UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service, Colorado

Technical Guide
Section II E

RANGE SITE NO. 237
Field Office
August 1975

RANGE SITE DESCRIPTION

for

STONY LOAM

Land Resource Area: Southern Rocky Mountains (48)

A. PHYSICAL CHARACTERISTICS

1. Physiographic Features

Stony hills and mountain sides are typical of the landscape of this range site. Slopes are from steep to very steep - as steep as 60%. Elevations range between 7000 and 9000 feet.

2. Climatic Features

The average annual precipitation is 15 to 20 inches with half or more of the moisture in the form of snow. The optimum growing season for the site is May 1 to July 1. The shrubs and other deep rooting plants of this site are favored by readily available moisture from accumulated snow.

3. Native (potential) Vegetation

Serviceberry, antelope bitterbrush, big sagebrush, snowberry, and Douglas rabbitbrush give this site the appearance of a shrub plant community. Grasses and forbs, however, comprise a significant percentage of the annual yield. Bluebunch wheatgrass, Idaho/Arizona fescue, muttongrass, Indian ricegrass, needle-and-thread, needlegrasses (pine, Letterman, Scribner, and Columbia), Junegrass, western wheatgrass, spike fescue along with sedges are frequent in occurrence. Forbs of this site are tapertip hawksbeard, holly-leaf clover, balsamroot, paintbrush, pussytoes, stonecrop and geranium.

In general this site is devoid of trees but a lone pine, Douglas fir, Rocky Mountain juniper or aspen may grow on a soil inclusion associated with the site.

The approximate ground cover of the potential plant community is 30%. Much of the land surface is occupied by stones but the spaces between them are well filled with plant cover. Plants not a part of the community that are likely to invade when the cover deteriorates are cluster tarweed, hound's tongue, Canada thistle, cheatgrass, stickseed, knotweed, and other similar species.

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

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

Bluebunch wheatgrass	20
Serviceberry	15
Indian ricegrass	15
Needlegrasses	15
Muttongrass	10
Idaho/Arizona fescue	10
Western wheatgrass	10
Bitterbrush	5
Big sagebrush	5
Snowberry	5
Balsamroot	5
Paintbrush	5
Lupine	5
Eriogonum	5
Phlox	3
Others (as listed above)	10

4. Total Annual Production

Favorable years	2000	Pounds	per	Acre	Air	Dry
Unfavorable years	1000	"	"	"	"	"
Median years	1200	"	"	"	"	"

5. Soils

a. Moderately deep to deep stone-filled sandy loams to light clay loams, very dark brown in color. Permeability is moderate; but water holding capacity is reduced due to stone dilution. The profile is usually noncalcareous throughout. The surface is frequently stony. Soil-plant-water relationships are fair to good. The abundance of stones in the profile acts to make soil water more readily available for plant use in a given volume of soil.

b. Soils in this site are:

Ess cobbly loam
Handron extremely stony sandy loam
Sebud stony loam

6. Rare, Threatened or Endangered Plants and Animals

(To be added when known)

7. Location of Typical Example of the Site

8. Field Offices in Colorado where the site occurs:

307 Canon City
308 Castle Rock
313 Colorado Springs
315 Craig
316 Cripple Creek
318 Delta
320 Durango
321 Eagle
323 Fort Collins
326 Glenwood Springs
327 Golden
328 Grand Junction
330 Gunnison
337 Kremmling
343 Meeker
345 Montrose
348 Pueblo
350 Salida
353 Steamboat Springs
358 Walden

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B. Major Uses and Interpretations for the STONY LOAM Range Site

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

Ecological Reference Sheet

MLRA: 48A **Ecological Site:** Stony Loam

Date: 01/18/05 **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: X Annual Production, __Cover Produced During Current Year __Biomass

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.

1. Number and extent of rills: None

2. Presence of water flow patterns: Typically none. Flow paths are short and disconnected. Broken by surface rock and basal cover.

3. Number and height of erosional pedestals or terracettes: Pedestals are minimal and associated with flow paths. Debris dams are obvious following rainfall event.

4. Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are *not* bare ground): Expect 15-20% bare ground. Extended drought can cause bare ground to increase to 20-30%. Surface and sub-surface rock are inherent to this site.

5. Number of gullies and erosion associated with gullies: An occasional gully is possible on steeper slopes.

6. Extent of wind scoured, blowouts and/or depositional areas: None

7. Amount of litter movement (describe size and distance expected to travel): Some movement is expected due to steepness of slope. Distance varies from 1-3 feet following intense rainfall events.

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 3-5 in the interspaces at soil surface.

9. Soil surface structure and SOM (soil organic matter) content (include type and strength of structure, and A-horizon color and thickness): SOM ranges from 2-4%. Surface soils are moderately deep to deep stone filled sandy loams to light clay loams and well drained. The A-horizon ranges from 0-10 inches in depth and color ranges from dark to light brown. Surface structure is moderate fine to medium granular.

10. Effect of plant community composition (relative proportion of different functional groups) & spatial distribution on infiltration & runoff: Diverse shrub, grass, forb canopy and root structure reduces raindrop impact and slows overland flow providing increased time for infiltration to occur. Abundance of stones in the profile acts to increase infiltration and makes soil water more readily available for plant use.

11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site): None

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: shrubs >
Sub-dominants: cool season bunchgrass > forbs >
Other: cool season rhizomatous grass

13. Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence): Typically minimal, except for weather related.

14. Average percent litter cover (_____%) and depth (_____ inches). 30-45% litter cover at 0.25-0.50 inch depth. Extended drought can reduce litter to 20-30%.

15. Expected annual production (this is TOTAL above-ground production, not just forage production):
1000 lbs./ac. low precip years; 1200 lbs./ac. average precip years; 2000 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.

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": Tarweed and other noxious weeds.

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.

Functional/Structural Groups Sheet

State: _____ Office: _____ Ecological Site: Stony Loam Site ID: R048AY237CO

Observers: _____ Date: _____

Functional/Structural Groups			**Species List for Functional/Structural Groups**
Name	Potential[1]	Actual[2]	Plant Names
Shrubs	D		Serviceberry, snowberry, antelope bitterbrush, big sagebrush
Cool season bunchgrass	S		Bluebunch wheatgrass, needlegrasses, native fescues, native bluegrasses, Indian ricegrass, prairie junegrass, bottlebrush squirreltail
Forbs	S		Western yarrow, lupine, buckwheat, Indian paintbrush, balsamroot, hairy goldaster, penstemons, asters, daisy, stemless goldenweed, stonecrop
Cool season rhizomatous grass	M		Western wheatgrass
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., "Actual[2]" column) relative to the "Potential[2] " column derived from information found in the ecological site/description and/or at the ecological reference area.

Biological Crust [3] dominance is evaluated solely on **cover** not composition by weight.