minimal development. Soils near the springs and along the springbrooks were saturated and accumulating organic matter (they had a dark and fairly deep A horizon forming over a C horizon of alluvium). A functional assessment was also conducted for this site, please see report (Survey of Critical Wetlands and Riparian Areas of Garfield County, Rocchio, J. 2000).

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 01/15/2001

Designer Rocchio, F.J.

Boundary Justification

The boundaries were drawn to ensure that all of the springs and small side drainages were protected to ensure continued surface flow, periodic flooding, and space for the creek's fluvial processes to continually maintain existing riparian communities while also creating additional habitat via flood scouring, lateral flow, and channel meandering.

Primary Area 10,966.41 Acres

4,437.96 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

This site supports an excellent (A-ranked) occurrence of the globally vulnerable (G3/S2) narrowleaf cottonwood / river birch (*Populus angustifolia* / *Betula occidentalis*) montane riparian forest, and the globally vulnerable (G3/S2) river birch / mesic graminoid (*Betula occidentalis* / mesic graminoid) lower montane riparian shrubland. A caddisfly, whose range is unknown at this time, has been documented along East Elk Creek, and is considered a conservation priority for invertebrates by Boris Konradieff, a Professor of Entomology and Curator of the C.P. Gillette Museum of Arthropod Diversity, at Colorado State University. The narrowleaf cottonwood / river birch community is known from fewer than a dozen locations in Colorado and is expected to occur in Nevada, Wyoming, and South Dakota. This stand has an unusually high diversity of shrubs and herbaceous species in the understory compared to most occurrences. The river birch / mixed graminoid community is well documented in several western states, however, improper livestock grazing, stream-flow alterations, and heavy recreational use threaten it. This stand was in excellent condition as there is no grazing in this area. Overall species diversity in this community was also very high. In addition, East Elk Creek is one of the most pristine riparian areas in Garfield county at this elevation (approximately 6,500 feet).

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

No Data

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Offsite

No Data

Information Needs

No Data

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>
24637	<i>Betula occidentalis</i> / Mesic Graminoids Shrubland	Lower Montane Riparian Shrublands	G3	S2	Yes
24884	<i>Populus angustifolia</i> / <i>Betula occidentalis</i> Woodland	Montane Riparian Forest	G3	S3	Yes

REFERENCES

<u>Reference ID</u>	<u>Full Citation</u>
160919	Lyon, P. 2000. Colorado Natural Heritage Program Biological Assessment of Garfield County.
160810	Rocchio, J. 2000. Colorado Natural Heritage Program Wetland Inventory/Assessment of Garfield County.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 01/15/2001
Version Author Rocchio, F.J.

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