Major Land Resource Area 049X
Southern Rocky Mountain Foothills

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Description

MLRA 49 represents the eastern foothills of the Rocky Mountains. Traditionally it has covered portions of the lower elevation Rocky Mountains consisting of the hog back and strike valley and the highest elevations of the Great Plains such as the Palmer divide.

Ecological site keys

ESD Key MLRA 49X Wyoming

I. Site in a lowland position that receives significant additional moisture from runoff of adjacent slopes or from intermittent/perennial streams or a water table (HIGH Productivity Potential)

A. Site poorly drained with water table above surface part of growing season, Nebraska sedge, northern reedgrass, tufted hairgrass, and willows common species ... R049XA178WY – Wetland (Foothills and Mountains Southeast)

B. Site not as above

1 Water table within rooting depth of herbaceous species (typically above 20") during part of the growing season, tufted hairgrass, Nebraska sedge, shrubby cinquefoil, sedges, rushes, and willow common ... R049XA174WY – Subirrigated (Foothills and Mountains Southeast)

2 Site receives periodic overflow from adjacent slopes, but without a water table within rooting depth of woody plants, and soil textures are loamy, serviceberry, silver sagebrush, slender wheatgrass, and basin wildrye common ... R049XA126WY – Loamy Overflow (Foothills and Mountains Southeast)

II. Soil depth very shallow (<10"), shallow (10-20") OR moderately deep to deep (>20") reacting like shallow soils due to root restrictive layer or on south and west facing slopes (LOW productivity potential)

A. Soils very shallow (<10"), but may include areas of exposed bedrock and pockets of deep soil, often on steep (up to 55%) south and west facing slopes with VERY LOW productivity potential

1 Bedrock igneous or volcanic, three-tip sagebrush, antelope bitterbrush, and black sage common shrubs ... R049XA116WY – Igneous (Foothills and Mountains Southeast)

2 Fractured bedrock of various types except igneous or volcanic, commonly on windswept ridges, bluebunch wheatgrass, Columbia needlegrass and a variety of shrub species dominate ... R049XA176WY – Very Shallow (Foothills and Mountains Southeast)

B. Soils shallow (10-20" (25-50cm)), but may include moderately deep to deep (>20" (>50cm)) skeletal soils on south and west aspects, >15% slopes, productivity potential is LOW

1 Site with a highly calcareous subsoil (<10" (25cm)), often gravelly or skeletal subsoil OR underlain by soft calcareous materials and slopes >15%

i. Shallow sandy and loamy soils (10-20" (25-50cm)), often cobbly or channery with slopes >35%, underlain by soft calcareous materials with many outcrops of sedimentary rock (often associated with Lime Stone parent material) , mountain mahogany,

bluebunch wheatgrass, Indian ricegrass common ... R049XA134WY – Rocky Hills (Foothills and Mountains Southeast)

2 Soils not as above

i. Medium to moderately coarse textured soils over igneous or volcanic bedrock, bitterbrush, black sage and three-tip sagebrush common ... R049XA160WY – Shallow Igneous (Foothills and Mountains Southeast)

ii. Very fine sandy loam to clay loam textured soils over various bedrock types (commonly limestone, siltstone, or shale), black sagebrush or mountain mahogany intermixed with big sage ... R049XA162WY – Shallow Loamy (Foothills and Mountains Southeast)

III. Soil depth moderately deep to deep (>20") without root restricting layer that inhibits the productivity potential

A. Sites with a high volume of coarse fragments in top 20" (>35% by volume) Site occurs in a variety of upland positions, boulders found in abundance on surface, Columbia needlegrass, Idaho fescue, spike fescue, bitterbrush, and big sage, productivity less than others in group ... R049XA108WY – Coarse Upland (Foothills and Mountains Southeast)

B. Sites without high volume of coarse fragments

1 Soils very fine sandy loams to clay loams, a good variety and even mix of grass species, mountain big sagebrush dominant shrub ... R049XA122WY – Loamy (Foothills and Mountains Southeast)

MLRA 49 Key - Colorado

Note :Colorado MLRA 49 Key to Ecological Sites and Zones (i.e. LRU's) Ecological site ID numbers with XB and XY sites at this time (2020) are generic sites and used across MLRA 49 in Colorado.

A. LRU A located in Wyoming - See Wyoming MLRA 49 Key (Key 1)

B. LRU B – Mesic and Frigid (MAAT42-50 degrees F), Aridic Ustic and Typic Ustic (MAP 13-19 inches); Freeze Free days 75-155; Elevation 5, 200-7,00 feet; Narrow hogback bands from WY/CO state line to Fort Collins (Larimer, Boulder and Jefferson counties) on Pierre Shale, Dakota, Morrison, Lykins and Fountain Formations; and western Elbert and northeastern El Paso on Dawson and White River Formation.

1a. Site receives no extra water beyond normal precipitation

4a. Site has bedrock within 20 inches of the soil surface

5a. Bedrock shale ... R049XB212CO – Shaly Foothill

5b. Site not as above

6a. Bedrock basalt, limestone or sandstone ... R049XB204CO – Shallow Foothill

6b. Site not as above - Not Applicable

4b. Site not as above

7a. Site influenced by rock fragments (fragments on surface or in the surface horizon, >15% rock fragments in surface horizon)

8a. Site is predominantly stones and/or boulders (>10 inches in diameter) Stony Foothill (formerly Rocky Foothill) ... R049XY206CO – Stony Foothill

8b. Site not as above

9a. Site has predominantly cobbles (3-10 inches in diameter) ... R049XY213CO – Cobbly Foothill

9b. Site not as above

10a. Site is predominantly gravel (? 3 inches in diameter) ... R049XY214CO – Gravelly Foothill

10b. Site not as above - Not Applicable

7b. Site not as above

11a. Coarse-loamy or sandy family particle size and has surface textures of fine sandy loam, loamy sand, or sand ...

R049XB210CO – Sandy Foothill

11b. Site not as above

12a. Fine family particle size and has surface textures of clay loam, clay, silty clay, or silty clay loam ...

R049XB208CO – Clayey Foothill

12b. Site not as above

13a. Fine-loamy family particle size and has surface texture of loam, silt loam or fine sandy loam and 20-60 inches in depth ... R049XB202CO – Loamy Foothill

13b. Site not as above

14a. Family particle size varies. Surface textures are sandy loam and loam and soil depth is greater than 60 inches ... EX049X01X220 – Ponderosa Loam Palmer Divide Palmer Divide

14b. Site not as above - Not Applicable

1b. Site receives extra water beyond normal precipitation through high water table, riparian area, or run-in water

2a. Site is in the fine-loamy/loamy family particle size ... R049XY036CO – Overflow

2b. Site not as above

3a. Site is sandy or coarse-loamy family particle size ... R049XY031CO – Sandy Bottomland

3b. Site not as above - Not Applicable

C. LRU C - Frigid (MAAT 45-47 degrees F), Typic Ustic, (MAP 16-20 inches), Freeze Free days 90-150, elevation 5,400-7,500 feet); Black Forest Area (Douglas County) Dawson and White River formation; West of Colorado Spring including Monument Hill and Palmer Divide (El Paso County) Pierre Shale, Laramie and Fox Hill Sandstone, and Denver Formation.

1a. Site receives no extra water beyond normal precipitation

4a. Site has bedrock within 20 inches of the soil surface

5a. Bedrock shale ... R049XB212CO – Shaly Foothill

5b. Site not as above

6a. Bedrock limestone or sandstone ... EX049X01X204 – Shallow Foothill Palmer Divide

6b. Site not as above - Not Applicable

4b. Site not as above

7a. Site influenced by rock fragments (fragments on surface or in the surface horizon, >15% rock fragments in surface horizon)

8a. Site is predominantly stones and/or boulders (?10 inches) Stony Foothill (formerly Rocky Foothill) ...

R049XY206CO – Stony Foothill

8b. Site not as above

9a. Site have predominantly cobbles (3-10 inches) ... R049XY213CO – Cobbly Foothill

9b. Site not as above

10a. Site is predominantly gravel (< 3 inches in size) ... R049XY214CO – Gravelly Foothill

10b. Site not as above - Not Applicable

7b. Site not as above

11a. Site has surface textures of sandy loam, loamy sand, or sand. There are 2 choices for this node - Sandy Foothill or Sandy Divide.

1) Effective precipitation ranges from 12-16 inches ... EX049X01X210 – Sandy Foothill Palmer Divide

2) Effective precipitation ranges from 16-19 inches ... R049XY216CO – Sandy Divide

11b. Site not as above

12a. Site has surface textures of clay loam, clay, silty clay, or silty clay loam and residuum, alluvium from shale or slope alluvium from shale ... EX049X01X208 – Clayey Foothill Palmer Divide

12b. Site not as above

13a. Site has surface texture of loam ... EX049X01X202 – Loamy Foothill Palmer Divide

13b. Site not as above

14a. Family particle size varies. Surface textures are sandy loam and loam and soil depth is greater than 60 inches ... EX049X01X220 – Ponderosa Loam Palmer Divide Palmer Divide

14b. Site not as above - Not Applicable

1b. Site receives extra water beyond normal precipitation through high water table, riparian area, or run-in water

2a. Site is in the fine-loamy/loamy in family particle size control section ... R049XY036CO – Overflow

2b. Site not as above

3a. Site is sandy or coarse-loamy in the family particle size control section ... R049XY031CO – Sandy Bottomland

3b. Site not as above - Not Applicable

D. LRU D - Frigid (MAAT 40-46 degrees F), Ustic Aridic (MAP 11-14 inches), Freeze Free days 90-150, elevation 5,500-7,200 FT; Gardner Area (northern Huerfano County) & Huerfano & Farisita Formations; West of Canon City & Howard (Southwestern Pueblo county) & metamorphic quartz, monzonite, gneiss & schist with lesser amounts of igneous granite & diorite; Southwestern El Paso (Fountain, Morrison & Dakota Formations); & Arkansas River Canyon-West of Pueblo to near Salida

1a. Site receive additional run-on moisture. Site is subject to flooding (rare, occasional, frequent, or very frequent) ... R049XY036CO – Overflow

1b. Site not as above

2a. Site have bedrock within 20 inches of the soil surface

3a. Bedrock shale ... R049XB212CO – Shaly Foothill

3b. Site not as above

4a. Bedrock limestone or sandstone ... R049XB204CO – Shallow Foothill

4b. Site is not as above - Not Applicable

2b. Site not as above

5a. Site influenced by rock fragments (fragments on surface or in the surface horizon; >15% rock fragments in surface horizon). Note Cobbly Foothills and Gravelly Foothills have been correlated to soil map unit very inconsistently in the past)

6a. Site have predominantly cobbles (3-10 inches) ... R049XY213CO – Cobbly Foothill

6b. Site not as above

7a. Site have predominantly gravel ? 3 inches in size ... R049XY214CO – Gravelly Foothill

7b. Site is not as above - Not Applicable

5b. Site not as above

8a. Site have surface textures of sandy loam, loamy sand, or sand ... R049XB210CO – Sandy Foothill

8b. Site not as above

9a. Site has surface textures of clay loam derived from calcareous clayey alluvium and deep (60-80 inches) in depth; fine family particle size ... R049XB208CO – Clayey Foothill

9b. Site not as above

10a. Site have surface textures of clay loam, clay, silty clay, or silty clay loam; moderately deep to deep (20-100 inches in depth) ... R049XY004CO – Loamy Plains

10b. Site not as above

11a. Site have surface texture of loam ... R049XD202CO – Loamy Foothill 11-14 PZ

11b. Site is not as above - Not Applicable

E. LRU E – Mesic and Frigid (MAAT 42-50 degrees F), Ustic Aridic and Typic Ustic (MAP 15-18inches), Freeze Free days 70-120, elevation 6,500-8,500 feet; West of Trinidad and Southern Huerfano County (Ration Formation); North part (Purgatoire River Watershed Area) Las Animas and southwestern Huerfano Counties (Poison Canyon Sandstone).

1a. Site has surface textures of clay loam, or silty clay loam; shallow to moderately deep (8-40 inches) in depth; clayey and fine family particle size ... R049XE223CO – Shrubby Foothill

1b. Site not as above

2a. Site has surface textures of clay loam derived from calcareous clayey alluvium and deep (60-80 inches) in depth; fine family particle size ... R049XY004CO – Loamy Plains

2b. Site not as above - Not written