Major Land Resource Area 034A
Cool Central Desertic Basins and Plateaus

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Ecological site keys

Foothills and Basins West

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. Sites that are saline and/or alkaline, dominated by salt tolerant species (greasewood, inland saltgrass, Gardner's saltbush, alkali sacaton, alkali muhly)

1 Water table within rooting depth of herbaceous species (20-40") during some or most of the growing season, dominated by grasses such as saltgrass, wiregrass, alkali sacaton, alkali muhly, sandberg bluegrass, Nuttall's alkaligrass (typically no shrubs present) ... R034AY242WY – Saline Subirrigated Foothills and Basins West (SS)

2 Site not as above

i. Site in a lowland position and water table usually >3 feet (within rooting depth of woody plants, but not within rooting depth of herbaceous plants), dominated by greasewood, inland saltgrass, Nutall's alkaligrass, basin wildrye, western wheatgrass ... R034AY238WY – Saline Lowland Foothills and Basins West (SL)

ii. Site may receive periodic overflow from adjacent slopes, may be in a lowland position but water is typically channeled into gullies or alkali flats so that plants are not receiving a lot of benefit from additional moisture, greasewood, Gardner's saltbush, alkali sacaton, squirreltail, Indian ricegrass and sandberg bluegrass ... R034AY240WY – Saline Lowland Drained Foothills and Basins West (SLDr)

B. Sites that are not saline and/or alkaline

1 Site poorly drained with water table above surface part of growing season, Nebraska sedge, water sedge, northern reedgrass, tufted hairgrass, and willows, common species ... R034AY278WY – Wetland Foothills and Basins West (WL)

2 Site not as above

i. Water table within rooting depth of herbaceous species (typically above 20") during part of the growing season, tufted hairgrass, shrubby cinquefoil, inland sedge, Nebraska sedge, western wheatgrass, rushes, and willows ... R034AY274WY – Subirrigated Foothills and Basins West (Sb)

ii. Site not as above

a. Site in a lowland position, adjacent to intermittent/perennial stream and water table usually >3 feet (within rooting depth of woody plants, but not within rooting depth of herbaceous plants; gravel bars and pockets of bare gravel often present,) cottonwoods or remnants thereof may be present, silver buffaloberry, slender wheatgrass, woods rose and other woody species common ... R034AY228WY – Lowland Foothills and Basins West (LL)

b. Site not as above

1) Site receives periodic overflow from adjacent slopes, but without a water table within rooting depth of woody plants, basin big sagebrush, basin wildrye, western wheatgrass and/or Sandberg Bluegrass common ... R034AY230WY – Overflow Foothills and Basins West (Ov)

2) Site similar to above with heavy textured soils (finer portions of silty clay loams to sandy clay loams and clay loams), heavy presence of western wheatgrass and other plants basin wildrye, sandberg bluegrass and muttongrass ... R034AY206WY – Clayey Overflow Foothills and Basins

West (CyO)

II. Upland site that does not receive additional moisture as above

A. 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)

1 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

i. Bedrock igneous or volcanic, black sage, bluebunch wheatgrass, sandberg bluegrass, squirreltail are common plants ... R034AY216WY – Igneous Foothills and Basins West (Ig)

ii. Bedrock not igneous or volcanic

a. Soils are saline and/alkaline; bedrock is soft or hard clay shale bedrock that may be saline and/or alkaline in various degrees, Gardner’s saltbush, winterfat, sandberg bluegrass, squirreltail, Indian ricegrass and western wheatgrass are common species, productivity very low ... R034AY254WY – Shale Foothills and Basins West (Sh)

b. Site not as above, commonly on windswept ridges, fractured bedrock of various types, common plants are bluebunch wheatgrass, Indian ricegrass, squirreltail and occasionally Utah Juniper productivity very low (if productivity is high and coarse fragments are present, go to #7) ... R034AY276WY – Very Shallow Foothills and Basins West (VS)

2 Soils shallow (10-20”), but may include moderately deep to deep gravelly or cobbly soils, soils with a root restrictive layer, and/or south and west facing slopes that react like shallow soils (see Group III (II. B. for acting shallow soils)

i. Soils are saline and/alkaline; bedrock is soft or hard clay shale bedrock that may be saline and/or alkaline in various degrees, Gardner’s saltbush, winterfat, sandberg bluegrass, squirreltail, Indian ricegrass and western wheatgrass are common species, productivity very low ... R034AY254WY – Shale Foothills and Basins West (Sh)

ii. Soil not as above

a. Site with a highly calcareous subsoil OR underlain by soft calcareous materials

1) Soil <20” in depth to limestone, dolomite or calcareous sandstone; common plants are black sagebrush, and bluebunch wheatgrass and Junegrass ... R034AY263WY – Shallow Loamy Calcareous Foothills and Basins West (SwLyCa)

2) Shallow soil (10-20”) usually bedrock is soft sandstones (ESD) but mapped on dolomite (Sublette) with many rock outcrops, Mountain Mahogany, Indian ricegrass, and bluebunch wheatgrass are common ... R034AY234WY – Rocky Hills Foothills and Basins West (RH)

b. High volume(>35%) of rock fragments & possible a calcic horizon

1) Rock fragments common on surface and throughout profile (>35% by volume in top 20”)

a) Site occurs along terrace breaks, steep slopes, or stream terraces with coarse fragments up to 10” diameter covering 50-75% of surface and making up 40-50% volume in top 20”, may have calcic horizon below 10” bluebunch wheatgrass and variety of woody plants (fringed sagebrush and if calcic – black sagebrush) may be present ... R034AY208WY – Coarse Upland Foothills and Basins West (CU)

b) Fractured sedimentary bedrock at 10-20” with gravel, cobble, stone, and angular fragments on the surface and throughout soil profile, inclusions of very shallow to deep pockets of soil, commonly on south and west facing slopes, Utah juniper, Indian ricegrass, Limber pine replaces Utah juniper in Sublette county ... R034AY256WY – Shallow Breaks Foothills and Basins West (SwBr)

2) Soils without high amount (<35%) of rock fragments

a) Medium to fine textured soils over igneous or volcanic bedrock, black sage or maybe bitterbrush common shrubs, bluebunch wheatgrass, Indian ricegrass, and letterman’s needlegrass ... R034AY260WY – Shallow Igneous Foothills and Basins West (SwIg)

b) Soils not as above

(1) Coarse-loamy or fine sandy loams soils over sandstone or sandy shale

(a) Coarse textured soils over sandstone; , inclusions of very shallow to deep pockets of soil, commonly on south and west facing slopes, Utah juniper, Indian ricegrass, Limber pine replaces Utah juniper in Sublette county ... R034AY256WY – Shallow Breaks Foothills and Basins West (SwBr)

(b) Fine sandy loams or coarser textured soils over sandstone or sandy shale, Wyoming big Sage, Indian ricegrass, and needleandthread ... R034AY266WY – Shallow Sandy Foothills and Basins West (SwSy)

(2) Soils not as above

(a) Silty clays or heavier textured soils; soil may develop large cracks when dry, early sage, winterfat, and bluebunch wheatgrass, muttongrass, and western wheatgrass ... R034AY258WY – Shallow Clayey Foothills and Basins West (SwCy)

(b) Very fine sandy loams to clay loam textured soils over various bedrock types (commonly limestone, siltstone, or shale), Wyoming big sage intermixed with early/low sage, bluebunch wheatgrass, Indian ricegrass and squirreltall ... R034AY262WY – Shallow Loamy Foothills and Basins West (SwLy)

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

1 Sites that are saline and/or alkaline

i. Gardners saltbush, winterfat, Indian ricegrass, and squirreltail common (if root restrictive layer <20” depth is present and productivity very low consider Shale site) ... R034AY244WY – Saline Upland Foothills and Basins West (SU)

ii. Alluvial flats and alluvial drains that may receive periodic overflow from adjacent slopes, but water table is deeper than 6’; greasewood, Gardner’s saltbush, squirreltail and Indian ricegrass ... R034AY240WY – Saline Lowland Drained Foothills and Basins West (SLDr)

2 Sites that are not saline and/or alkaline

i. Sites with a high volume of coarse fragments in top 20” (>35% by volume)

a. Site occurs along terrace breaks, steep slopes or along stream terraces with rock fragments up to 10” diameter covering 50-75% of surface and making up 40-50% volume in top 20”, may have lime horizon below 12 inches, bluebunch wheatgrass and variety of woody plants may be present ... R034AY212WY – Gravelly Foothills and Basins West (Gr)

b. Site occurs in a variety of upland positions, boulders found in abundance on surface, at least 35% volume of coarse fragments in top 20”, generally increasing with depth, (loamy-skeletal soils from glacial till) bluebunch wheatgrass, bitterbrush, and Wyoming big sage common, productivity high ... R034AY208WY – Coarse Upland Foothills and Basins West (CU)

ii. Sites without high volume of coarse fragments

a. Soil textures are heavy, slight to severe soil cracking in dry conditions

1) Soil textures range from silty clay through finer silty and sandy clay loams, soil cracking common during dry summer months, though not severe, Wyoming big sagebrush common, but sparse, with a lot of western wheatgrass ... R034AY204WY – Clayey Foothills and Basins West (Cy)

2) Heavy clay soils (silty clays or clays), low or early sage common

a) Root restricting clay subsoil layer(silty clays or heavier textured soils) with coarse to fine textures above, soil may develop large cracks when dry, early sage , Indian ricegrass, western wheatgrass, muttongrass, and if in Sublette county letterman’s needlegrass ... R034AY258WY – Shallow Clayey Foothills and Basins West (SwCy)

b) Heavy clay soils with severe soil cracking in dry conditions, very sticky when wet, (slick spot), low sage squirreltail and muttongrass ... R034AY210WY – Dense Clay Foothills and Basins West (DC)

b. Soil textures not as above

1) Soil textures are very coarse (loamy sand to sand), sometimes as dunes, dark or light colored, needleandthread, Indian ricegrass, thickspike wheatgrass and basin big sagebrush ... R034AY246WY – Sands Foothills and Basins West (Sa)

2) Soil textures range from very fine sandy loam to clay loam

a) Soils fine sandy loams to loamy sands, needleandthread and Indian ricegrass are dominant species

(1) Productivity potential is low and restrictive feature (calcic, rock layer or both) within 20" of surface of the soil or sandy-skeletal; and common plant species Indian ricegrass, Wyoming big sagebrush and needleandthread ... R034AY266WY – Shallow Sandy Foothills and Basins West (SwSy)

(2) Productivity potential is high; common plant species are: Wyoming big sagebrush, needleandthread and Indian ricegrass are dominant species ... R034AY250WY – Sandy Foothills and Basins West (Sy)

b) Soils very fine sandy loams to clay loams, a good variety and even mix of grass species

(1) Moderately deep to deep soil (>20") with calcic layer with high calcareous content – white color (violent effervescence) subsoil <20" in depth, maybe skeletal - black sage, Indian ricegrass, squirreltail and bluebunch wheatgrass are common plants species ... R034AY263WY – Shallow Loamy Calcareous Foothills and Basins West (SwLyCa)

(2) Soils not as above

(a) Root restricting clay subsoil layer with coarse to fine textures above, soil may develop large cracks when dry, early sage, Indian ricegrass, sandberg bluegrass and in Sublette – letterman's needlegrass ... R034AY258WY – Shallow Clayey Foothills and Basins West (SwCy)

(b) Soil not as above

(1) Productivity is low, acting shallow soil with restrictive features (rock layer, calcic or both with 20" of surface) or loamy-skeletal has Wyoming Big Sage intermixed with early/low sagebrush, Indian ricegrass, sandberg bluegrass and mock goldenweed ... R034AY262WY – Shallow Loamy Foothills and Basins West (SwLy)

(2) Productivity potential is high when have a sandy loam surface and fine-loamy soil; common plants; Wyoming big sage, Indian ricegrass, needleandthread, and Sandberg bluegrass. Common plants without sandy loam surface and lower productivity than sandy surface version– Wyoming big sagebrush, Junegrass, sulphur buckwheat, Indian ricegrass, sandberg bluegrass, and thickspike wheatgrass ... R034AY222WY – Loamy Foothills and Basins West (Ly)