

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition

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

This table shows, for each soil that supports vegetation, the ecological site, plant association, or habitat type; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site, plant association, or habitat type* 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 the 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, plant association, or habitat type is typified by an association of species that differs from that of other ecological sites, plant associations, or habitat types 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 (NRCS). Descriptions of plant associations or habitat types are available from local U.S. Forest Service offices.

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area 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, normal, 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.

Characteristic vegetation (the grasses, forbs, shrubs, and understory trees that make up most of the potential natural plant community on each soil) is listed by common name. Under *rangeland composition and forest understory*, the expected percentage of the total annual production is given for each species making up the characteristic vegetation. The percentages are by dry weight for rangeland. Percentages for forest understory are by either dry weight or canopy cover. The amount that can be used as forage depends on the kinds of grazing animals and on the grazing season.

Range management requires 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 the "National Range and Pasture Handbook," which is available in local offices of NRCS or on the Internet.

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.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service,
[National range and pasture handbook](#).

Report—Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition

Rangeland and Forest Vegetation Classification, Productivity, and Plant Composition—Jackson County Area, Colorado								
Map unit symbol and soil name	Ecological Site, Plant Association, or Habitat Type	Total dry-weight production			Characteristic rangeland or forest understory vegetation	Composition		
		Favorable year	Normal year	Unfavorable year		Rangeland	Forest understory	Forest understory
		<i>Lb/ac</i>	<i>Lb/ac</i>	<i>Lb/ac</i>		<i>Pct dry wt</i>	<i>Pct dry wt</i>	<i>Pct cover</i>
Bk—Blackwell loam								
Blackwell	Mountain Meadow (R048AY241CO)	4,000	3,000	2,500	Nebraska sedge	20	—	—
					other perennial forbs	15	—	—
					other perennial grasses	10	—	—
					smallwing sedge	10	—	—
					willow	10	—	—
					Baltic rush	5	—	—
					mountain brome	5	—	—
					other shrubs	5	—	—
					redtop	5	—	—
					slender cinquefoil	5	—	—
					slender wheatgrass	5	—	—
					tufted hairgrass	5	—	—
CyF—Cryorthents, steep								
Cryorthents	Dry Exposure (R048AY235CO)	—	—	—	—	—	—	
Ra—Randman sandy loam								
Randman	—	—	—	—	—	—	—	

Data Source Information

Soil Survey Area: Jackson County Area, Colorado
Survey Area Data: Version 7, Sep 22, 2014

Jackson County Area, Colorado

Bk—Blackwell loam

Map Unit Setting

National map unit symbol: jpyv

Elevation: 7,900 to 8,800 feet

Mean annual precipitation: 10 to 20 inches

Mean annual air temperature: 35 to 38 degrees F

Frost-free period: 30 to 40 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Blackwell and similar soils: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Blackwell

Setting

Landform: Streams, flood plains, drainageways, stream terraces

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Mixed alluvium

Typical profile

H1 - 0 to 13 inches: loam

H2 - 13 to 21 inches: sandy clay loam

H3 - 21 to 46 inches: gravelly loam

H4 - 46 to 60 inches: very gravelly sand

Properties and qualities

Slope: 0 to 5 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 6 to 18 inches

Frequency of flooding: Occasional

Frequency of ponding: None

Available water storage in profile: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B/D

Ecological site: Mountain Meadow (R048AY241CO)

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Jackson County Area, Colorado
Survey Area Data: Version 7, Sep 22, 2014

Jackson County Area, Colorado

CyF—Cryorthents, steep

Map Unit Setting

National map unit symbol: jpz1

Elevation: 7,980 to 9,200 feet

Mean annual precipitation: 15 to 20 inches

Mean annual air temperature: 30 to 37 degrees F

Frost-free period: 25 to 40 days

Farmland classification: Not prime farmland

Map Unit Composition

Cryorthents and similar soils: 95 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cryorthents

Setting

Landform: Ridges, terraces

Landform position (three-dimensional): Upper third of mountainflank, crest

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Cobbly sandstone and shale

Typical profile

H1 - 0 to 4 inches: cobbly loam

H2 - 4 to 8 inches: cobbly loam

H3 - 8 to 15 inches: very cobbly loam

H4 - 15 to 19 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 70 percent

Depth to restrictive feature: 5 to 40 inches to lithic bedrock

Natural drainage class: Well drained

Runoff class: Very high

Capacity of the most limiting layer to transmit water (Ksat):

Moderately low to moderately high (0.06 to 0.20 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Available water storage in profile: Very low (about 1.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: D

Ecological site: Dry Exposure (R048AY235CO)

Hydric soil rating: No

Data Source Information

Soil Survey Area: Jackson County Area, Colorado
Survey Area Data: Version 7, Sep 22, 2014

Jackson County Area, Colorado

Ra—Randman sandy loam

Map Unit Setting

National map unit symbol: jq0j

Elevation: 7,820 to 9,000 feet

Mean annual precipitation: 10 to 15 inches

Mean annual air temperature: 36 to 38 degrees F

Frost-free period: 35 to 45 days

Farmland classification: Farmland of statewide importance

Map Unit Composition

Randman and similar soils: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Randman

Setting

Landform: Terraces, benches, terraces

Landform position (three-dimensional): Tread

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Alluvium and/or noncalcareous outwash

Typical profile

H1 - 0 to 6 inches: sandy loam

H2 - 6 to 30 inches: gravelly sandy clay loam

H3 - 30 to 60 inches: very gravelly sand

Properties and qualities

Slope: 1 to 4 percent

Depth to restrictive feature: More than 80 inches

Natural drainage class: Poorly drained

Runoff class: Low

Capacity of the most limiting layer to transmit water (Ksat):

Moderately high to high (0.20 to 2.00 in/hr)

Depth to water table: About 0 to 6 inches

Frequency of flooding: Rare

Frequency of ponding: None

Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): 6w

Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D

Hydric soil rating: Yes

Data Source Information

Soil Survey Area: Jackson County Area, Colorado
Survey Area Data: Version 7, Sep 22, 2014