USDA icon **Natural Resources Conservation Service**

Major Land Resource Area 013X
Eastern Idaho Plateaus

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Ecological site keys

MLRA 13 LRU Key

I. Sites occurring within the Bear River Valley LRU – MLRA 13 – Eastern Idaho Plateaus: LRU 01 Bear River Valley Key

II. Sites occurring outside of the Bear River Valley LRU but still within MLRA 13 boundaries – MLRA 13 – Eastern Idaho Plateaus: MLRA Wide Key

MLRA 13 LRU 01 Bear River Valley

I. Site in a lowland position (bottom) 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 ...

BX013X01B142 – Saline Subirrigated Bear River Valley 10-14" P.Z.

B. Site not saline

1 Water table within rooting depth of herbaceous species

i. Site has fluctuating water table above surface part of growing season (redox features in top 12” (30cm)) ...

BX013X01G178 – Wetland Bear River Valley

ii. Site has a water table within rooting depth of herbaceous species (12-24” (30-60cm)) during most of the growing season ...

BX013X01B174 – Subirrigated Bear River Valley

2 Redox features are below 40" (100cm).

i. iii.Surface textures range from sandy loam to light silty clay loam (if redox features are present they are below 40” (100cm)) ...

BX013X01B030 – Overflow Bear River Valley 10-14" P.Z.

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

1 Moderately deep to deep soil (>20” (50cm)) with highly calcareous (violent effervescence (>15%CCE)) subsoil at <10” (25cm), often gravelly or skeletal and on 15 to 35% slopes ... BX013X01B063 – Shallow Loamy Calcareous Bear River Valley 10-14" P.Z.

B. Site without highly calcareous subsoil or bedrock, OR if lime horizon present, accompanied by high volume of coarse fragments at soil surface, slopes variable. Soil is skeletal with coarse fragments common on surface and throughout profile (>35% by volume in top 20" (50cm))

1 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, productivity potential VERY LOW ...

BX013X01B012 – Gravelly Bear River Valley 10-14" P.Z.

C. Soils without high amount of coarse fragments at soil subsurface, but still shallow to bedrock or root restricting layer

1 Well drained loamy sand, sandy loams, or fine sandy loams over sedimentary bedrock or calcium carbonate or similar layer that restricts rooting depth ... BX013X01B166 – Shallow Sandy Bear River Valley 10-14" P.Z.

2 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) ... BX013X01B062 – Shallow Loamy Bear River Valley 10-14" P.Z.

III. Soil depth moderately deep to deep (>20" (50cm)) without root restricting layer 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 Surface textures range from sandy loam to clay loam, moderately saline or greater (>8mmhos/cm), or sodic (SAR >13, EC <4mmhos) ... BX013X01B144 – Saline Upland Bear River Valley 10-14" P.Z.

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

1 Soils very fine sandy loams to sandy clay loams, with violent effervescence (>15%CCE) between 10" (25cm) and 20" (50cm) of the soil surface ... BX013X01B026 – Loamy Calcareous Bear River Valley 10-14" P.Z.

C. 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, productivity potential VERY LOW ... BX013X01B012 – Gravelly Bear River Valley 10-14" P.Z.

2 Sites without high volume of coarse fragments

i. Soil textures are heavy, slight to severe soil cracking in dry conditions may occur.

a. Silty clay loam and clay loams soil cracking common during dry summer months, though not severe (>36% clay in subsurface) ... BX013X01B004 – Clayey Bear River Valley 10-14" P.Z.

b. Root restricting (7-15" 18-30cm) clay loam to clay subsoil layer (>40% clay) with sharply contrasting loam to clay loam surface textures, soil may develop large cracks when dry. ... BX013X01B024 – Loamy Argillic Bear River Valley 10-14" P.Z.

ii. Sites not as above

a. 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. ... BX013X01B050 – Sandy Bear River Valley 10-14" P.Z.

b. Slopes <15%, 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) ... BX013X01B022 – Loamy Bear River Valley 10-14" P.Z.

MLRA 13 MLRA Wide Key

I. Site occurs on uplands

A. Slopes greater than 30% on northerly aspects

1 Site occurs in areas of heavy snow accumulation. ... R013XY062ID – Snowpocket 16+ PZ POTR5/SHRUBS

2 Soils are deep and loamy. Site occurs in 16-22 PZ at 5500-7000 ft. ... R013XY030ID – North Slope Loamy 16-22 PZ

3 Soils are generally shallow and stony. Site occurs in 16-22 PZ at 6000-9000 ft. elevation. ... R013XY031ID – Steep Stony North 16-22 PZ ARTRV/FEID

4 Soils are shallow, extremely stony, very cobbly to gritty and moderately fine textured derived from limestone. Site occurs in 16-22 PZ at 5200-7200 ft. elevation. ... R013XY010ID – Mahogany North Slope 16-22 PZ CELE3/PSSPS

5 Soils are deep and gravelly loams. Site occurs in 12-16 PZ at 6200-6700 ft. elevation. ... R013XY044ID – Gravelly North 12-16 PZ ARARL/PSSPS

B. Slopes greater than 30% on southerly aspects

1 Soils are non-stony

i. Site occurs in 12-16 PZ at 4500-7000 ft. elevation, soils are loamy derived from loess. Soils are very deep. ... R013XY035ID – South Slope Loamy 12-16 PZ ARTRW8/PSSPS

2 Soils are stony

i. Site occurs in 16-22 PZ at 5500-7000 ft. elevation, Soils are deep loams and stony loams formed in colluvium and residuum weathered from limestone influenced by loess. ... R013XY003ID – Steep South 16-22 PZ ARTRV/PSSPS

ii. Site occurs in 12-16 PZ at 4800-6500 ft. elevation. Soils are moderately deep to very deep loams, stony and very stony loams formed in colluvium and residuum influenced by loess. ... R013XY008ID – Steep South Slopes 12-16 PZ ARTRV/PSSPS

iii. Site occurs in 12-16 PZ at 4500-6800 ft. elevation. Soils are deep gravelly loams and silt loams formed in residuum weathered from limestone or formed in alluvium or colluvium from limestone, sandstone, chert and shale influenced by loess ... R013XY012ID – Gravelly South Slope 12-16 PZ ARTRV/PSSPS

iv. Site occurs in 12-16 PZ at 6000-7000 ft. elevation. Soils are moderately deep to very deep and are formed in slope alluvium and colluvium. Textures are gravelly and cobbly loams ... R013XY040ID – Limestone Gravelly 12-16 PZ ARNO4/PSSPS

C. Slopes generally less than 30% on all aspects

1 Soils are moderately deep to deep loams and are stony

i. Site occurs in 12-16 PZ at 4800-7000 ft. elevation. Soils are moderately deep to deep. ... R013XY013ID – Stony 12-16 PZ ARTRV/FEID

ii. Site occurs in 13-16 PZ at 5000-7000 ft. elevation. Soils are moderately deep ... R013XY002ID – Stony Loam 13-16 PZ ARTRV/PSSPS

iii. Site occurs in 16-22 PZ at 5000-8000 ft. elevation. Soils are deep ... R013XY019ID – Stony Loam 16-22 PZ ARTRV/PSSPS

iv. Site occurs in 16-22 PZ at 5500-7500 ft. elevation. Soils are deep. Soils have formed in side slope alluvium and loess. Textures are dominantly gravelly loam and flaggy loam with coarse fragments increasing with depth. The profile is 35-90% coarse fragments below 20 inches ... R013XY048ID – Ceanothus Thicket 10-18 PZ CEVE

2 Soils are moderately deep to deep loams and are non-stony

i. Site is in 8-12 PZ

a. Site occurs in 8-12 PZ on lower flood plains and valley bottoms. Elevation ranges from 5000-6500 ft. Soils are deep silt loams to silty clay loams. ... R013XY058ID – Silty 8-12 PZ KRLA2/PSSPS

b. Site occurs in 11-13 PZ at 4000-5500 ft. elevation. Slopes may range up to 35% but are usually 5-25%. ... R013XY018ID – Loamy 11-13 PZ ARTRW8/PSSPS

ii. Site is in 12-16 PZ

a. Site occurs in 12-16 PZ at 4800-7000 ft. elevation ... R013XY001ID – Loamy 12-16 PZ

b. Site is in 12-16 PZ at 4800-6000 ft. elevation ... R013XY036ID – Loamy 12-16 PZ ARTRW8/PSSPS

c. Site is in 12-16 PZ at 6200-6600 ft. elevation ... R013XY042ID – Loamy 12-16 PZ ARARL/PSSPS

d. Site is in 13-16 PZ at 4600-5100 ft. elevation. Site occurs on nearly level to slightly sloping convex lake terrace side slopes ... R013XY037ID – Loamy 13-16 PZ ARTRW8/POA

iii. Site is in 16-22 PZ

a. Site is in 16-22 PZ at 5000-8000 ft. elevation ... R013XY005ID – Loamy 16-22 PZ ARTRV/FEID-PSSPS

b. Site is in 16-22 PZ at 7000-10000 ft. elevation ... R013XY022ID – Subalpine Loamy 16-22 PZ ARTRS2/ELTR7-BRMA4

c. Site is in 16-22 PZ at 5000-7000 ft. elevation. Slopes may range up to 70%. ... R013XY020ID – Loamy Tall Brush 16-22 PZ ACGL/BRMA4

d. Site is in 16-22 PZ at 5500-9000 ft. elevation. ... R013XY016ID – Moist Mountain Loam 20+ PZ POTR

iv. Site is in 22+ PZ

a. Elevation is 5500-6000 ft ... R013XY024ID – Loamy 22+ PZ ARTRV/FEID-BRMA4

v. Soils are coarse textured moderately deep to deep loams

a. Site is in 13-16 PZ at 4800-6000 ft. elevation. Slopes range from 12-50%. Soils are generally very fine sandy loams to sandy loams formed in alluvium and residuum from consolidated volcanic ash ... R013XY009ID – Ashy Loam 13-16 PZ ARTRV/PSSPS

b. Site is in 12-16 PZ at 4800-6000 ft. elevation. The site occurs in areas of generally stabilized dunes. ... R013XY027ID – Sand 12-16 PZ PUTR2/HECOC8

vi. **Soils are shallow and non-stony**

a. **Site occurs on basalt flow ridges and lava pressure ridges in areas of sand dunes. Within the site are areas of rock outcrop and areas of deep soils. Soils are generally sands and fine sands. Slopes range from 1-10% with elevations from 4800-5600 ft.** ... R013XY028ID – Shallow Sand 12-16 PZ ARTRV/PSSPS

vii. **Soils are shallow and gravelly or stony**

a. **Site occurs in 12-16 PZ**

1) **Site occurs at 6300-6800 ft. elevation with slopes ranging from 5-20%. Soils have a high lime content ...** R013XY041ID – Shallow Loamy 12-16 PZ ARARL/PSSPS

2) **Site occurs at 6200-6600 ft. elevation on slopes from 5-45%. Soils are shallow to very shallow ...** R013XY043ID – Shallow Silt Stone 12-16 PZ STAC/ACHY

3) **Site occurs at 4400-5600 ft. elevation with slopes ranging from 10-75%. Soils are highly variable. They are generally shallow with areas of deeper soil accumulation ...** R013XY056ID – Juniper Breaks 12-16 PZ JUOS/PSSPS

4) **Site occurs at 5500-7000 ft. elevation with slopes ranging from 5-30%. Soils are shallow to moderately deep loams, silt loams and clay loams ...** R013XY004ID – Shallow Gravelly 12-16 PZ ARTRV/PSSPS

b. **Site occurs in 12-20 PZ**

1) **Site occurs at 5600-9000 ft. elevation with slopes ranging from 5-50%. Site consists of long narrow bands on ridgetops. Soils are shallow over fractured bedrock, usually limestone. ...** R013XY011ID – Windswept Ridge 12-20 PZ ARNO4/PSSPS

2) **Site occurs on low terraces and mountain slopes at 4500-7000 ft. elevation. Slopes range from 0-30%. Soils are less than 20 inches to generally unfractured bedrock or extremely gravelly material that acts like a pan that restricts water movement ...** R013XY014ID – Shallow Stony 12-20 PZ ARAR8/PSSPS

c. **Site occurs in 16-22 PZ**

1) **Site occurs on steep mountain slopes and breaks with slopes from 20-70%. Elevation ranges from 5500-8000 ft. Soils are extremely stony loams and silt loams. They are formed in residuum and from sandstone and limestone with some loess influence. ...** R013XY015ID – Steep Stony Mahogany 16-22 PZ CELE3-ARTRV/PSSPS

2) **Site occurs on mountain sides and plains. Slopes range from 1-30% with elevation from 5000-7000 ft. Soils are well drained and shallow. They are formed in side slope alluvium, loess and residuum ...** R013XY047ID – Shallow Fractured Loam 16-22 PZ ARTRV/PSSPS

D. **Site is a woodland grouping.**

1 **Site occurs in 17-22 PZ on shallow soils. ...** F013XP604ID – Shallow Warm Woodland Group

2 **Site occurs in 20-25 PZ on moderately deep to deep soils. ...** F013XP610ID – Upland Cool Woodland Group

3 **Site occurs in 24-60 PZ usually on shallow soils. ...** F013XP609ID – Upland Cold Woodland Group

II. **Site occurs on bottomlands (slopes less than 8%)**

A. **Water table usually not present**

1 **Site occurs at 4500-7000 ft elevation on 1-8% slopes. Soils are deep and well drained. Textures are loam, silt loam, extremely gravelly clay loam and very gravelly sandy loam. They are formed from alluvium derived from sandstone, limestone and quartzite ...** R013XY045ID – Loamy Bottom 12-16 PZ ARTRT/LECI4-ELLAL

2 Site occurs at 5500-6700 ft. elevation on 1-8% slopes. Soils are deep loamy sands ... R013XY006ID – Sandy Loam 16-22 PZ ARTRV/PSSPS

B. Water table present for most of the growing season.

1 Soils not influenced by saline conditions

i. Water standing at or above the surface into late summer ... R013XY054ID – Marsh TYLA-SCAC3

ii. Water at or near the surface at beginning of growing season and down to 10-20 inches at the end of the growing season ... R013XY053ID – Wet Meadow CAREX-JUNCUS

iii. Water at or near the surface at beginning of growing season and down to 20-40 inches at the end of the growing season ... R013XY038ID – Meadow DECA18-CANE2

iv. Water at or near the surface at beginning of the growing season and greater than 40 inches at the end of the growing season ... R013XY039ID – Dry Meadow PONE-PHAL2

v. Permanent water table at 12 inches or less. Site occurs along streams and seeps ... R013XY050ID – Riparian Wet Meadow SALIX/CAREX

2 Soils influenced by saline conditions

i. Soils are deep and poorly to moderately drained. Soils are affected by wetness for part of the growing season within 1.5 ft. of the surface. Soils are saline ... R013XY052ID – Saline Semiwet Meadow DISP