

# Level 4 Potential Conservation Area (PCA) Report

Name Table Mountain Hogbacks

Site Code S.USCOHP7\*3232

## IDENTIFIERS

Site ID 1707 Site Class PCA  
 Site Alias Grayback Ridge  
 Site Alias Spring Hill Ranch  
 Site Alias Soapstone Hills

## Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
456	S.USCOHP7*3230	Laramie Foothills

## LOCATORS

Nation United States Latitude 405357N  
 State Colorado Longitude 1051330W

## Quad Code Quad Name

40105-G2	Livermore
40105-H2	Table Mountain
40105-G3	Livermore Mountain
40105-H3	Virginia Dale
40105-G1	Buckeye
41105-A1	Emkay
41105-A2	Granite
40105-H1	Round Butte

## County

## Watershed Code Watershed Name

10190007	Cache La Poudre
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## SITE DESCRIPTION

<b>Minimum Elevation</b>	5,900.00	<b>Feet</b>	1,798.00	<b>Meters</b>
<b>Maximum Elevation</b>	7,200.00	<b>Feet</b>	2,195.00	<b>Meters</b>

## Site Description

This site is characterized by mountain mahogany (*Cercocarpus montanus*) shrublands that form a mosaic with rolling grasslands across a series of hogbacks and foothills at the transition zone with the Great Plains to the east. Elevations range from approximately 7,200 feet at the northern end down to 5,900 feet at the southern end of the site. The site is primarily comprised of a series of low, north-south trending, hogbacks with diverse bedrock geology, including sandstones, siltstones, and shales, that underwent folding during the Laramide Orogeny. Prominent geologic types include Fountain Formation, Ingleside Formation, Lyons Sandstone, and Lykins Formation on the west side and Sundance and Jelm Formation, Morrison Formation, several members of the Dakota Sandstone Group, Carlile Shale-Greenhorn Limestone-Graneros Shale-Mowry Shale Complex, Niobrara Formation, and Mitten Black Shale on the east side. The Soapstone Hills in the northeast corner of the site are capped by Ogallala Formation conglomerates and sandstones overlying the sedimentary layers listed above, which are exposed on steeper cliffs. Several prominent landmarks occur on the site and are formed from sedimentary outcrops, including Table Mountain, Red Mountain, Red Nose, Steamboat Rock, and Grayback Ridge. Several perennial streams and intermittent drainages have carved out the Big Hole, a large bowl-shaped valley at the north end of the site, and the valley between the two primary hogback ridges. On east-facing slopes the sandstone bedrock is broadly exposed and mildly dissected. West-facing slopes are steep and erosion has exposed many layers of sedimentary bedrock in a strikingly colorful fashion. Sand Creek and Boxelder Creek have incised deep canyons through out the western hogback and converge just south of Table Mountain, an isolated butte, as a broad, gravel wash. Within the canyons, cottonwoods (*Populus* spp.) and willows (*Salix* spp.) create a multi-layered structure of trees and shrubs over a diverse, mesic herbaceous layer adjacent to the perennial stream channels. At least five different mountain mahogany natural communities occur within the site, their location strongly correlated with the different bedrock geology exposed within the site. Scattered ponderosa pine (*Pinus ponderosa*) or Rocky Mountain juniper (*Juniperus scopulorum*) occur sporadically on the eastern hogbacks, but form more dense stands comprised of ponderosa pine/spike fescue (*Pinus ponderosa/Leucopoa kingii*) woodland, an old growth indicator, on the west side of the site. Grasslands occur on deeper soils, especially in the valleys and swales.

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Characteristic species include needle-and-thread grass (*Stipa comata*), western wheatgrass (*Pascopyrum smithii*), blue grama (*Bouteloua gracilis*), and many forbs. In the northeast corner of the site are the Soapstone Hills, an east-west trending series of steep hills and finely tessellated valleys. Steep ridges and cliffs occur on the southern edge overlooking the plains; these are commonly used as nest sites by raptors. The ridgetops and steep hills are dominated by mountain mahogany shrublands while the valleys below are occupied by grassland vegetation. Several of the grassland valleys have broad, gravel washes. Drainages descending from these slopes are dominated by scattered mesic shrubs, especially sumac (*Rhus trilobata*). At the southern end of the site, complex folding and faulting has changed the orientation of the hogbacks. Grayback Ridge in the southwest corner is a low, sandstone ridge trending northeast to southwest. Shale hogbacks on the southeast side of the site are northwest to southeast trending. This shale barren is occupied by an as yet unclassified mountain mahogany barrens shrubland. Adjacent to the shale barrens are broad, flat plains to the east, this area grades into a saltbush (*Atriplex canescens*) shrubland that forms a mosaic with mid- and shortgrass prairie. Several two-track roads cross the site as the primary land use on the site is cattle ranching. The site is very scenic, surrounded in all directions by landscapes generally dominated by natural plant communities, and wildlife are abundant.

## Key Environmental Factors

Ecological factors that support these occurrences include climate (largely rainfall), fire, and herbivory. Fire and herbivory are largely intact or restorable processes. The landscape lends itself to prescribed burning and herbivory can be adequately managed.

## Climate Description

The site exists within a rain shadow of the Rocky Mountains. As with much of the western Great Plains, rainfall is sparse and drought common. Winters are cold with sporadic precipitation. Fall and spring snows may be big with a resulting soaking of the ground at melt. Summer is generally warm and dry with the exception of significant thunderstorms. Hail is not infrequent. Summer nights are cool with a subsequent short growing season.

## Land Use History

The area has been occupied by indigenous peoples for more than 5,000 years. Evidence of teepee rings, points, and buffalo wallows are readily observed and reported by local residents. Europeans first used the area for trapping of furbearers, probably with little disturbance to the landscape. But as gold was discovered in Colorado, the area was frequented by money-seekers. Passage was common from Laramie to Denver on the Overland Trail, but the population of the Laramie Foothills remained sparse while people moved to the mineral belt or somewhat warmer parts of the state. However, the grasslands of the Livermore area were valued for livestock grazing and haying and by the late 1800's that was the dominant land use. Even today, grazing and haying remain the major land use.

## Cultural Features

The private ranch is a historical ranch and recognized as a historical landmark of the area. A monument is erected in Livermore to recognize the ranch family. Signs of indigenous people are relatively common but do not appear to be formerly protected.

### SITE DESIGN

Site Map Y - Yes

Mapped Date 01/25/2005

Designer Neid, S.L.

## Boundary Justification

The boundary includes several extensive occurrences of the *Cercocarpus montanus* shrublands on diverse bedrock types. The boundary uses steep slopes and drainage lines to include ecological processes or natural boundaries that could provide for manageable grazing, fire, and wildlife migration.

Primary Area 50,773.47 Acres

20,547.38 Hectares

### SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

## Biodiversity Significance Comments

This site supports an excellent (A-ranked) occurrence of the globally imperiled (G2G3/S2S3) mountain mahogany/New Mexico feathergrass (*Cercocarpus montanus*/*Stipa neomexicana*) shrubland natural community. This is the largest occurrence known in Colorado and it extends into Wyoming. The site also supports good (B-ranked) occurrences of the globally imperiled (G2/S2) mountain mahogany/needle-and-thread grass (*Cercocarpus montanus*/*Stipa comata*) shrubland, globally vulnerable (G3) mountain mahogany/Scribner's needle-and-thread grass (*Cercocarpus montanus*/*Stipa scribneri*), state

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imperiled (GU/S2) mountain mahogany/mountain muhly (*Cercocarpus montanus*/*Muhlenbergia montana*) shrubland, and state vulnerable (GU/S3) mountain mahogany/Griffith's wheatgrass (*Cercocarpus montanus*/*Elymus lanceolatus* x *Pseudoroegneria spicata*) shrubland. Almost all known occurrences of mountain mahogany/needle-and-thread grass and mountain mahogany/Griffith's wheatgrass shrublands are highly degraded by invasion of the non-native cheatgrass (*Bromus tectorum*). There are localized infestations in the occurrences on this site that have been degraded by cheatgrass. Although some of the occurrences on this site are somewhat degraded, the fact that these plant communities occur in very large patches within a relatively natural landscape allow ecological processes (wildlife migration, fire, etc.) to function more naturally and increase their ecological value.

Other Values Rank V2 - High values

## Other Values Comments

The area has very high values for wildlife and open space. There is abundant local interest in seeing that the ranching values remain in the area. There is also interest in the historical aspects of the site, especially the ranching history as well as prehistoric human history.

## LAND MANAGEMENT ISSUES

### Land Use Comments

The entire area is used for cattle grazing.

### Natural Hazard Comments

There are some steep slopes and small cliffs that could present some hazards. Rattlesnakes are known from the area. Gravel washes indicate short, intense flooding episodes.

### Exotics Comments

Exotic species were not common throughout much of the site; however, some do occur in local infestations. Most of these are restricted to wet areas or areas with deeper soils. Such infestations are largely restricted and controllable. The rigorous environmental conditions of the mountain mahogany/New Mexico feathergrass (*Cercocarpus montanus*/*Stipa neomexicana*) natural community that is abundant at this site does not lend to weedy invasions by existing exotic species known on this site. However, other mountain mahogany natural communities are more susceptible to weedy invasions. Near the Soapstone Hills, cheatgrass and Japanese brome (*Bromus tectorum* and *B. japonicus*) are common on some of the ridges among the mountain mahogany shrublands and in certain swales on the grasslands. Further increase of exotic species may decrease the biodiversity significance of the site by altering the native floral and faunal species composition (Bock and Bock 1988). Grazing or fire management could be used as a tool to reduce the dominance of these species and increase the proportion of native species.

### Offsite

Most off-site land uses do not appear to threaten this site directly. However, disturbance from construction of radio towers on both hogback ridges has led to land clearing and exotic species invasion. Further, should the adjacent tracts develop into subdivisions with a greatly increased number of humans, the invasion of additional invasive exotics (e.g. knapweed, toadflax) could present an even larger problem. In addition, such development would undoubtedly increase the domestic cat and dog populations with the former known to have serious impacts on the native small mammal, reptile, and bird faunas.

### Information Needs

There is little detailed information on the impacts of fire on the targeted natural communities. Similarly, we do not know how this Foothills Shrubland ecological system responded to grazing by native ungulates in natural densities. Finally, there is little known about the fauna associated with this community type. The actual distribution and variability expressed by the component natural communities is poorly known in certain portions of the site.

## ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	No
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	No
24921	<i>Cercocarpus montanus</i> / <i>Elymus lanceolatus</i> ssp. <i>lanceolatus</i> Shrubland	Mountain Mahogany/Griffith's Wheatgrass Shrubland	GU	S3	No
24531	<i>Cercocarpus montanus</i> / <i>Hesperostipa comata</i> Shrubland	Mixed Foothill Shrublands	G2	S2	No

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40631	<i>Cercocarpus montanus</i> / <i>Achnatherum scribneri</i> Shrubland	Foothills Shrubland	G3	S3	No
24531	<i>Cercocarpus montanus</i> / <i>Hesperostipa comata</i> Shrubland	Mixed Foothill Shrublands	G2	S2	Yes
40632	<i>Cercocarpus montanus</i> / <i>Muhlenbergia montana</i> Shrubland	Mixed Mountain Shrublands	GU	S2	No
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	No
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	Yes

## REFERENCES

Reference ID	Full Citation
159789	Bock, C.E., and J.H. Bock. 1988. Grassland birds in southeastern Arizona: impacts of fire, grazing, and alien vegetation. Pages 43-58 in P.D. Goriup, editor. Ecology and conservation of grassland birds. International Council for Bird Preservation Publication 7.
192692	Doyle, G.A., S.L. Neid and R.J. Rondeau. 2005. Final Report: Survey of Critical Biological Resources, Larimer County, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
166568	Kettler, S., J. Sanderson, S. Spackman, K. Fayette, C. Pague, D. Clark, and A. Hicks. 1996. Final Report: Significant plant, animal, and wetland resources of Larimer County and their conservation. Colorado Natural Heritage Program, Fort Collins, CO.
166571	Miller, S.G., R.L. Knight, and C.K. Miller. 1998. Influence of recreational trails on breeding bird communities. Ecological Applications 8:162-169.

## ADDITIONAL TOPICS

### Additional Topics

Original site design by Kettler, S.M. and C.A. Pague. 1996-11-06.

## VERSION

Version Date	01/25/2005
Version Author	Neid, S.L.

## Disclaimer

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