Major Land Resource Area 025X
Owyhee High Plateau

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Description

MLRA 25 lies within the Intermontane Plateaus physiographic province. The southern half is in the Great Basin Section of the Basin and Range Province. This part of the MLRA is characterized by isolated, uplifted fault-block mountain ranges separated by narrow, aggraded desert plains. This geologically older terrain has been dissected by numerous streams draining to the Humboldt River. The northern half of the area lies within the Columbia Plateaus geologic province. This part of the MLRA forms the southern boundary of the extensive Columbia Plateau basalt flows. Deep, narrow canyons drain to the Snake River which incise the broad volcanic plain. The Humboldt River, route of a major western pioneer trail, crosses the southern half of this area. Reaches of the Owyhee River in this area have been designated as National Wild and Scenic Rivers. Nevada's climate is predominantly arid, with large daily ranges of temperature, infrequent severe storms, heavy snowfall in the higher mountains, and great location variations with elevation. Three basic geographical factors largely influence Nevada's climate: continentality, latitude, and elevation. Continentality is the most important factor. The strong continental effect is expressed in the form of both dryness and large temperature variations. Nevada lies on the eastern, lee side of the Sierra Nevada Range, a massive mountain barrier that markedly influences the climate of the State.

Geographic subunits

Land Resource Unit 2. Topography: This LRU represents the lower elevation, dryer portions of the northern half of MLRA 25. The dissected lava plateau forms the southern boundary of the extensive Columbia Plateau basalt flows. This part of the MLRA is characterized by deep, narrow canyons incised into broad basalt plains draining to the Snake River. Topography is characterized by extensive flat summits with limited steep sloping side-slopes/ vertical walls, elevations are less than 5400' (<1650m). Median slope value is 3% (50% of samples slope values are 3% or less), 95% of slope values are <30% (n=3919). Soil characteristics: Soils formed in volcanic ash and/or loess over residuum derived from incised basalt flows forming broad plateaus. Soils in this LRU commonly have vitric soil properties which contain >5% volcanic glass with appreciable amounts of pedogenic glass alteration. This area is characterized by a mesic soil temperature regime and aridic bordering on xeric soil moisture regime. Typically soil profiles have an ochric epipedon or a thin (~18cm) mollic epipedon. Thicker mollic epipedon development is found in soils that experience increased moisture from run on or run through. Soils forming on the tops of plateaus average moderately deep (50 to 100 cm) to a duripan or lithic contact and range from very shallow (<25 cm) to very deep (> 150 cm). Soils forming on the side slopes of plateaus are moderately deep to deep (100 to 150 cm) to a lithic contact. Duripan development in this LRU is dominated by calcium carbonate accumulations above the lithic contact with appreciable amounts of silica accumulation in the forms of laminar caps, bridges between sand grains, and accumulations on rock fragments. Calcium carbonate in these profiles originate from aeolian deposits. Representative soil types of this LRU include: Calciargids (Willhill series), soils that form in loess over alluvium and residuum derived from rhyolitic tuff on hills and plateaus and Haplargids (Plush and Dougal series), soils that form in colluvium and slope alluvium from welded rhyolitic tuff on plateaus, terraces and foothills. Climate: Mean annual precipitation ranges from 10-14" (270-350 mm). Precipitation comes mostly as snow in the winter. Frost free days 110-140 days, evapotranspiration equals or exceeds precipitation across the entire area and mean annual air temperature ranges from 7.6-9.1 □C (46-48 □F). Biological resources: This area supports shrub-grass vegetation characterized by Wyoming big sagebrush associated with bluebunch wheatgrass, western wheatgrass and Thurber's needlegrass. Other important plants include bluegrass, squirreltail, penstemon, phlox, milkvetch, lupine, Indian paintbrush, aster, and rabbitbrush.

Land Resource Unit 3. Topography: This LRU represents the higher elevation plateaus in northern half of MLRA 25. The southern boundary of this LRU boarders the dissected low lava plateau of the Columbia Plateau basalt flows. This part of the MLRA is characterized by deep, narrow canyons that have been incised into the broad basalt plain draining to the Snake River. Topography is characterized by extensive flat summits with limited steep sloping side-slopes/ vertical walls, elevations range from about 5000 to 6000' (1500-1865m). Median slope value is 6%

(50% of samples slope values are 6% or less), 95% of slope values are <40% (n=3419). Soil characteristics: Soils form in volcanic ash and/or loess over residuum derived from incised uplifted basalt flows forming broad plateaus. This area is characterized by a frigid soil temperature regime and xeric bordering aridic and xeric soil moisture regime. Soils in this LRU commonly have vitric soil properties which contain >5% volcanic glass with appreciable amounts of pedogenic glass alteration. Some soil profiles have a mollic epipedon that exceeds 40 cm thick. Pachic mollic epipedons are most common in run on landscape positions and highly productive shrub sites. Duripan development in this LRU is dominated by calcium carbonate, originating from aeolian deposits. Representative soil types in this LRU include: Palexerolls (Amboat series), soils that formed in loess over colluvium and residuum derived from welded tuff on summits of plateaus. Haploxeralfs (Wickahoney series), soils that formed in loess over colluvium and residuum derived from extrusive rocks and volcanic ash on foothills and tablelands. Climate: Mean annual precipitation ranges from 12-20" (300-520 mm). Precipitation comes mostly as snow in the winter. Frost free days 95-140 days, evapotranspiration equals or exceeds precipitation across the entire area and mean annual air temperature ranges from 6.6-8.5□C (43-47□F). Biological resources: This area supports mountain big sagebrush, low sagebrush and/or early sagebrush associated bluebunch wheatgrass and Idaho fescue. Snowberry, curlleaf mountain mahogany and ceanothus are common throughout this LRU. Steep side slopes of incised drainages may be dominated by juniper.

Land Resource Unit 4. Topography: This LRU represents the alluvium dominated piedmont slopes in southern portion of MLRA 25. It is characterized by isolated, uplifted fault-block mountain ranges separated by narrow, aggraded desert plains. This geologically older terrain has been dissected by numerous streams. Topography is characteristic of the basin and range, formed by grabens and half-grabens, fan piedmonts and small to medium sized fluvial systems. This entire area is contained within the hydrologic Great Basin, none of the surface water resources drain external of the Great Basin. Elevations range from 5000'-6500' (1580-1900m). Median slope value is 6%, and 95% of slope values are <36% (n=4384). Soil characteristics: Soils dominantly form in loess or ash deposits over the Humboldt formation (Miocene) which is generally comprised of interbedded lake bed deposits, ash and tuff deposits, and mixed stream deposits. Soil temperature regimes range from mesic to frigid and soil moisture regimes are typically aridic bordering xeric and xeric bordering aridic. Soils commonly have vitric soil properties which contain >5% volcanic glass with appreciable amounts of pedogenic glass alteration. Typical soil profiles have an ochric epipedon or a thin (~18cm) mollic epipedon. Duripan development in this LRU is dominated by calcium carbonate accumulations above the lithic contact with appreciable amounts of silica accumulation in the forms of laminar caps and accumulations on rock fragments. Durinodes are common in deep and very deep soils of stable inset fans. Calcium carbonate in these profiles originate from aeolian deposits. Soils forming in alluvium over rock pediments are not common, but do exist in areas adjacent to limestone/dolomite hills and mountains in some areas. These soils are generally shallow to a moderately to strongly cemented duripan over a deep to very deep lithic contact. Side slopes are characterized by shallow soils. Calcium carbonate accumulations are common throughout the soil profile. Soils forming along the Humboldt River flood plain are characterized by aquic moisture regimes, mesic soil temperatures and a thick mollic epipedon (≥ 50 cm). Soils forming in the flood plain are generally fine textured (silts, loams, and fine sands) with lenses of gravel and cobbles characteristic of river morphology. Water tables along the flood plain fluctuate from below 150 cm in the profile to near surface (25 cm) with changing seasons. Representative soil: Haplodurids (Bioya and Coonskin series), soils formed in loess over alluvium on fan piedmonts. Argidurids (Dacker, Bruncan, and Hunnton series) and Durixerolls (Stampede and Donna series). Haplargids formed in residuum and colluvium on hills, mountain slopes (Vanwyper series) and in alluvium on ballenas (very deep Wieland). Climate: This area is warmer and dryer than the surrounding mountains. Precipitation ranges from 10-13" (260-334mm), evapotranspiration exceeds precipitation across the entire area, mean annual air temperature ranges from 6.0- 8.7□C (42 – 48□F), the area is characterized by greater than 90 frost free days (88-130). Biological resources: This area supports shrub-grass vegetation characterized by Wyoming big sagebrush associated with bluebunch wheatgrass, Thurber's needlegrass, and bluegrass. Black sagebrush and low sagebrush are found throughout the area but are less extensive. Areas with deep soils and run in moisture are commonly characterized by basin big sagebrush. Other important plants include squirreltail, basin wildrye, penstemon, phlox, milkvetch, lupine, aster, and rabbitbrush. Minor amounts of singleleaf pinyon and/or Utah juniper occur in limited areas along the southern boundary with MLRA 28B, the northeast corner of Elko County and Box Elder County.

Land Resource Unit 5. Topography: This LRU is representative of mountains and hills. It includes the Jarbidge, Independence, Mahogee, Ruby, East Humboldt, Santa Rosa, Raft River, Grouse Creek, Owyhee Mountains, and other minor ranges. Lithology of mountain ranges is dominantly volcanic (rhyolite) with areas of igneous intrusions, metamorphic deposits, and calcareous marine deposits. The topography is mountainous with high relief, narrow ridges, broad backslopes and narrow valleys. The highest ranges in this LRU experienced Pleistocene glaciation.

Aspect is an important driving factor in this LRU. Vegetation patterns and resulting soil patterns on the landscape are heavily influenced by north-south aspects. The area is dominated by bedrock-controlled landforms. Elevations are greater than 5900' (1800-2350m) with individual peaks as high as 11,000'. Median slope value is 23% and 75% of slope values are >11% (n=5293). Soil Characteristics: Soils form in loess and/or ash deposits over residuum and colluvium derived from mixed parent material. Soil temperature regimes range from frigid to cryic and soil moisture regimes are typically xeric bordering aridic and xeric. Lower elevation soils in this LRU commonly have vitric soil properties which contain >5% volcanic glass with appreciable amounts of pedogenic glass alteration. Some soil profiles have a mollic epipedon that exceeds 40 cm thick. Pachic mollic epipedons are common on less sloping, broad, concave, long mountain side slopes and on concave-concave backslopes. Soils forming on stable geomorphic surfaces tend to have argillic horizons closer to the soil surface. Less stable surfaces, steeply sloping backslopes or historically glaciated areas, lack strong pedogenic development. Soils forming under dense shrub communities are dominated by thick mollic epipedons and generally have lower pH, <6.5. Soils forming under conifer stands are characterized by ochric epipedons and commonly have a soil pH less than 6.5. Soils forming in carbonatic deposits at high elevations lack calcic horizon development in the upper profile due to moisture flushing the matrix of soluble carbonates and depositing them at the wetting front deeper in the profile. Duripans are not common in the mountain and hills LRU. Representative soil types in this LRU include: Argixerolls (McIvey series), soils that formed in alluvium or colluvium on hills, and mountain slopes. Haplocryolls (Hapgood series) formed in colluvium and residuum derived from mixed parent material with a component of loess and volcanic ash on hills and mountains. Climate: Precipitation comes mostly as snow in the winter, with localized late summer thunderstorms making up a small percentage of the total precipitation. Aspect determines thickness and duration of snowpack on the landscape. North aspects and highest elevations regularly hold snow through the month of June. Mean annual precipitation exceeds 12" (320-750mm), frost free days range from 85-125, with a median value of 100. The number of frost free days is not significantly different from the surrounding alluvium of the upper Humboldt plains, but the hills and mountains receive more annual precipitation and are characterized by colder mean annual temperature. This result increased positive effective precipitation (i.e. precipitation exceeds evapotranspiration). Estimates of effective precipitation range from -235 to 258mm (-9 to 10") across this LRU. Biological Resources: Conifers, aspen, and curl-leaf mountain mahogany are in the Owyhee, Ruby, Santa Rosa and Jarbridge Mountains. The conifers include whitebark pine, Douglas-fir, limber pine, Engelmann spruce, and subalpine fir. Bristlecone pine is present but is limited to Ruby Mountains and East Humboldt Ranges exclusively on limestone parent material. Vast areas support shrub-grass vegetation characterized by Mountain big sagebrush or low sagebrush in association with Idaho fescue, bluebunch wheatgrass, needlegrasses, and/or bluegrass.

Ecological site keys

Dissected low lava plateau

I. Soil characterized by a mollic epipedon

A. Soil greater than 100cm.

1 Soil very deep, greater than 150cm, water table present between 100-152cm, evidence of redox features present in the soil profile. ... R025XY028ID – LOAMY BOTTOM 12-16

2. Soil greater than 150cm, no water table present, no evidence of redox features in the soil profile.

i. Site is on drainageway landforms. ... R025XY062OR – SILTY SWALE 8-11 PZ

ii. Site is on lava plateau landforms. ... R025XY066OR – SHRUBBY LOAM 11-13 PZ

B. Soil 50 to 100cm

1 Slopes greater than 15 percent

i. south aspect, mollic less than 50cm thick

a. Argillic horizon starts at 15cm or less. ... R025XY021OR – CLAYPAN SOUTH SLOPES 11-13 PZ

b. Argillic horizon starts at a depth greater than 15cm. ... R025XY020OR – SOUTH SLOPES 11-13 PZ

ii. North aspect, mollic greater than 50cm thick ... R025XY032OR – NORTH SLOPES 11-13 PZ

2 Slopes less than 15 percent

i. Mollic epipedon is greater than 25cm thick. ... R025XY012OR – LOAMY 11-13 PZ

ii. Mollic epipedon is less than 25cm thick. ... R025XY016OR – SHALLOW CLAYPAN 11-13 PZ

II. Soil characterized by an ochric epipedon.

A. Soil greater than 150cm deep, characterized by a aquic soil moisture regime. ... R025XY049NV – WET CLAY BASIN

B. Soils less than 100cm deep

1 soil less than 50cm deep

i. Soil has an alluvial parent material. The soil restriction is a silica cemented layer; duripan. ... R025XY020ID – LOAMY 7-10

ii. Soil parent material is loess and residuum. Soil restriction is lithic bedrock. ... R025XY011OR – VERY SHALLOW 8-13 PZ

2 Soil 50-100cm deep

i. less than 35 percent clay in the particle size control section ... R025XY019ID – LOAMY 10-13

ii. greater than 35 percent clay particle size control section

a. This site has greater than 15 percent rock fragments. ... R025XY048ID – SHALLOW CLAYPAN 11-13

b. This site has less than 15 percent rock fragments.

1) Depth to duripan or bedrock is 70 to 100 cm. ... R025XY010OR – LOAMY 8-11 PZ

2) Depth to bedrock or duripan is 51 to 70 cm. ... R025XY061OR – SHALLOW CLAYPAN 8-11 PZ

Dissected High Lava Plateau

II. Soil characterized by a mollic epipedon

A. Soil 50-100cm deep

1 Depth to clay increase less than 15cm from soil surface

i. Soil has mollic epipedon 25 cms thick or less (value and chroma 3 or less). ... R025XY018OR – SHALLOW CLAYPAN 13-16 PZ

ii. Soil has mollic epipedon greater than 25 cms thick (value and chroma 3 or less). ... R025XY032NV – CLAYPAN 16+ P.Z.

2 Depth to clay increase greater than 15cm from the soil surface

i. Soil characterized by a calcic horizon below 50cm ... R025XY043ID – LOAMY 11-13

ii. soil characterized by a mollic epipedon greater than 40cm thick and volcanic glass greater than 5 percent of sand and coarse silt fraction in A and Bt1 (vitritorandic feature). Calcic horizon absent.

a. Slopes are less than 15 percent

1) Restriction kind is typically paralithic bedrock ... R025XY065OR – SHRUBBY LOAM 13-16 PZ

2) Restriction kind is typically lithic bedrock. ... R025XY014OR – LOAMY 13-16 PZ

b. Slopes are greater than 15 percent.

1) Aspect is North. ... R025XY038OR – CLAYPAN NORTH SLOPES 11-13 PZ

2) Aspect is South. ... R025XY028OR – SHRUBBY SOUTH SLOPES 13-16 PZ

iii. Soil characterized by a mollic epipedon less than 50cm thick.

a. Soil is characterized by frigid temperature regime.

1) Soil is characterized by a xeric moisture regime. ... R025XY024ID – LOAMY 12-16

2) Soil is characterized by an aridic moisture regime. ... R025XY082NV – STONY LOAM 12-14 P.Z.

b. Soil is characterized by mesic temperature regime. ... R025XY003ID – LOAMY 12-16

B. Soil 100cm deep or greater

1 occurs on stream terraces, flood plains, inset fans and/or valley floors (seasonal water table present)

i. seasonal high-water table with in 25 to 50cm from the soil surface ... R025XY046ID – MEADOW

ii. seasonal high-water table within 50 to 150cm from soil surface ... R025XY039ID – DRY MEADOW

2 occurs on high stream terraces, hills and plateaus (seasonal water table absent)

i. site is on stream terraces, escarpments, plateaus or mountains soils are characterized by mollic epipedon greater than 50cm thick

a. Soils are somewhat excessively to excessively drained. ... R025XY010UT – Riparian (Narrowleaf Cottonwood)

b. soils are somewhat poorly to well drained

1) site is on stream terraces ... R025XY028ID – LOAMY BOTTOM 12-16

2) site is on plateaus and mountains ... R025XY056NV – LOAMY 14-16 P.Z.

ii. occurs on hills and plateaus, soils are characterized by a mollic epipedon 35-50cm thick

a. slopes are greater than 30 percent ... R025XY008ID – NORTH SLOPE STONY 12-16

b. slopes are less than 30 percent ... R025XY011ID – LOAMY 13-16

C. Soils less than 50cms deep.

1 Precipitation is greater than 14 inches. ... R025XY004ID – SHALLOW STONY 12-16

2 Precipitation is less than 14 inches. ... R025XY022NV – COBBLY CLAYPAN 8-12 P.Z.

III. Soil characterized by an ochric epipedon

B. Soils are greater than 50cms deep.

1 Soil is poorly or very poorly drained.

i. Soil temperature regime is frigid. ... R025XY035ID – CHURNING CLAY 12-16

ii. Soil temperature regime is mesic. ... R025XY069NV – SUBIRRIGATED CLAY BASIN

2 Soil is well drained. Soil has less than 35 percent clay in the particle size control section.

i. Soils are 100-150cms deep.

a. soils have a high amount of volcanic glass; greater than 80 percent in all horizons. ... R025XY038ID – ASHY SOUTH SLOPE 10-16

b. soils have less than 80 percent volcanic glass in all horizons. ... R025XY006ID – SOUTH SLOPE STONY 10-13

ii. Soils are 50 to 100 cms deep. ... R025XY041ID – GRAVELLY 10-12

3 Soil is well drained. Soil has more than 35 percent clay in the particle size control section. ... R025XY014ID – CLAYEY 12-16

C. Soil shallow or very shallow (less than 50cm deep)

1 soil less than 20cm deep (very shallow), less than 35% clay particle size control section ... R025XY044ID – VERY SHALLOW STONY LOAM 10-14

2 Soil 20 to 50cm deep (shallow)

i. Soil characterized by less than 35 percent rock fragments by volume (site dominated by early sagebrush) ... R025XY014ID – CLAYEY 12-16

ii. Soil characterized by greater than 35 percent rock fragments by volume (skeletal in the particle size control section)

a. Maximum clay content is typically 50 or less

1) Surface texture is typically extremely rocky. ... R025XY084NV – SCABLAND 10-14 P.Z.

2) surface texture is typically less than extremely rocky. ... R025XY010ID – CLAYPAN 12-16

b. Maximum clay content is typically greater than 50. ... R025XY063OR – SKELETAL CLAYPAN 11+ PZ

iii. Soil characterized by a calcic horizon or relatively high sodium absorption rate values (2 to 10 or greater). ... R025XY040ID – VERY SHALLOW STONY 8-12

Piedmont slope (Upper Humboldt Plains)

I. Soil characterized by a mollic epipedon.

A. soil depth is less than 50 cm (shallow).

2 moisture class xeric is bordering on (subclass) aridic. ... R025XY315UT – Upland Shallow Gravelly Loam (Thurber Needlegrass)

3 Moisture class and subclass are both xeric.

ii. Soil at this site is lacking an O horizon (plant material) on the surface. ... R025XY007NV – GRAVELLY LOAM 12-16 P.Z.

i. Soil at this site has an Oi horizon on the surface (intermediately decomposed plant material).

a. Site is typically below elevations of 8000 feet. ... R025XY031NV – STONY MAHOGANY SAVANNA

b. Site is typically at elevations greater than 8000 feet. ... R025XY071NV – MAHOGANY SAVANNA 14-16 P.Z.

4 Soil moisture class is aridic bordering on xeric (moisture subclass). ... R025XY046NV – FRACTURED STONY LOAM 14+ P.Z.

B. soil greater than 100cm deep (deep to very deep)

1 Mollic epipedon less than 50cm thick, calcareous parent material

i. Soil characterized by greater than 35% rock fragments in the Particle Size Control Section.

a. Soil is characterized by less than 35% clay in the particle size control section.

1) This soil at this site has an Oi and Oe horizon (slightly and moderately decomposed plant material). ... R025XY030NV – MAHOGANY THICKET

2) This soil of this site lacks significant plant material on the surface.

a) Calcium Carbonates percentage is 15 percent or less. ... R025XY036ID – SOUTH SLOPE LOAMY 12-16

b) Calcium Carbonate percentage is greater than 15. ... R025XY318UT – Upland Stony Loam (Black Sagebrush)

b. Soil is characterized with more than 35% clay in the particle size control section. ... R025XY320UT – Upland Stony Clay (Low Sagebrush)

ii. Soil is characterized by less than 35% rock fragments in the Particle Size Control Section. ... R025XY310UT – Upland Loam (Basin Big Sagebrush)

2 Mollic epipedon greater than 50cm thick.

i. Soil well drained, not characterized by a seasonal high water table.

a. Site is on stream terraces, flood plains or drainageways. ... R025XY003NV – LOAMY BOTTOM 8-14 P.Z.

b. Site is on mountain slopes, hillslopes and escarpments.

1) Site is in a water receiving postion on the landscape.

a) Soil typically has greater than 35 percent clay in the particle size control section. ... R025XY047NV – CLAY SEEP

b) Soil typically has less than 35 percent clay in the particle size control section. ... R025XY001ID – ASPEN THICKET

2) Site is on a water shedding position on the landscape.

a) Mean Annual Precipitation is typically 16 inches or less. Site is exclusive to north slopes. ... R025XY023ID – NORTH SLOPE LOAMY 16-22

b) Mean annual precipitation is typically greater than 16 inches. Site is on all aspects.

(1) Maximum clay content is typically below 30 percent.

(a) Rock fragments in the particle size control section are less than 35 percent. ... R025XY022ID – LOAMY 16-22

(b) Rock fragments in the particle size control section are greater than 35 percent. ... R025XY056NV – LOAMY 14-16 P.Z.

(2) Maximum clay content is typically greater than 30 percent but less than 35 percent. ... R025XY029NV – DEEP LOAMY 14+ P.Z.

ii. Soil poorly drained, characterized by a seasonal high water table within 150cm of the soil surface.

a. Seasonal high-water table with 15 to 60cm from the soil surface. Willow is significant part of the plant community. ... R025XY001NV – MOIST FLOODPLAIN

b. Seasonal high-water table within 15 to 60cm from the soil surface. Plant community dominated by grass/grass-likes. Willow is not a significant part of the plant community. ... R025XY005NV – WET MEADOW

c. Seasonal high-water table within 50 to 150cm from the soil surface. Plant community dominated by grass/grass-likes. ... R025XY006NV – DRY MEADOW

C. The soil depth is 50 to 100 cm.

1 Depth of mollic epipedon is from surface to less than 50 cm. Mean Annual Precipitation is 12 inches or less.

i. Site is on north aspects only. ... R025XY034OR – SHRUBBY NORTH SLOPES 13-16 PZ

ii. Site is on all aspects.

a. Soil typically has 5 or less percent rocks on the surface. ... R025XY064OR – SHRUBBY SHALLOW CLAYPAN 13-16 PZ

b. Soil typically has more than 5 percent rocks on the surface. ... R025XY014NV – LOAMY 10-12 P.Z.

2 Depth of mollic epipedon is from surface to near 50 cm or greater. Mean Annual Precipitation is typically 12 inches or more.

ii. Mean Annual Precipitation is typically less than 20 inches. Available Water Holding Capacity (AWC) is typically greater than 2 inches. ... R025XY027NV – LOAMY 12-14 P.Z.

iii. Mean Annual Precipitation is typically greater than 20 inches. ... R025XY030ID – MOUNTAIN BRUSH 18-22

II. Soil characterized by an ochric epipedon

A. restrictive layer less than 50cm from the soil surface (shallow rooting depth)

1 less than 18 percent clay in the PSCS

i. soil vitrandic, characterized by greater than 15 percent ash through the soil profile or ashy soil textures throughout the soil profile ... R025XY007ID – ASH 10-14

ii. Soil not vitrandic, less than 15% ash throughout the soil profile. Carbonates disseminated and soil effervescent throughout the soil profile. ... R025XY025NV – CHALKY KNOLL

2 greater than 18 percent clay in the particle size control section

i. 18 to 27% clay in the particle size control section

a. greater that 35% rock fragments, by volume, throughout the soil profile (soil skeletal), subsurface horizon cemented by silica (duripan) present between 36-50cm ... R025XY085NV – Juniper Savanna

b. subsurface horizon cemented by silica (duripan) present greater than 50cm from the soil surface, less than 35% rock fragments, by volume, throughout the soil profile, ... R025XY014NV – LOAMY 10-12 P.Z.

ii. greater than 27 percent clay in the particle size control section

a. between 27 to 35 percent clay particle size control section ... R025XY021NV – SHALLOW LOAM 8-12 P.Z.

b. greater than 35 percent clay in the particle size control section ... R025XY018NV – CLAYPAN 10-12 P.Z.

B. restrictive layer between 50 to 100 cm from the soil surface (soil moderately deep)

1 Soil temperature regime is typically mesic.

i. Soil is characterized by an ashy modifier.

a. The texture of the surface horizon is loamy fine sand. ... R025XY045NV – ASHY LOAM 8-10 P.Z.

b. The texture of the surface horizon is sandy loam. ... R025XY066NV – ASHY LOAM 10-12 P.Z.

ii. Soil is not characterized by an ashy modifier. ... R025XY322UT – Upland Juniper Savanna (Utah Juniper)

2 Soil temperature regime is typically frigid.

i. Soil parent material is alluvium. ... R025XY016ID – SHALLOW CALCAREOUS LOAM 10-16

ii. Soil parent material is residuum derived from tuffaceous rocks. ... R025XY013NV – CHURNING CLAY 8-12 P.Z.

C. restrictive layer greater than 100 cm from the soil surface (soil deep)

1 less than 28 percent clay in the particles size control section. site occurs in run-on landscape position.

i. Soil is well drained. ... R025XY070NV – LOAMY FAN 8-10 P.Z.

ii. Soil is somewhat poorly drained. ... R025XY062NV – STREAM TERRACE

2 particle size control section has 28 to 35 percent clay. Site occurs in run-off landscape position.

i. duric (subsurface horizon weakly to strongly cemented by silica) feature present between 50 to 100cm ... R025XY019NV – LOAMY 8-10 P.Z.

ii. Duric feature absent ... R025XY015NV – SOUTH SLOPE 8-12 P.Z.

3 Soil of this site has greater than 35 percent clay.

i. Soil drainage class is poorly or very poorly drained. ... R025XY048NV – CLAY BASIN

ii. Soil is well drained. ... R025XY050NV – STONY BOTTOM

III. Soil has an umbric epipedon. ... R025XY037ID – CEANOTHUS THICKET 16-24

Mountains, hills and high plateaus (High elevation forest and shrublands)

I. soil less than 50cm to a restrictive layer (shallow or very shallow)

A. soil profile characterized by a mollic epipedon

1 accumulation of clay (argillic horizon) present

i. boundary to clay increase (argillic horizon) abrupt

a. Soil has convex/convex slope shape. Above 7000 feet elevation. ... R025XY024NV – MOUNTAIN RIDGE

b. linear/linear landform shape, soil less than 25cm deep. Typically below 7,000 feet elevation. ... R025XY057NV – SHALLOW CLAY LOAM 10-14 P.Z.

c. linear/linear landform shape, soil 25 to 50cm deep

1) Bedrock may be fractured. ... R025XY023NV – GRAVELLY CLAYPAN 12-16 P.Z.

2) Bedrock may not be fractured. ... R025XY017NV – CLAYPAN 12-16 P.Z.

ii. boundary to clay increase (argillic horizon) smooth, gradual, other (not abrupt)

a. mollic epipedon 35cm thick or to bedrock, soil derived from volcanic parent material ... R025XY018ID – MAHOGANY SAVANNA 16-22

b. mollic epipedon 35-50cm thick or to bedrock, soil derived from granitic parent material ... R025XY027ID – SOUTH SLOPE GRANITIC 12-16

2 accumulation of clay (argillic horizon) absent

i. mollic epipedon 20 to 50cm thick, less than 18 percent clay in the particle size control section ... R025XY075NV – MAHOGANY SAVANNA 16+ P.Z.

ii. mollic epipedon 18 to 35cm thick, greater than 27 percent clay in the particle size control section ... R025XY042NV – SHALLOW LOAM 14-16 P.Z.

B. soil profile characterized by an ochric epipedon

1 accumulation of clay (argillic horizon) present ... R025XY051NV – ERODED CLAYPAN 12-16 P.Z.

2 accumulation of clay (argillic horizon) absent

i. soil 25-50cm deep, effervescent throughout and increasing with depth ... R025XY316UT – Upland Shallow Loam (Black Sagebrush)

ii. soil less than 25cm deep and consistently associated with rock outcrop ... R025XY058NV – BOULDERY LOAM

iii. soil less than 25cm deep and effervescent throughout ... F025XY060NV – Thin Surface Juniper

II. soil 50 to 100 cm to a restrictive layer (moderately deep)

A. soil derived from sedimentary parent material (limestone, dolomite or siltstone)

1 Greater than 10" precipitation

i. Soil has Mollic Epipedon ≥ 50cm or R025XY610UT ... F025XY510UT – High Mountain Loam (Subalpine Fir)

ii. Soil has Mollic Epipedon ≤ 50cms

a. Soil is characterized by a calcic horizon that starts within a depth of 20cms from the soil surface. ... R025XY415UT – Mountain Shallow Gravelly Ridge (Black Sagebrush)

b. Soil is characterized by a calcic horizon that starts at a depth greater than 20cms of the soil surface. ... F025XY061NV – Pinyon-Mahogany Mountain Slopes

2 Less than 10" precipitation ... F025XY059NV – Gravelly Juniper

B. soil derived from volcanic, metamorphic or other parent material

1 soil characterized by a mollic epipedon

i. accumulation of clay (argillic horizon) present ... R025XY026OR – CLAYPAN SOUTH SLOPES 13-16 PZ

ii. accumulation of clay (argillic horizon) absent

a. mollic epipedon greater than 50cm thick, concave/concave landscape position. Snowbrush ceanothus dominant species. ... R025XY052NV – CEANOTHUS THICKET

b. umbric epipedon (mollic colors from soil surface to greater than 50cm, low base saturation), pH <6 ... R025XY080NV – Shrubby Snowfield

c. mollic epipedon less than 50cm thick

1) landform shape linear/convex, typically found on shoulders ... R025XY034NV – Mountain Shoulder

2) linear/linear landform shape, typically occurs on backslopes or sideslopes ... R025XY012NV – LOAMY SLOPE 12-16 P.Z.

2 soil characterized by an ochric epipedon

i. O horizon absent, less than 10 percent clay in the particle size control question ... R025XY077NV – Dry Snowfield

ii. Slightly decomposed pine needles and other plant materials (O horizon) present 0 to 2cm, less than 10 percent clay in the particle size control section ... F025XY086NV – Deep Subalpine Slope

iii. greater than 10 percent clay in the particle size control section

a. concave/concave landscape position, areas of snow accumulation near foot slopes or rock outcrops ... R025XY028NV – SNOWPOCKET

b. linear/linear or linear/concave landscape positions, typically on backslopes or sideslopes

1) soil derived from carbonatic parent material ... R025XY326UT – Upland Shallow Stony Loam (Utah Juniper)

2) soil derived from volcanic parent material ... F025XY078NV – High Mountain Loam

III. soil greater than 100cm to restrictive layer (deep or very deep)

A. soil profile characterized by a mollic epipedon

1 soil 100 to 150 cm deep

i. soil very poorly drained, persistent water table within 25cm of the soil surface

a. Soil has greater than 35 percent clay in the particle size control section. ... R025XY089NV – Subalpine Wet Meadow

b. Soil has less than 35 percent clay in the particle size control section. ... R025XY004OR – DRY MEADOW

ii. soil moderately well to well drained

a. less than 18 percent clay in the particle size control section

1) Soils have greater than 5 percent calcium carbonates. ... R025XY041NV – SHALLOW CALCAREOUS SLOPE 14+ P.Z.

2) Soils have less than 5 percent calcium carbonates.

a) Site is on north aspects only. ... R025XY010NV – STEEP NORTH SLOPE

b) Site is on all aspects. ... R025XY076NV – SHALLOW LOAM 16+ P.Z.

b. greater than 18 percent clay in particle size control section

1) soil profile characterized by clay textures throughout ... R025XY033ID – CLAY SEEP 12-16

2) soil profile not characterized by clay increase, greater than 35 percent rock fragments by volume through the soil profile ... R025XY004NV – LOAMY SLOPE 16+ P.Z.

3) greater than 27 percent clay below 40cm, less than 35 percent rock fragments by volume through the soil profile ... R025XY087NV – Mountain Valley Slope

2 soil greater than 150cm deep

i. soil profile characterized by the presence of identifiable carbonates, strongly effervescence below ~65cm ... R025XY055NV – SHALLOW CLAY SLOPE 10-14 P.Z.

ii. soil profile characterized by greater than 35 percent rock fragments by volume

a. occurs on stream terrace of perennial streams

1) occurs at elevations less than 6500 feet, site dominated by narrow leaf cottonwood ... F025XY053NV – Cottonwood Terrace

2) occurs at elevations greater than 6500, site dominated by quaking aspen ... F025XY064NV – Streambank Aspen

b. occurs on backslopes of mountains

1) mollic epipedon less than 40cm thick ... R025XY045ID – DOUGLAS FIR SNOWBERRY 22+

2) mollic epipedon greater than 40cm thick

a) accumulation of clay (argillic horizon) present

(1) greater than 27% clay in particle size control section ... R025XY016NV – SOUTH SLOPE 14-18 P.Z.

b) accumulation of clay (argillic horizon) absent ... R025XY002NV – ASPEN THICKET

iii. soil profile characterized by less than 35 percent rock fragments by volume

a. occurs on stream terrace of perennial stream. water table between 40 to 100cm in early summer.

1) soil has less than 35 percent clay in the particle size control section ... R025XY079NV – STREAMBANK

2) soil has more than 35 percent clay in the particle size control section. ... R025XD008NV – Fine Frigid Floodplain ARCA13/CACU7/LETR5

b. occurs on mountain backslopes, soil characterized by accumulation of clay (argillic horizon) within 50cm of soil surface ... R025XY410UT – Mountain Aspen Thicket

c. occurs on mountain backslopes, soil lacks accumulation of clay (argillic horizon) ... F025XY065NV – Backslope Aspen

B. soil characterized by an ochric epipedon

1 soil derived from carbonatic parent material (limestone) ... F025XY073NV – Limber Pine Colluvium

2 soil derived from metamorphic/volcanic parent material ... F025XY086NV – Deep Subalpine Slope