

# Major Land Resource Area 029X Southern Nevada Basin and Range

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## Ecological site keys

### MLRA 29

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#### I. basins (including playa)

A. Basins east of 1872 Von Schmidt line. The first officially recognized oblique state line between California and Nevada, erred slightly, the boundary was later corrected to the present line, 3/4 mile to the north.

##### 1 Typic aridic valleys and basin floors including playas.

###### i. Typic aridic soils without bedrock.

###### a. Ecological site characterized by 5 inches or less precipitation.

1) Dominated by fourwing saltbush (found on Torripsamments) ... R029XY034NV – SANDY 3-5 P.Z.

###### 2) Ecological site dominated by shadscale saltbush.

a) The base of the natrargid horizon is within 10 inches of the soil surface. ... R029XY032NV – SODIC LOAM 3-5 P.Z.

###### b) Soil not as above.

(1) Site is dominated by burrobush (white bursage). ... R029XY039NV – COARSE GRAVELLY LOAM 3-5 P.Z.

###### (2) Burrobush (white bursage) is not found in the site.

(a) Site is on alluvial flats and lower fan skirts. ... R029XY063NV – DRY SODIC TERRACE

(b) Site is on fan skirts and inset fans. ... R029XY035NV – LOAMY 3-5 P.Z.

###### b. Ecological site characterized by 5 inches or more precipitation.

###### 1) Water table within 45 feet, indicated by presence of greasewood.

a) Soil with electrical conductivity (EC) between 16 and 32. On lake plains or basin floors. ...

R029XY076NV – SODIC FLAT

###### b) Soil with EC less than 16 and SAR less than 30.

###### (1) No water table within the profile.

(a) On stabilized sand dunes. ... R029XY018NV – SODIC DUNE

(b) On fan skirts or alluvial flats. ... R029XY024NV – SODIC TERRACE 5-8 P.Z.

(2) Water table within the profile between 30 and 60 inches. ... R029XY004NV – SALINE BOTTOM

###### 2) Water table deeper than 45 feet, indicated by dominance of shadscale saltbush.

**a) On basin floors.**

(1) Shadscale is dominant, possible Bonneville saltbush (see also R029XY159NV & R029XY117NV). ... R029XY059NV – SHALLOW SILTY 5-8 P.Z.

(2) Fourwing saltbush (or possible hybrid) is dominant. ... R029XY048NV – OUTWASH PLAIN

(3) Shadscale is dominant, possible Bonneville saltbush, see also R029XY059NV. ... R029XY117NV – SILTY PLAIN

**b) On piedmont slopes.**

(1) Soils have platy structure and vesicular pores in the A horizon (see also R029XY036NV, R029XY087NV, R029XY093NV, R029XY080NV [petrocalcic], R029XY107NV, & R029XY161NV). ... R029XY017NV – LOAMY 5-8 P.Z.

(2) Soil is not as above.

(a) Fourteen to 20 inches of sandy surface. ... R029XY012NV – SANDY 5-8 P.Z.

(b) Not as above (see also R029XY046NV, R029XY031NV, and R029XY079NV). ... R029XY016NV – LOAMY UPLAND 5-8 P.Z.

c) In drainageways. Soils are rarely to occasionally flooded (see also R029XY072NV). ... R029XY041NV – DRY WASH

**ii. Typic aridic soil with bedrock.**

**a. Ecological site is dominated by shadscale saltbush.**

1) Soil is typically greater than 10 inches deep. ... R029XY022NV – LOAMY SLOPE 5-8 P.Z.

2) Soil is typically less than 10 inches deep. ... R029XY033NV – LOAMY SLOPE 3-5 P.Z.

**b. Dominated by spiny hopsage and desert thorn. ... R029XY021NV – LOAMY HILL 5-8 P.Z.**

**c. Purple oniongrass dominated. ... R029XY037NV – COBBLY SLOPE 5-8 P.Z.**

**2 Xeric-aridic valleys on fan piedmonts.**

**i. Xeric-aridic valleys on fan piedmonts with limestone parent material.**

**a. Site is on alluvial soil.**

1) Site is on alluvium derived from sedimentary parent material (limestone).

a) Site is on alluvium derived from limestone with an ochric epipedon (see also R029XY047NV and R029XY099NV). ... R029XY008NV – SHALLOW CALCAREOUS LOAM 8-12 P.Z.

b) Site is on alluvium derived from limestone with a mollic epipedon (see also R029XY173NV). ... R029XY170NV – SHALLOW CALCAREOUS LOAM 10-12

c) Site is on erosional fan remnants. The soil is shallow and from limestone parent material. The soil surface is covered with about 70 percent gravel sized rock fragments. ... R029XY173NV – SHALLOW GRAVELLY FAN 12-14 P.Z.

d) Site is on the summit and sideslopes of fan remnants. The soil is shallow to very shallow. The soil surface is covered by 30 to 70 percent rock fragments. ... R029XY099NV – STONY CALCAREOUS HILL

e) Site is on eroded sideslopes of fan remnants. The soil is very shallow to a duripan. ... R029XY162NV – ERODED SLOPE 8-10 P.Z.

f) Site has 35 to 50 percent gravels by volume in the profile. Soil is deep. ... F029XY058NV – PIMO-JUOS WSG 0R0507 10 to 15

**ii. Xeric-aridic valleys on piedmonts with volcanic parent material.**

**a. Site is on alluvial soil.**

**1) Site is on alluvium derived from volcanic parent material.**

a) Dominated by black sagebrush (possible more effervescence) (see R029XY008NV). ... R029XY008NV – SHALLOW CALCAREOUS LOAM 8-12 P.Z.

b) Ecological site is dominated by Wyoming sagebrush (possible less effervescence).

(1) On inset fans and drainageways (terrace) (see also R029XY114NV and R029XY158NV). ... R029XY049NV – SANDY LOAM 8-12 P.Z.

(2) On fan remnants (see also R029XY167NV). ... R029XY006NV – LOAMY 8-10 P.Z.

c) Dominated by pygmy sagebrush (on eroded fan remnants). ... R029XY092NV – BARREN FAN 8-10 P.Z.

e) Dominated by mountain big sagebrush and the soil is pachic. ... R029XY061NV – FAN COLLAR 12-16 P.Z.

**b. Site is on bedrock controlled soils.**

**2) Site is on residuum derived from volcanic parent material.**

a) Ecological site is dominated by black sagebrush (possible more effervescence).

(1) Dominated by black sagebrush with Thurber's needlegrass (above 10 inches precipitation). ... R029XY104NV – SHALLOW CLAY LOAM 10-12 P.Z.

(2) Ecological site dominated by black sagebrush without Thurber's needlegrass (below 10 inches precipitation).

(a) South aspect dominated by black sagebrush without Thurber's needlegrass (below 10 inches of precipitation). ... R029XY045NV – STONY CALCAREOUS SLOPE 8-12 P.Z.

b) Ecological site dominated by Wyoming big sagebrush (possible less effervescence).

(1) On low mountains and hills, below 10 inches of precipitation. ... R029XY010NV – LOAMY SLOPE 8-10 P.Z.

(2) On low mountains and hills, above 10 inches of precipitation. ... R029XY057NV – LOAMY ASH INFLUENCED SLOPE 12-14 P.Z.

**II. Site is on mountains and foothills.**

**A. Site is on mountain backslopes and high mountains.**

**1 Typic xeric above tree line.**

**i. Soils are moderately deep to very deep, over 40 inches.**

**a. Dominant plant is mountain big sagebrush.**

1) The soil is pachic. ... R029XY051NV – LOAMY SLOPE 16+ P.Z.

b. Dominant plant is little (low) sagebrush. ... R029XY052NV – CLAYPAN 16+ P.Z.

ii. Soil not as above, less than 40 inches.

a. Ecological site is above 8,000 feet.

1) Site is on ridges (convex/convex or convex/linear). ... R029XY053NV – MOUNTAIN RIDGE 16+ P.Z.

2) Site is on sideslopes (linear/linear, convex/linear). ... R029XY052NV – CLAYPAN 16+ P.Z.

b. Ecological site is below 8,000 feet.

1) Soil textures are ashy (with a ashy modifier, over 30 percent volcanic glass). ... R029XY055NV – CLAYPAN 12-16 P.Z.

2 Aridic-xeric mid-slope woodland and brushland.

i. Soil greater than 60 inches (very deep).

a. Site is associated with a flowing stream. ... R029XY026NV – STREAMBANK 14+ P.Z.

b. Associated with a wash or drainageway. ... R029XY009NV – UPLAND WASH

c. On a fan remnant. ... R029XY030NV – LOAMY 12-14 P.Z.

ii. Soil less than 60 inches deep (deep, moderately-deep, or shallow).

a. Soil is 20 to 40 inches deep (moderately deep).

1) Dominated by curl-leaf mountain mahogany (see also R029XY043NV). ... R029XY027NV – MAHOGANY THICKET

2) Understory dominated by mountain big sagebrush. ... F029XY066NV – PIMO-JUOS WSG 1R0501 12 to 16

b. Soil is shallow less than 20 inches deep (shallow).

1) Granitic parent material. ... F029XY068NV – PIMO-JUOS/ARAR8

2) Parent material not as above.

a) Understory vegetation is dominated by black sagebrush. ... F029XY069NV – PIMO-JUOS WSG 0R0504 12 to 16

b) Understory not as above.

(1) Understory dominated by Wyoming big sagebrush (below 7,200 feet). ... F029XY065NV – PIMO-JUOS/ARTRW8

(2) Site is above 7,200 feet and the understory is dominated by mountain big sagebrush. ... F029XY095NV – PIMO-JUOS WSG 0R0501 12 to 16

B. Site is on foothills and low mountains.

1 MLRA 29 in Utah - low mountains.

i. Soil moderately deep to deep.

a. Site found on alluvial fans or fan remnants.

1) Surface texture is fine sandy loam. ... R029XY165NV – ERODED NORTH SLOPE 12-14 P.Z.

2) Surface texture is loam. ... R029XY330UT – Upland Stony Loam (Shrub Liveoak)

**b. Site found on mountain slopes.**

1) Elevation is less than 6,500 feet. ... R029XY310UT – Upland Loam (Utah Serviceberry)

2) Elevation is over 6,000 feet.

a) Soil surface texture is loamy coarse sand. ... F029XY001CA – Shallow Sandy Slope

b) Surface texture is sandy loam or loam.

(1) Site is typically found at higher elevations dominated by Ponderosa pine (*Pinus ponderosa*). Volcanic parent material. Soil depth greater than 40 inches. ... F029XY086NV – Rocky Loamy Slope 16+

(2) Site is typically found at slightly lower elevations and is dominated by pinyon and juniper. Volcanic parent material. Soil depth between 14 and 40 inches. ... F029XY078NV – Shallow Ashy Loam 12-16" P.Z. 12 to 16

(3) Dominated by pinyon and juniper. Limestone parent material. Soil depth is between 10 and 20 inches. ... F029XY067NV – PIMO-JUOS WSG 0R0501 12 to 16

(4) Pinyon and juniper dominated. Volcanic parent material. Slopes are between 50 and 75 percent. ... F029XY083NV – PIMO-JUOS WSG 0X0504 12 to 16

(5) Pinyon and juniper dominated. Volcanic parent material. Soil depth is between 14 and 20 inches. ... F029XY084NV – PIMO-JUOS WSG 0R0501 12 to 16

**ii. Soil shallow, less than 20 inches to a restrictive layer.**

a. Site is found on alluvial fans, fan remnants, hillslopes, or lava flows.

1) Site is found at elevations less than 5,500 feet. ... R029XY220UT – Semidesert Shallow Hardpan (Blackbrush)

2) Site is found at elevations greater than 6,200 feet. ... F029XY070NV – Shallow Loam 10-14 P.Z.

b. Site is found on mountains and mountain slopes.

1) Mean annual precipitation is 17 inches or more. ... F029XY096NV – PIMO-ABCOC WSG 3R0607 16 to 18

2) Mean annual precipitation is less than 17 inches.

a) Rocks on the soil surface are typically cobble sized.

(1) Soil surface fragments are less than 10 percent cover. ... F029XY071NV – Shallow Rocky Loam 10-12" P.Z

(2) Soil surface fragments are over 25 percent cover. ... R029XY320UT – Upland Shallow Loam (Singleleaf Pinyon-Utah Juniper)

b) Rocks on the soil surface are gravel or boulder sized.

(1) Soil surface texture is loamy coarse sand. ... F029XY001CA – Shallow Sandy Slope

(2) Soil surface texture is loam to sandy loam.

(a) Site is found on north and east exposures and dominated by Sonoran scrub oak (*Quercus turbinella*). ... R029XY172NV – NORTH SLOPE 12-14

(b) Site is found on all exposures and is dominated by sagebrush.

(1) Dominant vegetation is low sagebrush (*Artemisia arbuscula*). ... R029XY163NV – COBBLY CLAYPAN 12-14 P.Z.

(2) Dominant vegetation is mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*). ... R029XY164NV – GRAVELLY CLAY SLOPE 12-14 P.Z.

**2 Xeric-aridic low mountains and hills.**

i. Dominated by little leaf mountain mahogany and soil 15 centimeters or less. ... R029XY040NV – LIMESTONE HILL

ii. Ecological site is not as above.

a. Dominated by blackbrush (see also R029XY019NV and R029XY077NV). ... R029XY013NV – SHALLOW GRAVELLY LOAM 5-8 P.Z.

b. Ecological site is not as above.

1) Ecological site is dominated by black sagebrush (possible more effervescence).

a) Dominated by black sagebrush with 2 to 10 percent canopy cover old juniper (see also R029XY081NV). ... R029XY015NV – SHALLOW CALCAREOUS HILL 8-10 P.Z.

b) Ecological site is dominated by black sagebrush with less than 2 percent old juniper.

(2) Not as above (see also R029XY014NV and R029XY168NV) ... R029XY008NV – SHALLOW CALCAREOUS LOAM 8-12 P.Z.

(3) Soils shallow and well drained, dominated by black sagebrush and small amounts of juniper and pinyon. ... R029XY160NV – LIMESTONE SLOPE 8-10 P.Z.

2) Ecological site dominated by big sagebrush (possible less effervescence).

a) Ecological site associated with rock scree.

(1) Soil with a mollic epipedon. Thurber's needlegrass is the dominant grass. ... R029XY106NV – GRAVELLY CLAY SLOPE 10-12 P.Z.

(2) Soil with an ochric epipedon. Desert needlegrass is the dominant grass. ... R029XY169NV – SCREE SLOPE 8-10

b) Ecological site not as above.

(1) Dominated by Wyoming big sagebrush with desert needlegrass. ... R029XY073NV – BOULDERY SLOPE 8-12 P.Z.

(2) Dominated by Wyoming big sagebrush with needleandthread-Indian ricegrass (see also R029XY010NV) ... R029XY075NV – LOAMY SLOPE 10-12 P.Z.

**III. Site may occur in basins, mountains, or foothills.**

A. Sites are associated with seasonally wet soils.

1 Water table is less than 20 inches deep.

i. Surface texture is peat. ... R029XY044NV – PEATY WETLAND

ii. Surface texture is silt loam. ... R029XY001NV – WET MEADOW 8-12 P.Z.

2 Water table is deeper than 20 inches.

i. Site is influenced by salts and the pH is greater than 7.6. ... R029XY002NV – SALINE MEADOW

ii. Site is not influenced by salts and the pH is less 7.6. ... R029XY025NV – STREAMBANK 10-14 P.Z.

**B. Site is not associated with seasonally wet soils.**

**1 Site is found on slopes greater than 30 percent. Site is on granite parent material. Dominated by mountain big sagebrush. ...**

R029XY186CA – Sandy Slope 10-12" p.z.

**2 Site is found on slopes less than 30 percent.**

i. Site has less than 10 percent gravel cover on the surface. ... R029XY020NV – SILTY 5-8 P.Z.

ii. Site has more than 10 percent gravel cover on the surface.

a. Restrictive layer is less than 14 inches deep. ... R029XY185CA – Shallow Granitic Hills 7-9" p.z.

b. Restrictive layer is between 20 and 30 inches deep. ... R029XY042NV – COARSE SILTY 5-8 P.Z.

**3 Over 30 percent slopes. Site on rhyolite parent material. ... R029XY183CA – Shallow Granitic Slope 7-9"**

p.z.

**4 Site in on over 30 percent slopes on granite or granitoid parent material. ... R029XY189CA – South Sandy**

Slope 9-11" p.z.