

# Major Land Resource Area 034A

## Cool Central Desertic Basins and Plateaus

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### Ecological site keys

#### Green River Basin Ecological Site Key 34A

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- I. Site in a lowland position (drainageway or swale) that receives significant additional moisture from runoff of adjacent slopes or intermittent/perennial streams or a water table (HIGH productivity potential)
- A. Site moderately to strongly saline (>8mmhos/cm) within 20" (50cm) and dominated by salt tolerant species
- 1 Site has a water table within rooting depth of herbaceous species (20-40" (50-100cm)) during most of the growing season ... R034AY142WY – Saline Subirrigated Green River and Great Divide Basins (SS)
- 2 Site not as above
- i. Site typically in or adjacent to perennial or intermittent stream or ephemeral drainage, receives overland flow from adjacent slopes; if water table<sup>1</sup> is present, it is within 48" (122cm) during some of the growing season (moderately well-drained); greasewood, inland saltgrass, alkali sacaton, basin wildrye, and western wheatgrass common ... R034AY138WY – Saline Lowland Green River and Great Divide Basins (SL)
- ii. Site in or adjacent to perennial or intermittent stream or ephemeral drainage, receives periodic overflow from adjacent slopes; well-drained; water table >60" (150cm); gullies present; shallow-rooted plants not receiving benefit from additional moisture; removal of water from site through channelization; greasewood and Gardner's saltbush common, big sagebrush may be present. ... R034AY140WY – Saline Lowland Drained Green River and Great Divide Basins (SLDr)
- B. Site not saline
- 1 Site has fluctuating water table above surface part of growing season (redox features in top 12" (30cm)) ... R034AY178WY – Wetland Green River and Great Divide Basins (WL)
- 2 Site not as above
- i. Site has a water table within rooting depth of herbaceous species (12-24" (30-60cm)) during most of the growing season ... R034AY174WY – Subirrigated Green River and Great Divide Basins (Sb)
- ii. Site adjacent to perennial or intermittent streams, with moderate to excessive drainage, and fluctuating water table 24-60" (60-152cm), within 36" (90cm) (rooting depth of woody plants, but not herbaceous plants) during some of the growing season, cottonwood or remnants may be present, (soil texture varies on gravel bars and pockets of bare gravel often present) ... R034AY128WY – Lowland Green River and Great Divide Basins (LL)
- II. Soil depth very shallow (<10" (25cm)), shallow (10-20" (25-50cm)) OR moderately deep to deep (>20" (>50cm)), skeletal (>35% coarse fragments by volume in top 20" (50cm)) soils on south and west aspects and/or with a root restricting layer which react like shallow soils (LOW productivity potential)
- A. Soils very shallow(<10" (25cm)), 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 is soft or hard clay shale bedrock that may be saline, occurs in upland position on moderately to steeply sloping land (5-25% slope) ... R034AY154WY – Shale Green River and Great Divide Basins (Sh)
- 2 Bedrock commonly fractured sandstone, shale, or siltstone, commonly on windswept ridges (within 8" (20cm), productivity very low (if productivity is higher and coarse fragments are present, go to II. B. 2. ii) ... R034AY176WY – Very Shallow Green River and Great Divide Basins (VS)
- 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 without highly calcareous subsoil or bedrock, OR if lime horizon present, accompanied by high volume of coarse fragments at soil surface, slopes variable

- i. Site occurs along terrace breaks, steep slopes, or terraces with coarse fragments up to 10" diameter covering 50-75% of surface and making up 40-50% volume in top 20" (50cm), may have lime horizon below 12", often westerly aspect and windswept ridges, soils are excessively well drained loamy sands, sandy loams and fine sandy loams ... R034AY112WY – Gravelly Green River and Great Divide Basins (Gr)
- ii. Fractured sedimentary bedrock at 10-20" (25-50cm) with gravel, cobble, stone, and angular fragments on the surface and throughout soil profile, inclusions of very shallow to deep pockets of soil, loamy well drained soils commonly on south & west facing slopes (productivity potential higher than Very Shallow (VS) site) ... R034AY156WY – Shallow Breaks Green River and Great Divide Basins (SwBr)

2 Soils without high amount of coarse fragments at soil surface, but still may be skeletal, have root restricting layer, shallow to bedrock

- i. Clay loam, or silty clay loam over fractured shale bedrock ... R034AY158WY – Shallow Clayey Green River and Great Divide Basins (SwCy)
- ii. Well drained loamy sand, sandy loams, or fine sandy loams over sedimentary bedrock or calcium carbonate or similar layer that restricts rooting depth ... R034AY166WY – Shallow Sandy Green River and Great Divide Basins (SwSy)
- iii. Well-drained fine sandy loam to silty loams over sedimentary bedrock or loams with root restricting layer (i.e. rock layer and/or similar layer) ... R034AY162WY – Shallow Loamy Green River and Great Divide Basins (SwLy)

III. Soil depth moderately deep to deep (>20" (50cm)) without root restricting layer and is NOT skeletal and/or south or west facing that inhibits the productivity potential

A. Site affected by soil chemistry (salinity, sodicity, and/or calcium carbonates) within the rooting depth of herbaceous plants (Top 20" (50cm))

1 Soils slightly saline to moderately saline or greater (>4mmhos/cm), calcareous or not.

- i. Silty clay and clay surface textures that are only slightly saline (<8mmhos/cm), but strongly alkaline (pH >8.5), permeability very low ... R034AY118WY – Impervious Clay Green River and Great Divide Basins (IC)
- ii. Surface textures range from sandy loam to clay loam, moderately saline or greater (>8mmhos/cm), or sodic (SAR >13, EC <4mmhos) (if root restrictive layer present and productivity very low consider Shale site – Group II) ... R034AY144WY – Saline Upland Green River and Great Divide Basins (SU)

2 Soils highly calcareous (>15% CCE within top 20" (50cm)), but not saline (<4mmhos/cm)

- i. Soils very fine sandy loams to sandy clay loams, with violent effervescence (>15%CCE) between 10" (25cm) and 20" (50cm) of the soil surface ... DX034A01X126 – Loamy Calcareous Green River Basin (LyCa GRB)
- ii. Soils very fine sandy loams to sandy clay loams, violent effervescence (>15%CCE) at the soil surface ... DX034A02X120 – Limy Pinedale Plateau (Li PP)

B. Sites are not affected by soil chemistry

1 Sites with a high volume of coarse fragments in top 20" (>35% by volume). Site occurs along terrace breaks, steep slopes, or terraces with coarse fragments up to 10" diameter covering 50-75% of surface and making up 40-50% volume in top 20" (50cm), may have lime horizon below 12", often westerly aspect and windswept ridges, soils are excessively well drained loamy sands, sandy loams and fine sandy loams (See II. B. 2. i. a)

2 Sites without high volume of coarse fragments

- i. Sandy clay loam, silty clay loam and clay loam surface, soil cracking common during dry summer months, though not severe (>36% clay in subsurface) ... R034AY104WY – Clayey Green River and Great Divide Basins (Cy)
- ii. Site has less 35% or less clay within the upper portion of the profile.

a. Soils that are coarse (sand, loamy fine sand to fine sandy loam)

1) Excessively drained soils that are very coarse (loamy sand to sand), on nearly level to rolling uplands or dunes, dark or light colored ... R034AY146WY – Sands Green River and Great Divide Basins (Sa)

2) Soils loamy fine sand to fine sandy loam, (Note: Soils with <6" (15cm) sandy loam surface layer over sandy clay loam or clay loams are excluded, go to III.B.2.ii.c) ... R034AY150WY – Sandy Green River and Great Divide Basins (Sy)

b. Soils that are in the Sandy Loam to clay loam range, Slopes >30% productivity potential is high, well-drained site (Note: soils with <6" (15cm) sandy loam surface layer over sandy clay loam or clay loam is included) ... R034AY122WY – Loamy Green River and Great Divide Basins (Ly)

address notes above.. Have addressed all comments above and added to the keys to reflect.

<sup>1</sup> I.B.2.ii.a. Not sure what is fluctuating 24-60"? I suppose its rooting depth of woody plants? You were also consistent with using cm for other measurements, best use that here as well.

<sup>2</sup> I.B.2.ii.b. Surface texture is used as criteria for b, but not for a. Its hard to get a read on differentiating criteria between the lowland and overflow sites.

<sup>3</sup> II. Just a comment on the "and/or" following "south and west aspects". It would be more exact if it just said "and". But if you are saying that sites that are moderately deep to deep, that are present on this warmer aspect, will fall into category II, then maybe that should also be mentioned in the description of III.