

RANGELAND PRODUCTIVITY  
Chase County, Kansas

### Use and Explanation of Rangeland, Grazed Forest Land, Native Pastureland Interpretations

Information in this subsection can be used to plan the use and management of soils for rangeland, grazed forest land, and native pasture. Different kinds of soils vary in their capacity to produce native grasses and other plants suitable for grazing. Information in this subsection provides groupings of similar soils and estimates of potential forage production, which can be used to determine livestock stocking rates.

**Rangeland.** Range is land on which the native vegetation (climax or natural potential plant community) is predominantly grasses, grasslike plants, forbs, and shrubs suitable for grazing and browsing. Range includes natural grasslands, savannas, many wetlands, some deserts, tundra, and certain shrub and forb communities. Rangeland receives no regular or frequent cultural treatment. The composition and production of the plant community are determined by soil, climate, topography, overstory canopy, and grazing management.

**Grazed Forest Land.** Includes land on which the understory includes, as an integral part of the forest plant community, plants that can be grazed without significantly impairing other forest values.

**Native Pasture.** Includes land on which the native vegetation (climax or natural potential plant community) is forest but which is used and managed primarily for production of native plants for forage. Native pasture includes cut-over forest land and forest land cleared and now managed for native or naturalized forage plants.

#### Rangeland

In areas that have similar climate and topography, differences in the kind and amount of vegetation produced on rangeland are closely related to the kind of soil. Effective management based on the relationship between the soils and vegetation and water.

The Rangeland, Grazed Forest land, Native Pastureland Interpretations shows, for each soil that supports rangeland vegetation, the ecological site and the potential annual production of vegetation in favorable, normal, unfavorable years. An explanation of the column headings in this table follows.

An ecological site is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of a site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on an ecological site is typified by an association of species that differs from that of other ecological sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service.

Total dry-weight production is the amount of vegetation that can be expected to grow annually on well managed rangeland that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, average, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Range management requires a knowledge of the kinds of soil and of the potential natural plant community. It also requires an evaluation of the present range similarity index and rangeland trend. Range similarity index is determined by comparing the present plant community with the potential natural plant community on a particular rangeland ecological site. The more closely the existing community resembles the potential community, the higher the range similarity index. Rangeland trend is defined as the direction of change in an existing plant community relative to the potential natural plant community. Further information about the range similarity index and rangeland trend is available in chapter 4 of the National Range and Pasture Handbook, which is available in local offices of the Natural Resources Conservation Service. The objective in range management is to control grazing so that the plants growing on a site are about the same in kind and amount as the potential natural plant community for that site. Such management generally results in the optimum production of vegetation, control of undesirable brush species, conservation of water, and control of erosion. Sometimes, however, an area with a range similarity index somewhat below the potential meets grazing needs, provides wildlife habitat, and protects soil and water resources.

RANGELAND PRODUCTIVITY--Continued  
Chase County, Kansas

(Only the soils that support rangeland vegetation suitable for grazing are rated.) Refer to range site description to determine the percentage allowable of grasses, forbs, and shrubs for the range ecological site.

Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
015CS:				
Clime-----	Limy Upland (pe30-36)	5,000	3,500	2,500
Sogn-----	Shallow Limy (pe30-36)	3,500	2,500	1,500
015FC:				
Florence-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
015TU:				
Tully-----	Loamy Upland (pe30-36)	6,000	5,000	3,500
073LD:				
Labette-----	Loamy Upland (pe30-36)	6,500	5,000	3,500
Dwight-----	Clay Pan (pe30-36)	4,000	3,000	2,000
073LS:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Sogn-----	Shallow Limy (pe30-36)	3,500	2,500	1,500
111LD:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Dwight-----	Clay Pan (pe25-34)	4,000	3,000	2,000
111OA:				
Olpe-----	Loamy Upland (pe35-42)	6,000	4,500	3,000
Kenoma-----	Clay Upland (pe35-42)	4,000	3,000	2,000
111TA:				
Tully-----	Loamy Upland (pe30-36)	6,000	5,000	3,500
111ZA:				
Zaar-----	Clay Upland (pe35-42)	4,000	3,000	2,000
115CR:				
Clime, rocky-----	Limy Upland (pe25-34)	4,500	3,500	2,500
115FC:				
Florence-----	Loamy Upland (pe30-36)	5,750	4,250	3,000
115IC:				
Irwin-----	Clay Upland (pe25-34)	5,000	3,500	2,500
115LG:				
Labette-----	Loamy Upland (pe25-34)	5,250	4,000	2,750
Sogn-----	Shallow Limy (pe25-34)	3,000	2,250	1,500
115TU:				
Tully-----	Loamy Upland (pe25-34)	5,250	4,000	2,750
127FC:				
Florence-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
127LB:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
AED:				
Arents, Earthen Dam-----	---	---	---	---
Ar:				
Ivan-----	Loamy Lowland (pe30-36)	9,000	7,000	5,500
BOP:				
Borrow Pits-----	---	---	---	---
Ch:				
Chase-----	Loamy Lowland (pe30-36)	10,000	8,500	6,000
Cs:				
Clime-----	Limy Upland (pe30-36)	4,500	3,500	2,500
Sogn-----	Shallow Limy (pe30-36)	3,000	2,250	1,500
CSS:				
Clime-----	Limy Upland (pe30-36)	5,000	3,500	2,500
Sogn-----	Shallow Limy (pe30-36)	3,500	2,500	1,500
DT:				
Dwight-----	Clay Pan (pe30-36)	3,500	2,500	1,750
Dw:				
Dwight-----	Clay Pan (pe30-36)	4,000	3,000	2,000
Fa:				
Florence-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Fm:				
Florence-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Matfield-----	Flint Ridge (pe30-36)	3,000	2,000	1,000
GRP:				
Gravel Pits-----	---	---	---	---
Ic:				
Irwin-----	Clay Upland (pe30-36)	5,000	3,500	2,000
In:				
Irwin, eroded-----	Clay Upland (pe30-36)	5,000	3,500	2,000
INT:				
Aquolls-----	---	---	---	---
Ir:				
Irwin-----	Clay Upland (pe30-36)	5,000	3,500	2,000
Is:				
Irwin, eroded-----	Clay Upland (pe30-36)	5,000	3,500	2,000
Iv:				
Ivan-----	Loamy Lowland (pe30-36)	9,000	7,000	5,500
Ka:				
Kahola-----	Loamy Lowland (pe30-36)	9,000	7,000	5,500
La:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
LAA:				
Labette-----	Loamy Upland (pe30-36)	6,500	5,000	3,500
Lb:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Lc:				

RANGELAND PRODUCTIVITY--Continued  
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Map symbol and soil name	Ecological site	Total dry-weight production		
		Favorable year	Average year	Unfavorable year
		Lb/acre	Lb/acre	Lb/acre
Labette, eroded-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Ld:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Dwight-----	Clay Pan (pe30-36)	4,000	3,000	2,000
Le:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Sogn-----	Shallow Limy (pe30-36)	3,500	2,500	1,500
LEE:				
Labette-----	Loamy Upland (pe30-36)	5,500	4,500	3,500
Sogn-----	Shallow Limy (pe30-36)	3,500	2,500	1,500
Lm:				
Ladysmith-----	Clay Upland (pe30-36)	5,000	3,500	2,000
Lo:				
Ladysmith-----	Clay Upland (pe30-36)	5,000	3,500	2,000
Ls:				
Ladysmith, eroded-----	Clay Upland (pe30-36)	5,000	3,500	2,000
LSS:				
Ladysmith-----	Clay Upland (pe25-34)	5,000	3,500	2,000
M-W:				
Miscellaneous Water-----	---	---	---	---
Ma:				
Martin-----	Loamy Upland (pe30-36)	6,500	5,000	3,500
MBB:				
Martin-----	Loamy Upland (pe35-42)	6,500	5,000	3,500
Mc:				
Martin, eroded-----	Loamy Upland (pe30-36)	6,500	5,000	3,500
Mg:				
Martin, eroded-----	Loamy Upland (pe30-36)	6,500	5,000	3,500
Gullied Land-----	---	---	---	---
Om:				
Olpe-----	Loamy Upland (pe30-36)	6,000	4,500	3,000
Smolan-----	Loamy Upland (pe30-36)	5,500	4,000	3,000
Os:				
Osage-----	Clay Lowland (pe30-36)	8,750	6,250	4,500
QUA:				
Quarries-----	---	---	---	---
Ra:				
Reading-----	Loamy Lowland (pe30-36)	10,000	8,000	6,000
RAA:				
Reading-----	Loamy Lowland (pe30-36)	9,000	7,000	5,500
Rd:				
Reading-----	Loamy Lowland (pe30-36)	10,000	8,000	6,000
Re:				
Reading, eroded-----	Loamy Lowland (pe30-36)	10,000	8,000	6,000
Sm:				
Smolan-----	Loamy Upland (pe30-36)	5,500	4,000	3,000
So:				
Solomon-----	Clay Lowland (pe30-36)	8,500	6,000	3,500
St:				
Clime-----	Limy Upland (pe30-36)	5,000	3,500	2,500
Tc:				
Tully-----	Loamy Upland (pe30-36)	6,000	5,000	3,500
Ts:				
Tully, eroded-----	Loamy Upland (pe30-36)	6,000	5,000	3,500
Tu:				
Tully-----	Loamy Upland (pe30-36)	6,000	5,000	3,500
W:				
Water Areas-----	---	---	---	---
Za:				
Zaar-----	Clay Upland (pe30-36)	6,000	4,500	2,500
Zd:				
Zaar-----	Clay Upland (pe30-36)	6,000	4,500	2,500
Dwight-----	Clay Pan (pe30-36)	4,000	3,000	2,000

