

SHALLOW SANDSTONE  
KANSAS RANGE SITE DESCRIPTION

1. Location of Site:

Land Resource Areas 74 and 75 (North Half)  
Central Kansas Sandstone Hills and  
Central Loess Plains (North Half)



2. Climate:

See climate for LRA's 74 and 75  
(Filed in the front of Section II-E)

3. Topography:

This site is found on uplands that are moderately to strongly sloping.

4. Soils and Hydrological Characteristics:

- a. This site has a loamy surface layer that may be cobbly or stony. The substrata is a brown sandstone. It is somewhat excessively drained and has medium to rapid runoff. Permeability is moderate.
- b. The major soil that characterizes this site is the Hedville series.
- c. Water erosion, especially gully erosion, is a hazard on this site when the vegetation is overgrazed or otherwise destroyed.

5. Climax Vegetation:

- a. The natural potential vegetation of this site is a mixed grass prairie. Little bluestem and big bluestem are the dominant forage producers, and they make up about 65 percent of the total annual yield. Western ragweed is the dominant forb along with the scurfpeas and Louisiana sagewort. Shrubs are generally lacking or are only found in small amounts.

In its development, the vegetation on this site was influenced by grazing, drought, and occasional wildfires. The grazing was predominantly by large transient herds of bison and lesser numbers of antelope and elk.

b. Guidelines for Determining Range Condition:

(Percentage of total production by weight)

<u>Grasses and Grasslike - 90 Percent</u>		<u>Forbs - 10 Percent</u>	<u>Shrubs and Cacti - T</u>	
80	35 big bluestem	10 dotted gayfeather heath aster Louisiana sagewort manyflower scurfpea slimflower scurfpea stiffstem flax threecleft greenthread upright prairieconeflower western ragweed woolly plantain	T aromatic sumac buckbrush pricklypear smooth sumac	
	10 indiagrass			
	40 little bluestem			
	5 sideoats grama			
	5 switchgrass			
10	5 blue grama			
	5 buffalograss			
	5 scribner panicum			
	5 sedges			
	5 tall dropseed			
T	5 western wheatgrass			
	hairy grama			
	sand dropseed sand paspalum			

c. Invaders common to this site are camphorweed, false buffalograss, Japanese brome, little barley, prairie threeawn, purple threeawn, rosering gaillardia, and sixweeks fescue.

6. Management Implications:

The site is normally found in association with the deeper loamy upland and clay upland range sites. The steepness of the site and associated rock outcrops tend to lessen the grazing pressure on this site compared to more level associated sites.

Where overgrazing does occur, the big bluestem and indiagrass, then little bluestem, tend to decrease while sideoats grama, blue grama, and buffalograss increase. Continued overgrazing will tend to reduce the site to mostly buffalograss, blue grama, and western wheatgrass. There is normally a large increase in forbs when reduced to this low condition.

When using grazing management to return this site from a very low condition, extended rest or light grazing may encourage brush to increase or invade. Grazing management that includes moderate grazing and scheduled rest periods will help to return this site to its productive potential. Such management will also maintain the site in a productive condition.

7. Wildlife Considerations:

Where pockets of deep soils exist or where there are small caves or rock outcrops, this is a preferred den site for coyotes, foxes, and other predator species. Numerous small rodents and lizards utilize this and adjacent sites as their home and provide food for the predators.

The rough topography of this site provides protection for a wide variety of animals during winter storms and other bad weather. The forbs of this site also provide a fair amount of food for birds and small mammals.

8. Other Uses and Values:

The shallow soils and rough topography limit the uses of this site to the less intensive land uses such as rangeland and wildlifeland. Development is generally expensive and impractical. Rock for landscaping use is sometimes excavated from this site.

9. Herbage Production Guidelines:

The following guidelines are based on available clipping data when this site is in excellent condition. Vigor of principal forage species, proper burning techniques, if used, as well as growing conditions, influence annual herbage production.

<u>Growing Conditions</u>	<u>Total Air Dry Herbage</u>	
	<u>Pounds/Acre</u>	<u>Kilograms/Hectare</u>
Favorable	3,000-4,000	3,360-4,480
Normal	2,000-3,000	2,240-3,360
Unfavorable	1,500-2,000	1,680-2,240

10. Guide to Initial Stocking Rates:

<u>Range Condition</u>	<u>Percent Climax Vegetation</u>	<u>Acres/AU Yearlong</u>	<u>AU Months Per Acre</u>	<u>Hectares/AU Yearlong</u>	<u>AUM's per Hectare</u>
Excellent	76-100	14-18	.8	6-7	2.0
Good	51-75	18-25	.6	7-10	1.5
Fair	26-50	25-45	.4	10-18	1.0
Poor	0-25	45+	.2	18+	0.5

These guidelines are considered safe initial stocking rates from which a sound management program can be built. Grazing only during the dormant season or use of a specialized grazing program will usually allow a substantial increase in the stocking rates shown.

This site is not normally used for hay production.

**11. Relative Preference of Plant Species:**

Preferences of plant species by classes of livestock and uses by wildlife will vary from year to year and season to season. The table below is what might be expected under average climatic conditions and good management.

Forage Preferences

H = High  
M = Medium  
L = Low

Wildlife Preferred Uses

C = Cover  
F = Food  
N = Nesting

Plant Species	Animal Species			
	Cattle	Sheep	Deer	Pheasant
big bluestem	H	M	C	C,N
blue grama	H	M	F	---
buckbrush	L	L	C,F	C,F
buffalograss	H	M	F	---
dotted gayfeather	M	M	F	---
hairy grama	M	M	---	---
heath aster	M	H	F	---
indiangrass	H	M	C	C,N
Japanese brome	M <u>1/</u>	H	F <u>1/</u>	---
little bluestem	H	M	C	C,N
Louisiana sagewort	L	M	F	F
sand paspalum	M	H	F	F
scurfpeas	L	M	F	F
sideoats grama	H	M	F	---
switchgrass	H <u>2/</u>	M <u>2/</u>	C	C,F,N
tall dropseed	M	L	C	C,N
western ragweed	M	M	F	F
western wheatgrass	H	M <u>1/</u>	F <u>1/</u>	C,N

1/ Has a high preference during lush growth periods

2/ Preferred during first half of growing season.

Reference:

Anderson, Kling L. and Clenton E. Owensby. 1969 Common Names of a Selected List of Plants. Kansas State University Tech. Bul. 117.

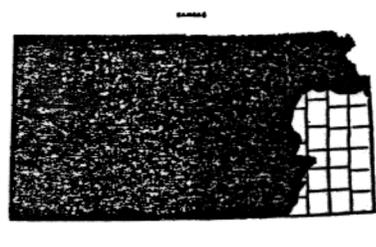
SHALLOW SANDSTONE  
KANSAS RANGE SITE DESCRIPTION

1. Location of Site:

Land Resource Areas 84A and 112  
(Cross Timbers and Cherokee Prairie)

2. Climate:

See climate for LRA's 84A and 112  
(Filed in the front of Section II-E)



3. Topography:

Gently sloping to strongly sloping uplands with 2 to 15 percent slopes, occasionally up to 35 percent slopes.

4. Soils and Hydrological Characteristics:

- a. Loamy soils 7 to 20 inches deep over sandstone bedrock. Sandstone fragments are usually present in the soil profile. These soils have moderately rapid permeability and have low water-holding capacity.
- b. The soil that characterizes this site is Collinsville
- c. Rill and gully erosion is a hazard on this site. The droughty nature of the soil combined with its soil texture and strong slopes makes it essential that a good plant cover be maintained.

5. Climax Vegetation:

- a. The natural potential vegetation of this site is a mixed prairie. It is dominated by tall and mid grasses with lesser amounts of short grasses. Big bluestem, indiagrass, and little bluestem make up about 60 percent of the potential vegetation.

b. Guidelines for Determining Range Condition:

(Percentage of total production by weight)

<u>Grasses and Grasslike - 85 Percent</u>		<u>Forbs - 10 Percent</u>	<u>Shrubs - 5 Percent</u>
60		buttonsnakeroot	5 American plum blackberry ceanothus flameleaf sumac
		catclaw sensitivebriar	
		cobea penstemon	
15	10 sideoats grama	compassplant	
	10 switchgrass	dotted gayfeather	
10		fringeleaf ruellia	
		hairy sunflower	
		Illinois bundleflower	
		pale echinacea	
		10 pitcher sage	
		purple prairieclover	
		roundhead lespedeza	
		serrateleaf eveningprimrose	
		slender lespedeza	
		stiff sunflower	
	tall gayfeather		
	Virginia tephrosia		
	white prairieclover		
		aromatic aster	
		baldwin ironweed	
		beebalm	
		blackeyesusan	
		clasping coneflower	
		grayhead prairieconeflower	
		heath aster	
	T inland ironweed		
		Missouri goldenrod	
		plains larkspur	
		pussytoes	
		stiff goldenrod	
		upright prairieconeflower	
		western ragweed	
		wooly verbena	
		yarrow	

c. Common invaders to the site include broomsedge, buckbrush, lanceleaf ragweed, osageorange, prairie threeawn, red cedar, roughleaf dogwood, smooth sumac, and tall dropseed.

6. Management Implications:

Maintaining an acceptable level of woody vegetation is the major consideration on this site. A combination of proper use, prescribed burning, and the use of brush management techniques are necessary to maintain this site near its potential.

Overgrazing by cattle will result in an increase of smooth sumac, flameleaf sumac, and blackberry. Roughleaf dogwood will invade and may heavily infest large areas. In early stages of regression purple lovegrass and hairy grama increase rapidly as annual broomweed lanceleaf ragweed, and prairie threeawn begin to invade. Excess grazing results in the invaders and shrub species dominating the site.

Sheep and goats may be used to control shrub species on this site. Caution should be used as dense stands of blackberry may entangle sheep and goats causing heavy death losses. Excessive overgrazing with sheep or goats will result in annual grasses dominating the site.

Brush management on this site can best be accomplished with proper use in a planned grazing system along with prescribed burning to control the vegetation. Due to the fire tolerance of some of the shrub species on the site, selecting the proper grazing animal and/or use of approved herbicides is necessary to keep this site near its potential.

7. Wildlife Considerations:

When maintained in good to excellent condition, this site provides occasional nesting for prairie chicken, quail, and other upland birds. The variety of forbs and grasses on this site makes it a good feeding area for whitetail deer, quail, and numerous songbirds. Overgrazing reduces the availability of food and effective cover. However, disturbed areas may be frequently used for dusting and booming grounds.

8. Other Uses and Values:

This site is not normally recognized for its unique features. It has an abundance of flowering plants throughout the growing season making it attractive for occasional visits from photographers, bikers, and wildflower enthusiasts. The sandy soils and shallow depth limit the desirability of this site for most other uses.

9. Herbage Production Guidelines:

The following guidelines are based on available clipping data when this site is in excellent condition. Vigor of principal forage species, time of burning, if fire is used, as well as growing conditions, influence annual herbage production.

<u>Growing Conditions</u>	<u>Total Air Dry Herbage</u>	
	<u>Pounds/Acre</u>	<u>Kilograms/Hectare</u>
Favorable	3500-4500	3900-5000
Normal	2500-3500	2800-3900
Unfavorable	1500-2500	1700-2800

10. Guide to Initial Stocking Rates:

<u>Range Condition</u>	<u>Percent Climax Vegetation</u>	<u>Acres/AU Yearlong</u>	<u>AU Months Per Acre</u>	<u>Hectares/AU Yearlong</u>	<u>AUM's per Hectare</u>
Excellent	76-100	10-14	1.0	4.5-5.5	2.5
Good	51-75	14-18	.8	5.5-7	2.0
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Poor	0-25	25+	.4	10+	1.0

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Wildlife Preferred Uses

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F = Food  
N = Nesting

Plant Species	Animal Species			
	Cattle	Sheep	Goats	Deer
baldwin ironweed	L	M	M	--
big bluestem	H	M	M	C
blackberry	L	L	L	F
blue grama	H	H	M	--
Canada wildrye	H	M	M	F
catclaw sensitivebriar	H	H	H	F
ceanothus	H	H	H	F
compassplant	H	H	H	F
dotted gayfeather	M	M	M	--
hairy sunflower	H	H	H	F
Illinois bundleflower	H	H	H	F
indiangrass	H	M	M	C
little bluestem	H	M	M	C
rosette panicums	M	M	M	--
roundhead lespedeza	H	H	H	F
sideoats grama	H	M	M	--
switchgrass	H <u>2/</u>	M	M	C
western ragweed	M	M	M	--

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