

**WYOMING KEY TO ECOLOGICAL SITES**  
**MLRA 43B – CENTRAL ROCKY MOUNTAINS**  
**ZONE 1 – 20+” HIGH MOUNTAINS (20+M)**  
**ZONE 2 – 15-19” FOOTHILLS AND MOUNTAINS WEST (15-19W)**  
**ZONE 6 – 15-19” FOOTHILLS AND MOUNTAINS EAST (15-19E)**

**Note: Zone 2 and 6 are currently proposed for inclusion in MLRA – 46 Northern Rocky Mountain Foothills**

- A. 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*).....**Group I**
- A. Upland site that does not receive additional moisture as above.....**Group II**

**GROUP I – Sites that Receive Additional Moisture**

- 1. Sites that are moderately saline to saline (EC >4 mmhos/cm) and/or high in calcium carbonates (CCE >15%) in the top 12 inches AND have a water table within rooting depth of herbaceous species (<36”).....2
  - 2. Soil is high in calcium carbonates (>15% CCE at surface), hummocks and shrubby cinquefoil common .....**Limy Subirrigated (LiSb) aka “Slog”--TBD**
  - 2. Soil is moderately saline or saline (EC >4 mmhos/cm), halophytes common (i.e. inland saltgrass, Nutall’s alkaligrass, Baltic rush) .....**Saline Subirrigated (SS)**
- 1. Sites that are not saline and/or high in carbonates with water tables at various depths.....3
  - 3. Site receives water from underground sources or snow catchment on north and east aspects or concave positions on mountain slopes, deep mollisols, aspen common .....**Aspen Understory (As)--TBD**
  - 3. Site receives periodic overflow from adjacent slopes (is either concave or in low lying position), water table within rooting depth of woody plants (>42”) ....4
    - 4. Soil textures loam, silt loam, and light sandy clay loam.....**Overflow (Ov)**
    - 4. Heavier textured soils (finer portions of sandy clay loam, clay loam, clay).....**Clayey Overflow (CyO)**
  - 3. Site depressional, typically part of a floodplain.....5
    - 5. Site located in floodplain, often cobbly,skeletal and well-drained, Narrowleaf cottonwood common.....**Lowland (LL) --TBD**
    - 5. Site could be depressional or in floodplain, with water table <36”.....6
      - 6. Water table within rooting depth of herbaceous species (<36”) during most of the growing season, tufted hairgrass, shrubby cinquefoil, sedges, rushes, and willows common.....**Subirrigated (Sb)**
      - 6. Water table <12” throughout most of the growing season.....7
        - 7. Site poorly drained with water table to surface part of growing season, Nebraska sedge common.....**Wetland (WL)**
        - 7. Site with standing water during the growing season, histic soils.....**Fen (Fn)—see R043BY023ID**

**GROUP II – Upland Sites**

- 1. Soil depth very shallow (<10”), shallow (10-20”) OR moderately deep to deep (>20”) reacting like shallow soils due to root restrictive layer (skeletal, heavy subsurface clay, calcic, etc.) or on >15% south and west facing slopes (*LOW productivity potential*)
  - 2. Soils very shallow (<10” to bedrock, lithic, or paralithic root restrictive layer), with organic layer found on flat ridge and mountain tops, high elevation above tree line .....**Alpine Turf (AT) - TBD**
  - 2. Soils very shallow (<10” to bedrock, lithic, or paralithic root restrictive layer), 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.....3
    - 3. Igneous or volcanic bedrock, three-tip sagebrush, mountain mahogany, and black sage common .....**Igneous (Ig)**
    - 3. Metamorphic and meta-sedimentary fractured and exposed bedrock with colluvial coarse fragments , (>30%) south and west facing mountain slopes, curl-leaf mountain mahogany common .....**Steep Stony (SSt)**

3.	Fractured sedimentary bedrock, bluebunch wheatgrass common.....	<b>Very Shallow (VS)</b>
2.	Soils shallow (10-20"), but may include moderately deep to deep skeletal soils with a root restrictive layer, and/or >15% south and west facing slopes that react like shallow soils, productivity potential is LOW.....	4
4.	Coarse fragments abundant on surface (>50%) and throughout profile, skeletal (>35% by volume in top 20").....	5
5.	Moderately deep to deep soils that are skeletal and steep with calcic (>15% CCE), often east aspects .....	<b>Shallow Loamy calcareous (SwLyc)</b>
5.	Site occurs along terrace breaks, steep slopes with alluvial coarse fragments covering 50-75% of surface and skeletal (>35% volume in top 20"), may have calcic horizon below 12 inches, bluebunch wheatgrass, fringed sage, winterfat common.....	<b>Gravelly (Gr)</b>
5.	Gravelly loam over heavy argillic >32% clay, skeletal, low/early sage and bitterbrush common.....	<b>Stony (St)</b>
4.	Coarse fragments not abundant on surface (<50%), but still may be skeletal.....	6
6.	Shallow soil over eroded calcareous parent material, outcropping sedimentary bedrock, steep slopes (>30%), true mountain mahogany common .....	<b>Rocky Hills (RH)</b>
6.	Loamy surface over a calcic horizon within the top 20 inches (>15% CCE), often skeletal outwash, mountain big sage common .....	<b>Loamy Calcareous (Lyc)--TBD</b>
6.	Medium to moderately coarse textured soils over igneous or volcanic bedrock, three-tip sagebrush common.....	<b>Shallow Igneous (SwI)</b>
6.	Loam over clay loam or clay, heavy argillic >32% clay, early sage common.....	<b>Shallow Clayey (SwCy)</b>
6.	Sandy loam either over bedrock or skeletal on steep slopes (>15%), bitterbrush common.....	<b>Shallow Sandy (SwSy)</b>
6.	Very fine sandy loam to clay loam textured soils either over bedrock or skeletal on steep slopes (>15%), mountain big sagebrush common .....	<b>Shallow Loamy (SwLy)</b>
1.	Soil depth moderately deep to deep (>20") without root restricting layer that inhibits the productivity potential .....	7
7.	Glacial till with a boulders on the surface in abundance, mountain big and bitterbrush common.....	<b>Coarse Upland (CU)</b>
7.	Soils neither skeletal nor with abundance of boulders on the surface .....	8
8.	Surface textures are heavy (>35% clay), slight to severe soil cracking in dry conditions (if surface is loam, but still cracking skip to #11).....	9
9.	Heavy clay surface with severe soil cracking in dry conditions, very sticky when wet, low sagebrush common .....	<b>Dense Clay (DC)</b>
9.	Soil textures range from silty clay through finer silty and sandy clay loams, soil cracking common during dry summer months, though not severe, serviceberry and mountain big sage common .....	<b>Clayey (Cy)</b>
8.	Soil surfaced textures are sandy loams to light clay loams.....	10
10.	Surface textures sandy loam, mountain big sage common .....	<b>Sandy (Sy)</b>
10.	Surface textures loam to clay loam.....	11
11.	Surface loam or clay loam over subsurface clay (>40%) layer in top 36" with massive structure, vertic properties .....	<b>Loamy Vertic (LyV) aka "Tall Forb" --TBD</b>
11.	Surface loam to light clay loam.....	12
12.	Slopes >15%, mountain big sage common .....	<b>Steep Loamy (Sly)</b>
12.	Slopes <15%, mountain big sage common .....	<b>Loamy (Ly)</b>

Plant species should not be used as sole criteria for ecological site identification as they may not be present or may have been removed from the plant community. An ecological site is based on specific soil characteristics that result in its ability to produce distinctive kinds and amounts of vegetation and responds similarly to disturbance.

**BRIEF DESCRIPTION OF ECOLOGICAL SITES**  
**43B - WYOMING Zone 1 (20+M), Zone 2 (15-19W) Zone 3 (15-19E)**

Symbol	Site Name	Site Code	Brief Description
As	Aspen Understory	x82	These are deep, well-drained mollic, often pachic soils on mostly north and east-facing slopes or snow catchment areas, often with water tables and/or found near seeps or springs on high foothill and mountain slopes. Principal vegetation: aspen
AT	Alpine Turf	x01	These are tundra type soils with shallow organic layers occurring on mountain tops above the treeline. Principal vegetation: alpine wildflowers and sedges.
CU	Coarse Upland	x08	These are deep soils found in glacial till landscapes with a very bouldery surface on rough topography. Water intake is fairly rapid, and surface textures range from sandy loam to loam. Principal vegetation: mountain big sagebrush.
Cy	Clayey	x04	These are deep, heavy clay loam or silty clay loam soils at the soil surface (in top 12"), but clay percentage is not >40%. They have slow permeability and occur in an upland position. Principal vegetation: spiked big sagebrush.
CyO	Clayey Overflow	x06	These are clay loam soils that are found along drainageways and in depressional areas. They receive additional water from adjacent slopes due to their landscape position, but water table is >42". Principal vegetation: mountain silver sagebrush.
DC	Dense Clay	x10	These are deep, heavy clay soils (>40% clay) at the surface with slow permeability that occur on relatively flat topography (<15% slope). Principal vegetation: low sagebrush
Fn	Fen	x23 (ID)	These are sites with standing water most or all of the growing season and histic soil properties. Principal vegetation: sedges.
Gr	Gravelly	x12	These are very shallow to shallow soils (sometimes moderately deep), often with high coarse fragments (>50-75%) on the surface and skeletal (>35% by volume) in top 20 inches, found on north and west aspect windswept ridges. Principal vegetation: Bluebunch wheatgrass, winterfat, fringed sagewort.
Ig	Igneous	x16	These are very shallow soils over igneous material with areas of exposed bedrock on steep slopes. Principal vegetation: mountain mahogany, black sagebrush, and three-tip sagebrush.
LiSb	Limy Subirrigated	TBD	Soils with high calcium carbonates (>15% CCE) at the surface found in riparian areas and concave run-in areas with a water table <36"
LL	Lowland	x28	These are well-drained soils along streams with frequent flooding and a fluctuating water table, mostly >36", but within rooting depth of woody plants. Principal vegetation: narrowleaf cottonwood.
Ly	Loamy	x22	These are moderately deep to deep, loam to light clay loam soils that occur in an upland position with slopes <15%. Principal vegetation: mountain big sagebrush.
Lyc	Loamy calcareous	TBD	These are moderately deep to deep loamy soils with a calcic horizon (>15% CCE) within top 20 inches, often skeletal outwash terraces. Principal vegetation: mountain big sagebrush.
LyV	Loamy Vertic	TBD	These are loam or clay loam over a heavy clay (>40%) layer in top 36" with massive structure and vertic properties. Principal vegetation: tall forb.
Ov	Overflow	x30	These are loamy soils that are found along drainageways and in depressional areas. They receive additional water from adjacent slopes due to their landscape position, but water table is >42". Principal vegetation: mountain silver sagebrush.
RH	Rocky Hills	x34	These are shallow, sandy and loamy soils over soft calcareous material with outcropping sedimentary bedrock. Principal vegetation: true mountain mahogany
Sb	Subirrigated	x74	These are deep soils with thin organic layers that have a fluctuating water table near the surface for part or most of the growing season (<36"). Principal vegetation: Nebraska sedge, shrubby cinquefoil, and willows.

Sly	Steep Loamy	x68	These are moderately deep to deep loam to light clay loam soils that usually occur on steep (>15%), north and east slopes. Principal vegetation: mountain big sagebrush.
SS	Saline Subirrigated	x42	These are saline soils with a water table near the surface (<36") most of the growing season. Principal vegetation: halophytes such as inland saltgrass and Baltic rush.
SSt	Steep Stony	x70	These are very shallow, stony soils with exposed and fractured non-sedimentary bedrock that usually occur on steep (>30%) south and west aspects. Principal vegetation: curl-leaf mountain mahogany.
St	Stony	x72	These are gravelly loam soils that are skeletal (coarse fragments >35% by volume) in top 20 inches, with an argillic >32% clay. Principal vegetation: bitterbrush and low/early sagebrush.
SwCy	Shallow Clayey	x58	These are moderately deep to deep soil with loamy textures over clay loam or clay (>32% clay) in the top 12". Principal vegetation: early(alkali) sagebrush.
SwI	Shallow Igneous	x60	These are shallow, coarse textured soils over igneous material. Principal vegetation: three-tip sagebrush.
SwLy	Shallow Loamy	x62	These are shallow to bedrock or skeletal (coarse fragments >35% by volume) or steep (>15%) loam or sandy clay loam soils usually overlying shale or siltstone. Principal vegetation: mountain big sagebrush.
SwLyc	Shallow Loamy calcareous	x63	These are shallow soils over a heavy calcic layer (>15% CCE) in top 12" and skeletal (coarse fragments >35% by volume in top 20"). Principal vegetation: black sagebrush.
SwSy	Shallow Sandy	x66	These are shallow to bedrock or skeletal (coarse fragments >35% by volume) or steep (>15%) sandy loam soils usually overlying sandstone. Principal vegetation: bitterbrush.
Sy	Sandy	x50	These are moderately deep to deep sandy loam soils that occur in an upland position. Principal vegetation: mountain big sagebrush.
VS	Very Shallow	x76	These are very shallow soils with areas of exposed and fractured sedimentary bedrock. Principal vegetation: bluebunch wheatgrass.
WL	Wetland	x78	These are poorly drained soils that have a water table above the surface for part of the growing season (<12") and usually occur near streams, springs, seeps, or sloughs. Principal vegetation: Nebraska sedge and tufted hairgrass.

**TBD = To Be Developed, has been identified as a site concept, but no site has been developed.**