

# Level 4 Potential Conservation Area (PCA) Report

Name Red Hill south of Lyons

Site Code S.USCOFO\*182

## IDENTIFIERS

Site ID 1437 Site Class PCA  
 Site Alias Heil Ranch  
 Site Alias Little Narrows  
 Site Alias Pumely Canyon  
 Site Alias Red Hill  
 Site Alias Red Hill at Allens Lake

## Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
2528	S.USCOHP*27454	Front Range Foothills-Carter Lake to Boulder

## LOCATORS

Nation United States Latitude 401024N  
 State Colorado Longitude 1051659W

## Quad Code Quad Name

40105-B3 Lyons

## County

## Watershed Code Watershed Name

10190005 St. Vrain

## SITE DESCRIPTION

Minimum Elevation	5,400.00 Feet	1,645.92 Meters
Maximum Elevation	6,570.00 Feet	2,002.54 Meters

## Site Description

This site is part of the Front Range Hogback system and exemplifies the foothills transition zone. The diverse geology primarily includes sandstones with smaller areas of limestone, claystone, and siltstone (Braddock et al. 1988). The major plant communities present at the site are coniferous woodlands, deciduous shrublands, and grasslands. Bedrock geology is an important influence on the major plant communities. The striking red sandstone hogbacks on the east side of the site are primarily characterized by mountain mahogany (*Cercocarpus montanus*) shrublands although there is significant ponderosa pine (*Pinus ponderosa*) establishment and encroachment in small areas, especially on east-facing hogback slopes. Although mountain mahogany is relatively uniform across the bedrock layers that are exposed on west-facing hogback slopes, the characteristic grass understory tends to shift in correlation with bedrock geology. At lower elevations on Quaternary deposits, needle-and-thread (*Hesperostipa comata*) is characteristic. Lower and mid-slopes, where Fountain, Lyons, Ingelside, and Lykins Formations have more sparse herbaceous cover, New Mexico feathergrass (*Hesperostipa neomexicana*) and/or Scribner's needlegrass (*Achnatherum scribneri*) are characteristic. On Morrison and Dakota formations on high slopes, blue wildrye (*Elymus glaucus*) is common and abundant. Forb diversity is variable within these shrublands, cushion plants tend to be common where other vegetation is sparse. Valley grasslands are compromised and obscured by extensive weed infestation of cheatgrass (*Bromus tectorum*), Jim Hill mustard (*Sisymbrium altissimum*), and alyssum (*Alyssum minus*). Needle and thread and western wheatgrass (*Pascopyrum smithii*) generally form the current expression of these grasslands. Big bluestem (*Andropogon gerardii*) and little bluestem (*Schizachyrium scoparium*) are infrequent but do form large swards in places. Small areas of calcareous soils are embedded within the valley grasslands, often at toeslopes; these support New Mexico feathergrass grasslands and the globally rare Bell's twinpod (*Physaria bellii*). Granitic bedrock to the west of the sandstone hogbacks support ponderosa pine savanna. This savanna has large patches of trees occurring at various canopy density ranging from 5-25%, which is high for savanna habitat. There is a notable subcanopy of Douglas-fir (*Pseudotsuga menziesii*) and Rocky Mountain juniper (*Juniperus scopulorum*) in certain places. Mountain mahogany is a common shrub beneath the tree canopy and in openings. Other shrubs include wax currant (*Ribes cereum*), skunkbush (*Rhus trilobata*), rabbitbrush (*Chrysothamnus nauseosus*), and others. Graminoid diversity is variable, but needle-and-thread is the most constant throughout. Tallgrasses like big bluestem and little bluestem are sporadic and often around rock outcrops. Other grasses include junegrass (*Koeleria macrantha*), Indian ricegrass (*Achnatherum hymenoides*), and sideoats grama (*Bouteloua curtipendula*). Forb diversity is also variable but tends to be high in meadow openings and around rock

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outcrops.

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## Key Environmental Factors

Tertiary sandstone bedrock layers adjacent to granite massif; foothills-lower montane elevation zone.

## Climate Description

No Data

## Land Use History

The Heil Ranch was acquired during the 1940's. Cultivation of the land occurred at one time and silo structures on the property still attest to this fact. Since the 1940's, the ranch has been utilized for the grazing of livestock. The ranch has several quarry sites which were mined for the Lyons Red Sandstone that was key in the building of many structures in both Lyons and Boulder.

## Cultural Features

No Data

### SITE DESIGN

Site Map P - Partial Mapped Date 10/23/2008

Designer Neid, S.L.

## Boundary Justification

The boundary includes the occurrences of plant communities and imperiled butterflies, but also encompasses an area within which management activities consistent with historic natural processes (fire and herbivory and the resulting habitat mosaic) could be employed to increase the habitat quantity and/or quality for the plant communities and butterflies. The boundary generally includes the eastern slope of the hogback which provides or potentially provides habitat for the tallgrass prairie species and butterflies. Since several of the dominant species in the plant communities serve as food plants for the imperiled butterflies, management actions will affect both.

Primary Area 6,650.84 Acres 2,691.51 Hectares

### SITE SIGNIFICANCE

Biodiversity Significance Rank B1: Outstanding Biodiversity Significance

## Biodiversity Significance Comments

This site merits an outstanding biodiversity significance rank due to its concentration of globally rare communities and invertebrates in excellent and good condition. Significant plant communities include an excellent to good (AB-ranked) occurrence of the globally imperiled (G2/S2) ponderosa pine savanna (*Pinus ponderosa* / *Cercocarpus montanus* / *Andropogon gerardii*), two good (B-ranked) examples of the globally imperiled (G2/S2) mountain mahogany / needle-and-thread (*Cercocarpus montanus* / *Hesperostipa comata*) shrubland, an excellent to good (AB-ranked) occurrence of the globally imperiled (G2G3/S2S3) mountain mahogany / New Mexico feathergrass (*Cercocarpus montanus* / *Hesperostipa neomexicana*) shrubland, a good (B-ranked) occurrence of the globally critically imperiled (G1G2/S1S2) needle-and-thread grassland (*Hesperostipa comata* Colorado Front Range Herbaceous Vegetation), a good (B-ranked) occurrence of the globally imperiled foothills narrowleaf cottonwood / bluestem willow (*Populus angustifolia* / *Salix irrorata*) riparian woodland, and a good (B-ranked) occurrence of the globally imperiled (G2G3/S2) butterfly, the hops feeding azure (*Celastrina humulus*). Also within the site are a good to fair (BC-ranked) occurrence of globally vulnerable (G3/S3) mountain mahogany / Scribner's needlegrass (*Cercocarpus montanus* / *Achnatherum scribneri*) shrubland, a good (B-ranked) occurrence of the globally vulnerable (G3/S3) New Mexico feathergrass (*Hesperostipa neomexicana*) grassland, occurrences of several rare butterflies including a fair (C-ranked) occurrence of the globally vulnerable (G3G4/S2) Ottoe skipper (*Hesperia ottoe*), a good (B-ranked) occurrence of the globally vulnerable (G3/S2) Arogos skipper (*Atrytone arogos*), and a fair (C-ranked) occurrence of the state rare (G4/S3) Cross-line skipper (*Polites origenes*). There is also an occurrence of black-tailed prairie dog (*Cynomys ludovicianus*). The globally imperiled Bell's twinpod (*Physaria bellii*) occurs within the confines of this site, but is part of the overlapping Lykins Gulch site, which is drawn for the concentration of Bell's twinpod occurrences in the area.

Other Values Rank No Data

## Other Values Comments

No Data

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## LAND MANAGEMENT ISSUES

### Land Use Comments

No Data

### Natural Hazard Comments

No Data

### Exotics Comments

Several exotic species occur in the plant communities in various quantities. The most common of these include smooth brome (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), musk thistle (*Carduus nutans*), Kentucky bluegrass (*Poa pratensis*), Canada bluegrass (*Poa compressa*), Dalmation toadflax (*Linaria dalmatica*), alyssum (*Alyssum minus*), and knapweed (*Centaurea* species).

### 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>
19893	<i>Hesperia ottoe</i>	Ottoe Skipper	G3G4	S2	No
40631	<i>Cercocarpus montanus</i> / <i>Achnatherum scribneri</i>	Foothills Shrubland	G3	S3	No
24587	<i>Pinus ponderosa</i> / <i>Cercocarpus montanus</i> / <i>Andropogon gerardii</i> Wooded Herbaceous Vegetation	Foothills Ponderosa Pine Scrub Woodlands	G2	S2?	Yes
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	Yes
24703	<i>Hesperostipa comata</i> Colorado Front Range Herbaceous Vegetation	Great Plains Mixed Grass Prairie	G1G2	S1S2	Yes
16895	<i>Atrytone arogos</i>	Arogos Skipper	G3	S2	No
40630	<i>Cercocarpus montanus</i> / <i>Hesperostipa neomexicana</i> Shrubland	Foothills Shrubland	G2G3	S2S3	No
17488	<i>Polites origenes</i>	Cross-line Skipper	G5	S3	No
24531	<i>Cercocarpus montanus</i> / <i>Hesperostipa comata</i> Shrubland	Mixed Foothill Shrublands	G2	S2	Yes
22673	<i>Hesperostipa neomexicana</i> Herbaceous Vegetation	Great Plains Mixed Grass Prairie	G3	S3	No
24587	<i>Pinus ponderosa</i> / <i>Cercocarpus montanus</i> / <i>Andropogon gerardii</i> Wooded Herbaceous Vegetation	Foothills Ponderosa Pine Scrub Woodlands	G2	S2?	No
16895	<i>Atrytone arogos</i>	Arogos Skipper	G3	S2	No
20146	<i>Celastrina humulus</i>	Hops Feeding Azure	G2G3	S2	Yes
24531	<i>Cercocarpus montanus</i> / <i>Hesperostipa comata</i> Shrubland	Mixed Foothill Shrublands	G2	S2	Yes
17796	<i>Cynomys ludovicianus</i>	Black-tailed Prairie Dog	G4	S3	No
24827	<i>Populus angustifolia</i> / <i>Salix irrorata</i> Woodland	Foothills Riparian Woodland	G2	S2	Yes
21047	<i>Cheilanthes eatonii</i>	Eaton's lip fern	G5?	S1S2	No

## REFERENCES

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## Reference ID

## Full Citation

164420	Bock, C. E., and J. H. Bock. 1988. Grassland birds in southeastern Arizona: impacts of fire, grazing, and alien vegetation. ICBP Technical Publication No. 7:43-58.
194994	Braddock, W.A., R.G. Houston, R.B. Colton, and J.C. Coles. 1988. Geologic Map of the Lyons Quadrangle, Boulder County, Colorado. Map GQ-1629. U.S. Geologic Survey, Reston, Virginia.
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192308	Mehl, M. S. 1992. Old-growth descriptions for the major forest cover types in the Rocky Mountain Region. Pages 106-120 in: M. R. Kaufmann, W. H. Moir, and R. L. Bassett. Old-growth forests in the southwest and Rocky Mountain regions. Proceedings of the old-growth forests in the Rocky Mountains and Southwest conference, Portal, AZ. March 9-13, 1992. USDA Forest Service, General Technical Report RM-213, Rocky Mountain Forest and Range Experiment Station, Fort Collins, CO.
171646	Moffat, Mary & Nell McPhillips. 1993. Management for butterflies in the northern great plains: a literature review and guidebook for land managers. U.S. Fish and Wildlife Service, Ecological Services, South Dakota State Office, Pierre. SD-ES-93-05.
195190	Neid, S., J. Lemly, K. Decker and D. Culver. 2009. Final Report: Survey of Critical Biological Resources in Boulder County 2007-2008. Colorado Natural Heritage Program, Fort Collins, CO.
171491	Peet, R. K. 1981. Forest vegetation of the Colorado Front Range: composition and dynamics. <i>Vegetatio</i> 45:3-75.
171240	Samson, F. and F. Knopf. 1994. Prairie conservation in North America. <i>Bioscience</i> 44(6):418-421.
192828	Swengel, A.B. and S.R. Swengel. 1995. The tall-grass prairie butterfly community. In: La Roe, G.T., G.S. Farris, C.E. Puckett, P.D. Doran, and M.J. Mae, (eds.). <i>Our Living Resources: A Report on the Distribution, Abundance, and Health of U.S. Plants, Animals, and Ecosystems</i> . U.S. Department of Interior, National Biological Service, Washington, D.C.
169321	West, N. E. 1993. Biodiversity of rangelands. <i>Journal of Range Management</i> . 46(1).

## ADDITIONAL TOPICS

### Additional Topics

Original site design by Kettler, S.M. 1995-12-07.

## VERSION

Version Date 10/23/2008

Version Author Neid, S.L.

## Disclaimer

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