

Level 4 Potential Conservation Area (PCA) Report

Name Luning Promontory

Site Code S.USCOHP*27118

IDENTIFIERS

Site ID 2479 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 371327N
State Colorado Longitude 1040759W

Quad Code Quad Name

37104-C2 Model
37104-C1 Lambing Spring
37104-B1 Trinchera Cave
37104-B2 Patterson Crossing

County

Las Animas (CO)

Watershed Code Watershed Name

11020010 Purgatoire

SITE DESCRIPTION

Minimum Elevation	5,300.00	Feet	1,615.44	Meters
Maximum Elevation	5,740.00	Feet	1,749.55	Meters

Site Description

Luning Promontory occupies the top and upper erosional slopes of a flat topped outcrop of the Niobrara Formation that rises above the surrounding landscape south of Luning Arroyo. The site is underlain by layers of the Carlile and Graneros shales and the Greenhorn limestone formations. The expression and ongoing erosion of these calcareous formations provides the edaphic characteristics favorable to the rare plants. Vegetation at the site varies from scattered juniper trees with a sparse understory to shrub dominated slopes and grassland dominated colluvial outwash. The oneseed juniper (*Juniperus monosperma*) generally occurs at the top of the hills and commonly occurs with Bigelow sage (*Artemisia bigelovii*) and New Mexico feathergrass (*Hesperostipa neomexicana*) and a suite of cushion plants. The slopes are dominated by *Frankenia jamesii*, and *Forsellesia planitierum*, two species with limited global distributions. The shale breaks and associated colluvial outwash areas are particularly important because they support significant plants and plant communities. Several Colorado endemic plants that are globally rare are only associated with this habitat, specifically, Arkansas Valley evening primrose (*Oenothera harringtonii*), and rayless goldenweed (*Oonopsis foliosa* var. *monocephala*), both tightly associated with the colluvial outwash while Rocky Mountain bladder pod (*Lesquerella calcicola*) is more commonly found on the shale slopes and mesa tops. Other common plant species include galleta grass (*Pleuraphis jamesii*), blue grama (*Bouteloua gracilis*), Indian rice grass (*Achnatherum hymenoides*), and winterfat (*Krascheninnikovia lanata*).

Key Environmental Factors

Geology, soil depth, drought, grazing, fires, and slope play a critical role in determining the vegetation species composition. Fires kill junipers yet much of the area has relatively low biomass thus preventing large scale fires. Old-growth junipers and pinons are common throughout, denoting that fires are infrequent. Adequate soil depth coupled with low intensity grazing favors New Mexico feathergrass while high intensity grazing favors blue grama. Slopes are generally less vegetated than the mesa tops or the outwash.

Climate Description

The climate is semiarid and is typical of the high plains of southeastern Colorado where approximately 13 inches of precipitation is received annually. Most precipitation occurs between April and September, with May typically being the wettest month. Annually, climate of the area is characterized by cold winters and hot summers with winter temperatures as low as zero on at least several days and temperatures of over 100 °F occurring on many days in July and August (HPRCC 2008).

Land Use History

Land use has historically been dominated by ranching of sheep and cattle since the mid 1800's (Friedman

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1985). The current private ranch owner continues cattle ranching as the sole land use.

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes

Mapped Date 02/05/2010

Designer Rondeau, R.J. and S.S. Panjabi

Boundary Justification

The boundary is drawn to include the known occurrences, additional potential habitat, and the local mosaic of plant communities. The boundary was digitized while referencing a one meter digital color orthophoto quad, a 1:100,000 digital quad, and a GIS model developed by CNHP that shows the probability of the presence of shale barren plants.

Primary Area 16,848.78 Acres

6,818.49 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

This site supports a good (B-ranked) occurrence of a globally imperiled (G2/S2) foothills shrubland community, *Frankenia jamesii* / *Achnatherum hymenoides*, an excellent (A-ranked) occurrence of a globally vulnerable (G3/S3) Great Plains mixed grass prairie, *Hesperostipa neomexicana*, and an excellent (A-ranked) occurrence of a globally vulnerable (G3/S3) plains escarpment prairie, *Artemisia bigelovii* / *Achnatherum hymenoides*. Significant plants of concern include a good (B-ranked) and a fair (C-ranked) occurrence of the globally vulnerable (G3/S3) Arkansas Valley evening primrose (*Oenothera harringtonii*), an excellent (A-ranked) occurrence of the globally vulnerable (G3/S3) Rocky Mountain bladderpod (*Lesquerella calycicola*), and a good (B-ranked) and a fair (C-ranked) occurrence of the globally imperiled subspecies (G3G4T2/S2) rayless goldenweed (*Oonopsis foliosa* var. *monocephala*).

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

Dominant land use is livestock grazing. Continue appropriate grazing regime. Appropriate timing, intensity of grazing and possibly periodic prescribed burning can be valuable and necessary management tools.

Natural Hazard Comments

No Data

Exotics Comments

No Data

Offsite

No Data

Information Needs

There are anecdotal indications that a very large occurrence of the globally imperiled rayless goldenweed (*Oonopsis foliosa* var. *monocephala*) also occurs throughout the area. Additional survey work to verify the existence and character of the occurrence is needed.

ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Global Rank</u>	<u>State Rank</u>	<u>Driving Site Rank</u>
24880	<i>Frankenia jamesii</i> / <i>Achnatherum hymenoides</i> Shrubland	Foothills Shrubland	G2	S2	Yes
22673	<i>Hesperostipa neomexicana</i> Herbaceous Vegetation	Great Plains Mixed Grass Prairie	G3	S3	No
19476	<i>Oenothera harringtonii</i>	Arkansas Valley evening primrose	G3	S3	No
40463	<i>Oonopsis foliosa</i> var. <i>monocephala</i>	rayless goldenweed	G3G4T2	S2	No
24800	<i>Artemisia bigelovii</i> / <i>Achnatherum hymenoides</i> Shrubland	Plains Escarpment Prairies (Limestone Breaks)	G3	S3	No
40463	<i>Oonopsis foliosa</i> var. <i>monocephala</i>	rayless goldenweed	G3G4T2	S2	No

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21031	Luning Promontory				
	<i>Lesquerella calcicola</i>	Rocky Mountain bladderpod	G3	S3	No
19476					
	<i>Oenothera harringtonii</i>	Arkansas Valley evening primrose	G3	S3	No

REFERENCES

Reference ID	Full Citation
195120	Friedman, Paul D. 1985. Final Report of History and Oral History Studies of the Fort Carson Pinon Canyon Maneuver Area, Las Animas, Colorado. USDI. National Park Service, Interagency Archaeological Services Branch, Rocky Mountain Regional Office, Denver, CO.
195121	HPRCC. 2008. High Plains Regional Climate Center Web Page. Based on data from automated weather stations operated by Colorado for southeastern Colorado area. High Plains Regional Climate Center Web Page: <http://www.hprcc.unl.edu>
198519	Rondeau, R.J., J.R. Sovell, J.E. Stevens, D. Clark and L. Grunau. 2010. Final Report: Southeast Colorado Survey of Critical Biological Resources 2009. Addendum to the 2007 Survey. Colorado Natural Heritage Program, Fort Collins, CO.
195097	Stevens, J., J. Sovell, D. Culver, K. Decker, L. Grunau, A. Lavender, and C. Gaughan. 2008. Final Report: Southeastern Colorado Survey of Critical Biological Resources 2007. Colorado Natural Heritage Program, Fort Collins, 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.
193653	U.S. Department of Agriculture, Soil Conservation Service. 1994. State Soil Geographic (STATSGO) database for Colorado. Fort Worth, TX.

ADDITIONAL TOPICS

Additional Topics

Original site design by Stevens, J.E. 2008-04-03.

VERSION

Version Date	02/05/2010
Version Author	Panjabi, S.S. and J.E. Stevens

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