

RANGELAND PRODUCTIVITY  
Republic 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.

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(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
029AA: Hobbs-----	Loamy Lowland (pe26-30)	6,500	5,000	4,000
029AR: Armo-----	Limy Upland (pe26-30)	4,000	3,000	1,000
029BA: Hastings-----	Loamy Upland (pe26-30)	4,800	4,400	4,000
Hobbs-----	Loamy Lowland (pe26-30)	6,500	5,000	4,000
029CT: Crete-----	Clay Upland (pe26-30)	4,500	4,100	3,700
029GE: Geary-----	Loamy Upland (pe25-34)	6,000	4,000	3,000
029GS: Geary-----	Loamy Upland (pe26-30)	6,000	4,000	3,000
029LH: Lancaster-----	Loamy Upland (pe26-30)	5,000	3,500	2,500
Hedville-----	Shallow Sandstone (pe26-30)	4,000	3,000	2,000
029LN: Longford-----	Loamy Upland (pe26-30)	5,500	4,000	3,000
029SA: Inavale-----	Sandy Lowland (pe20-26)	3,500	3,000	2,200
029TO: Tobin-----	Loamy Lowland (pe26-30)	6,000	5,000	4,000
089AR: Armo-----	Limy Upland (pe20-26)	4,000	3,000	1,000
089BA: Bogue-----	Blue Shale (pe20-26)	3,000	2,000	1,000
Armo-----	Limy Upland (pe20-26)	4,000	3,000	1,000
089BB: Bogue-----	Blue Shale (pe20-26)	3,000	2,000	1,000
089GN: Gibbon-----	Loamy Lowland (pe20-26)	5,500	5,300	5,000
089HB: Harney-----	Loamy Upland (pe20-26)	5,000	3,500	2,000
089HC: Harney-----	Loamy Upland (pe20-26)	5,000	3,500	2,000
089HF: Harney-----	Loamy Upland (pe20-26)	5,000	3,500	2,000
089HS: Holdrege-----	Loamy Upland (pe20-26)	4,000	3,600	3,300
Geary-----	Loamy Upland (pe20-26)	6,000	4,000	3,000
089HU: Hord-----	Loamy Terrace (pe26-30)	4,500	4,200	3,800
089MC: Mccook-----	Loamy Terrace (pe20-26)	3,800	3,300	2,800
089NC: New Cambria-----	Clay Terrace (pe20-26)	5,000	4,000	2,500
089ND: Nibson-----	Limy Upland (pe20-26)	4,000	2,500	1,500
089NR: Nuckolls-----	Loamy Upland (pe20-26)	3,700	3,200	2,700
Roxbury-----	Loamy Lowland (pe20-26)	6,500	5,000	3,500
089RB: Roxbury-----	Loamy Lowland (pe20-26)	6,500	5,000	3,500
089RC: Roxbury-----	Loamy Lowland (pe20-26)	6,500	5,000	3,500
201CS: Crete-----	Clay Upland (pe26-30)	4,500	4,100	3,700
201KP: Kipson-----	Limy Upland (pe25-34)	4,500	3,500	2,000
201LC: Lancaster-----	Loamy Upland (pe26-30)	5,000	3,500	2,000
201TY: Tully-----	Loamy Upland (pe26-30)	6,000	5,000	3,500
201WE: Wells-----	Loamy Upland (pe26-30)	5,500	4,000	3,000
Bk: Geary-----	Loamy Upland (pe25-34)	6,000	4,000	3,000
Hobbs-----	Loamy Lowland (pe25-34)	4,500	4,000	3,800
BOP: Borrow Pits-----	---	---	---	---
Bu: Butler-----	Clay Upland (pe25-34)	4,500	4,100	3,700
Ca: Cozad-----	Silty Lowland - Veg. Zone 3	4,500	4,200	3,800
Cass-----	Sandy Lowland - Veg. Zone 3	3,500	3,200	3,000
Ce: Crete-----	Clay Upland (pe25-34)	4,500	4,100	3,700
Cf: Crete-----	Clay Upland (pe25-34)	4,500	4,100	3,700
Ch: Crete-----	Clay Upland (pe25-34)	4,500	4,100	3,700
Cr: Crete-----	Clay Upland (pe26-30)	4,500	4,100	3,700
Dt: Detroit-----	Loamy Terrace (pe26-30)	6,000	4,500	3,000

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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
Ed: Eudora-----	Loamy Terrace (pe25-34)	10,000	8,000	6,000
Eu: Eudora-----	Loamy Terrace (pe25-34)	10,000	8,000	6,000
Gc: Geary-----	Loamy Upland (pe25-34)	6,000	4,000	3,000
Gr: Geary-----	Loamy Upland (pe25-34)	6,000	4,000	3,000
Ha: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Hb: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Hc: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Hd: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
He: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Hf: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Ho: Ortello-----	Sandy (pe25-34)	3,500	3,300	3,000
Hp: Hastings-----	Loamy Upland (pe25-34)	4,800	4,400	4,000
Hs: Hobbs-----	Loamy Lowland (pe25-34)	4,700	4,200	4,000
Ht: Humbarger-----	Loamy Lowland (pe25-34)	6,500	5,000	3,500
Hu: Humbarger-----	Loamy Lowland (pe25-34)	6,500	5,000	3,500
Ke: Kenesaw-----	Loamy Upland (pe25-34)	4,500	4,200	3,800
Kn: Kenesaw-----	Loamy Upland (pe25-34)	4,500	4,200	3,800
Kp: Kipson-----	Limy Upland (pe25-34)	4,500	3,500	2,000
La: Wells-----	Loamy Upland (pe25-34)	5,500	4,000	3,000
Lc: Wells-----	Loamy Upland (pe25-34)	5,500	4,000	3,000
Lh: Lancaster-----	Loamy Upland (pe25-34)	5,000	3,500	2,000
LOO: Hedville-----	Shallow Sandstone (pe25-34)	4,000	3,000	2,000
Mr: Longford, eroded-----	Loamy Upland (pe26-30)	5,000	3,500	2,500
Mu: Muir-----	Loamy Terrace (pe25-34)	7,500	5,500	4,000
Ro: Muir-----	Loamy Terrace (pe25-34)	7,500	5,500	4,000
Sa: Coly-----	Loamy Upland (pe25-34)	3,500	3,300	3,000
SAN: Inavale-----	Sandy Lowland (pe20-26)	3,500	3,000	2,200
Sd: Sand And Gravel Pits-----	---	---	---	---
Tu: Inavale-----	Sandy Lowland (pe20-26)	3,500	3,000	2,200
Ty: Tully-----	Loamy Upland (pe25-34)	6,000	5,000	3,500
W: Tully-----	Loamy Upland (pe25-34)	6,000	5,000	3,500
Wa: Water (republican)-----	---	---	---	---
Wa: Saltine-----	Saline Lowland (pe26-30)	3,800	3,400	3,000

