

RANGE SITE DESCRIPTION

for

CLAYEY FOOTHILLS

Land Resource Area: Central Desertic Basins, Mountains,
and Plateaus (34)
Colorado and Green Rivers Plateaus (35)
Southern Rocky Mountains (48)

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

This site occupies gently sloping to rolling benchlands, footslopes, fans, valleys and broad ridges. It is commonly associated with shale hills. Slopes are generally between 1 and 12% and are not significant to plant growth. Elevation is between 5500 and 7000 feet.

2. Climatic Features

Average annual precipitation is 12 to 16 inches, except for a few small areas where it may reach 18 inches. Of this, 35 to 40% falls as snow and 40 to 45% falls between May 1 and September 30. Summer moisture is mostly from thundershowers in late July, August and September. A dry period from May to early July is typical, and June is normally the driest month. Wide yearly and monthly deviations are common. The most active growth of major native plants usually starts in April. It extends through most of June for some plants but ends in late May for others. Many plants can again take advantage of late summer rains if in good vigor.

Mean annual temperatures are 45° to 48° F, with a frost-free period of 90 to 140 days. Annual range in temperature is from 90° to -15° or -20° F, although higher and lower extremes are sometimes recorded. The typical late spring and early summer dry spell puts warm-season plants at a distinct disadvantage compared to plants that can start earlier on stored winter moisture and spring rains. Deep storage of winter moisture allows sagebrush and small trees to compete strongly with shallower-rooted grasses during this dry period, especially if other factors encourage the spread of such plants.

3. Native (potential) Vegetation

Western wheatgrass dominates the cover, although big sagebrush gives the site an open brushland aspect. Black sage is also present in places. Muttongrass, Indian ricegrass, squirreltail, Junegrass and other grasses combine with western wheatgrass to make up well over half the plant community. Beardless wheatgrass is present in northern portions of the site. Forbs are scattered through but make up a minor part of the plant community. Some of the most common are buckwheat, globemallow, penstemon, and locos or milk-vetches. Others which grow in parts of this community are yarrow, balsamroot, and aster. Douglas rabbitbrush and prickly pear are commonly occurring plants, and there may be an occasional 4-wing saltbush or winterfat. On more moist parts of the site a few tall shrubs common to higher elevations may be present, and pinyon or juniper may show up. The latter are confined to occasional trees or patches under natural conditions, however, due to fire and other factors.

Native (potential) Vegetation and Guide for Determining Range Condition.

Percentage composition by weight of the principal species may total as much as:

Western wheatgrass	50
Big sagebrush	20
Indian ricegrass	5
Muttongrass	5
Beardless wheatgrass <u>1/</u>	5
Douglas rabbitbrush	5
Others (listed above)	15

1/ Not present at southern locations.

Tree species most likely to grow on the site are Utah juniper, one-seed juniper and pinyon pine. Approximate ground cover is 40 percent.

Species most likely to invade the site or increase from trace amounts are juniper (at upper elevations), rubber rabbitbrush, Colorado rubberweed, snakeweed, cheatgrass and annual weeds. Shadscale and greasewood move into some drier parts of the site, especially those adjacent to salty soils. Big sagebrush commonly becomes dominant as the range condition deteriorates and may make up nearly all the vegetation. Other plants which increase in some places as the condition deteriorates are black sage and Douglas rabbitbrush.

4. Total Annual Production

Favorable years	1200	Pounds	per	Acre	Dry	Air
Unfavorable years	600	"	"	"	"	"
Median years	900	"	"	"	"	"

5. Soils

a. Soils are mainly derived from marine shales. They are deep to moderately deep and are generally rock free. Surface textures are mostly clay or clay loam. In some cases there is a thin loam surface layer, but the major influence is from heavier material. There is generally a well-developed textural B horizon. Permeability is slow, but excellent storage of water favors extension of growth into dry weather. However, the high wilting point can be a significant factor in dry summers. The shrink-swell potential is high. These soils are subject to severe water erosion if plant cover is weakened.

b. Soils in this site are:

Carmack clay
Colona silty clay loam
Forelle loam
Hott clay loam
Lockerby clay loam (all phases)
Yamac loam

6. Rare, Threatened or Endangered Plants and Animals

(To be added when known)

7. Location of Typical Example of the Site

Colorado Division of Wildlife land, Sunnyside Area, northwest of Colbran, Mesa County

Doug Hindmarsh range just west of Mesa Verde National Park entrance and north of Hiway 160, east of Cortez, Montezuma County.

8. Field Offices in Colorado where the site occurs:

314 Cortez
315 Craig
318 Delta
320 Durango
321 Eagle
326 Glenwood Springs
328 Grand Junction
343 Meeker
345 Montrose
346 Norwood
347 Pagosa Springs

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B. Major Uses and Interpretations for the CLAYEY FOOTHILLS Range Site

Use of Product	Value Rating			
	High	Medium	Low	Not Applicable
1. <u>Grazing</u>				
<u>Cattle</u>	X			
<u>Sheep -</u>		X		
<u>Horses</u>	X			
2. <u>Wood Products</u>			(P-J) X	
3. <u>Wildlife</u>				
<u>Antelope</u>			X	
<u>Bison</u>			X	
<u>Deer</u>	X			
<u>Elk</u>			X	
<u>Cottontail</u>	X			
<u>Jackrabbit</u>			X	
<u>Upland game birds</u>		X		
<u>Waterfowl</u>				X
4. <u>Watershed</u>				
5. <u>Recreation and Natural Beauty</u>		X		

Ecological Reference Sheet

MLRA: 34A **Ecological Site:** Clayey Foothills

Date: 01/19/05 **Author(s)/participant(s):** J. Murray, C. Holcomb, L. Santana, F. Cummings, S. Jaouen
Contact for lead author: _____

This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Composition (indicators 10 and 12) based on: Annual Production, Cover Produced During Current Year Biomass

<p>Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years and natural disturbance regimes for each community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.</p>
<p>1. Number and extent of rills: None to slight, short and shallow.</p>
<p>2. Presence of water flow patterns: Flow paths are to be expected on steep slopes. Short and disconnected.</p>
<p>3. Number and height of erosional pedestals or terracettes: Pedestals may occur on steeper slopes, near or in flow paths.</p>
<p>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground): Expect 30-40% bare ground. Extended drought can cause bare ground to increase.</p>
<p>5. Number of gullies and erosion associated with gullies: Gullies are inherent to the site, widely spaced with sharp edges, typically caused by concentrated flows. Depth is limited by bedrock.</p>
<p>6. Extent of wind scoured, blowouts and/or depositional areas: None</p>
<p>7. Amount of litter movement (describe size and distance expected to travel): Litter movement associated with flow paths. Movement can be extensive with concentrated flow.</p>
<p>8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values): Stability class rating anticipated to be 2-3 in the interspaces at soil surface.</p>
<p>9. Soil surface structure and SOM (soil organic matter) content (include type and strength of structure, and A-horizon color and thickness): Surface texture ranges from clay to clay loam. Soils are moderately deep to deep and rock free. Depth of the A-horizon is typically 0-5 inches deep with a grayish brown colors. Structure is weak fine granular, very friable, plastic.</p>
<p>10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Grasses and shrub canopy, basal cover, and inherent interspaces between plants allow for overland flow, providing a lost opportunity for infiltration to occur. The composition of the plant community has less affect on infiltration and runoff than does slope and texture.</p>
<p>11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None</p>
<p>12. Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify) using symbols: >>, >, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and “others” on separate lines): Dominants: cool season rhizomatous grasses > Sub-dominants: shrubs > cool season bunchgrass > Other: forbs > trees</p>
<p>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Slight</p>
<p>14. Average percent litter cover (_____ %) and depth (_____ inches). 10-20% litter cover at < 0.25 inch depth. Litter cover declines during and following extended drought.</p>
<p>15. Expected annual production (this is TOTAL above-ground production, not just forage production): 600 lbs./ac. low precip years; 900 lbs./ac. average precip years; 1200 lbs./ac. above average precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 300 – 500 lbs./ac. or more.</p>
<p>16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”: Cheatgrass, rabbitbrush, pinyon/juniper and noxious weeds.</p>
<p>17. Perennial plant reproductive capability: The major limitation is drought and inter-species competition for moisture.</p>

Functional/Structural Groups Sheet

State: _____ Office: _____ Ecological Site: Clayey Foothills Site ID: R034AY289CO

Observers: _____ Date: _____

Functional/Structural Groups			Species List for Functional/Structural Groups
Name	Potential ¹	Actual ²	Plant Names
Cool season rhizomatous grasses	D		Western wheatgrass
Shrubs	S		Big sagebrush, black sagebrush, fourwing saltbush, Douglas rabbitbrush, Mormon tea, winterfat, squawapple
Cool season bunchgrass	S		Bluebunch wheatgrass, beardless wheatgrass, Indian ricegrass, salina wildrye, prairie junegrass, bottlebrush squirreltail
Forbs	M		Penstemons, stemless goldenweed, cryptanthia, buckwheat, milkvetches, scarlet globemallow, scarlet gilia, asters, daisy, phlox
Trees	T		Pinyon, Utah juniper
Noxious Weeds			
Invasive Plants			
Biological Crust ³	T		

Indicate whether each “structural/functional group” is a **Dominant (D)** (roughly 40-100 % composition), a **Sub-dominant (S)** (roughly 10-40% composition) a **Minor Component (M)** (roughly 2-5% composition), or a Trace Component (**T**) (<2% composition) based on weight or cover composition in the area of interest (e.g., “Actual²” column) relative to the “Potential²” column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust³ dominance is evaluated solely on **cover**³ not composition by weight.

Ecological Reference Sheet

MLRA: 36 Ecological Site: Clayey Foothills

Date: 12/15/04 Author(s)/participant(s): Steve Myers, Scott Woodall

Contact for lead author: _____

This *must* be verified based on soils and climate (see Ecological Site Description). Current plant community *cannot* be used to identify the ecological site.

Composition (indicators 10 and 12) based on: X Annual Production, Cover Produced During Current Year Biomass

<p>Indicators. For each indicator, describe the potential for the site. Where possible, (1) use numbers, (2) include expected range of values for above- and below-average years and natural disturbance regimes for <u>each</u> community within the reference state, when appropriate & (3) cite data. Continue descriptions on separate sheet.</p>
<p>1. Number and extent of rills: None to slight. If present, shallow and short.</p>
<p>2. Presence of water flow patterns: Flow paths expected, short and usually disconnected with numerous debris dams obvious after rainfall events.</p>
<p>3. Number and height of erosional pedestals or terracettes: Pedestals minor, occurring in or near flow paths.</p>
<p>4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are <i>not</i> bare ground): Expect 5-10% bare ground. Extended drought can cause bare ground to increase.</p>
<p>5. Number of gullies and erosion associated with gullies: Typically none.</p>
<p>6. Extent of wind scoured, blowouts and/or depositional areas: None</p>
<p>7. Amount of litter movement (describe size and distance expected to travel): Litter movement associated with flow paths. Movement is typically short (< 1 foot).</p>
<p>8. Soil surface (top few mm) resistance to erosion (stability values are averages – most sites will show a range of values): Stability class rating anticipated to be 5-6 in interspace at soil surface.</p>
<p>9. Soil surface structure and SOM (soil organic matter) content (include type and strength of structure, and A-horizon color and thickness): Surface texture is clay. The A-horizon 0-6 inches in depth, brown in color with a medium granular to sub-angular blocky structure.</p>
<p>10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Rhizomatous grass coverage slows overland flow, especially during or after high intensity rainfall events.</p>
<p>11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None</p>
<p>12. Functional/Structural Groups (list in order of descending dominance by above-ground production or live foliar cover (specify) using symbols: >>, >, = to indicate much greater than, greater than, and equal to; place dominants, subdominants and “others” on separate lines): Dominants: cool season rhizomatous grass > Sub-dominants: shrubs > cool season bunchgrass > Other: forbs > warm season bunchgrass</p>
<p>13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Typically minimal.</p>
<p>14. Average percent litter cover (_____ %) and depth (_____ inches). 10-20% litter cover at 0.25 inch depth. Litter cover declines during and following extended drought.</p>
<p>15. Expected annual production (this is TOTAL above-ground production, not just forage production): 600 lbs./ac. low precip years, 900 lbs./ac. average precip years, 1200 lbs./ac. above average precip years. After extended drought or the first growing season following wildfire, production may be significantly reduced by 300 – 500 lbs./ac. or more.</p>
<p>16. Potential invasive (including noxious) species (native and non-native). List species which characterize degraded states and which, after a threshold is crossed, “can, and often do, continue to increase regardless of the management of the site and may eventually dominate the site”: None</p>
<p>17. Perennial plant reproductive capability: The only limitations are weather-related, wildfire, natural disease, inter-species competition, wildlife, and insects that may temporarily reduce reproductive capability.</p>

Ecological Reference Sheet

MLRA: 48A **Ecological Site:** Clayey Foothills

Date: 01/19/05 **Author(s)/participant(s):** J. Murray, C. Holcomb, L. Santana, F. Cummings, S. Jaouen

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Noxious Weeds			
Invasive Plants			
Biological Crust ³	T		

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