Major Land Resource Area 042A
Trans-Pecos Mountains, Plateaus, and Basins

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Description

The Trans-Pecos Mountains, Plateaus, and Basins Major Land Resource Area (MLRA 42A), occurs in Texas (90 percent) and New Mexico (10 percent). MLRA 42A is defined by the Trans-Pecos Rift, which consists of three basic subdivisions: 1) mountain ranges, both sedimentary and igneous, such as the Sierra Diablo and Davis Mountains; 2) plateaus, such as the Otero and Marfa Plateaus; and 3) basins, such as the Valentine and Salt Basins. It is a subdivision of the Basin and Range province that extends from Otero Mesa, in southern New Mexico, to Big Bend, Texas. Elevation ranges from 1,550 to 8,378 feet. Biological communities include forest, woodland, savannah, grassland, grassland with shrubs, shrub savannah, shrubland, and dwarf shrubland which occur with definite ranges of annual water deficit. Nearly all the MLRA is rangeland and currently used for livestock grazing, wildlife habitat, and recreation.

Ecological site keys

MLRA 42A

1 Mountain Savannah LRU- annual precipitation is 18 to 26 inches and occurs in the high Chisos and Davis Mountains. Elevations are mostly greater than 5,500 feet. The climate and soils support vegetation that is mainly woodlands or oak savannah.

1.1. Bedrock Controlled- Landform a hill or mountain. Soils shallow to bedrock.

A. Soil shallow to igneous bedrock with rock outcrop at surfaces in places. ... R042AF286TX – Igneous Hill and Mountain, Mountain Savannah

1.2. Landform a mountain valley floor with deep and skeletal soils.

A. Broad mountain valley floor mostly below 6,000 feet elevation. Distinguishing species from the Canyon ecological site include black grama, bush muhly, rose-fruited junipers, velvetpod mimosa, and whitebrush. ... R042AF284TX – Foothill Slope, Mountain Savannah

B. Narrow mountain valley floor high in the mountains. Soil is usually deep, but can be shallow in upper reaches; distinguishing species from the Foothill Slope ecological site include big bluestem, ponderosa pine, silverleaf oak, and southwestern white pine. ... R042AF282TX – Canyon, Mountain Savannah

1.3. Landform a mountain bench.

A. Slopes less than 5 percent. Soils shallow to moderately deep. ... R042AF285TX – Igneous Divide, Mountain Savannah

2 Mixed Prairie LRU- annual precipitation is 15 to 17 inches and is mostly at elevations of 4,500 to 6,700 feet. The climate and soils support vegetation that is dominated by grasses. This zone includes intermountain prairies and valleys and rolling to steep hills and mountainsides.

2.1. Bedrock Controlled- Soils shallow to bedrock. Landform a hill or mountain.

A. Soil shallow to igneous bedrock (other than basalt and ignimbrite) with rock outcrop at surfaces in places. ... R042AE277TX – Igneous Hill and Mountain, Mixed Prairie

B. Soil shallow to limestone bedrock with rock outcrop at surfaces in places. ... R042AE278TX – Limestone Hill and Mountain, Mixed Prairie

C. Soil shallow to basalt or ignimbrite bedrock with rock outcrop at surfaces in places. ... R042AE695TX – Basalt Hill, Mixed Prairie

2.2. Petrocalcic (Caliche) Controlled- Soils shallow to petrocalcic.

A. Landform a nearly level to hilly fan. ... R042AE281TX – Shallow, Mixed Prairie

2.3. Upland Gravelly Soil- Skeletal (contain more than 35 percent rock fragments) or very gravelly soil. Landform an alluvial fan, piedmont slope, or terrace (not a hill or mountain).

A. Soil is non-calcareous in the upper 10 inches. Landform an alluvial fan or terrace in mountain valleys of the Chisos Mountains. Creosote bush prefers soils that are gravelly and calcareous, making this site unlikely to be dominated by creosote bush. ... R042AE274TX – Mountain Valley Foothill Slope, Mixed Prairie

B. Soil is calcareous throughout the profile. Landform an alluvial fan, piedmont slope, or terrace. Creosote bush prefers soils that are gravelly and calcareous, making it more likely to dominate this site. ... R042AE275TX – Gravelly, Mixed Prairie

2.4. Upland Loamy Soil- Site does not receive significant additional moisture. Soil has few if any fragments and is deep; Surface texture is a clay loam or loam.

A. Surface texture is a clay loam on a broad piedmont slope. ... R042AE758TX – Clay Loam, Mixed Prairie

B. Surface texture is a loam, fine sandy loam, silt loam, or a sandy clay loam. ... R042AE694TX – Loamy Slope, Mixed Prairie

2.5. Water Receiving- Site receives significant additional moisture—either from run-on or throughflow. Site occurs on a floodplain or in a swale or playa bottom.

A. Site is a floodplain in a concave drainageway.

i. Large watershed with concentrated streamflow. Soils formed in young alluvium, are less highly developed, and show fluvial stratification. Soils have less than 5 percent rock fragments. ... R042AE273TX – Draw, Mixed Prairie

ii. Small watershed above the Draw site with slower moving sheetflow water. More highly developed soil with B horizons showing evidence of clay films, less than 5 percent rock fragments. ... R042AE279TX – Loamy Swale, Mixed Prairie

iii. Small watershed close to mountains with fast moving water through an incised channel. Skeletal soils (contain more than 35 percent rock fragments) dominated by sands. ... R042AE760TX – Arroyo, Mixed Prairie

B. Site is not a floodplain.

i. Landform is valley and basin floors. Soil surface has abundant trans-horizon cracks when dry. Site is dominated by tobosa. ... R042AE272TX – Clay Flat, Mixed Prairie

3 Dry Mixed Prairie- vegetative zone's annual precipitation is 12 to 15 inches and occurs mostly on the Diablo Plateau of Texas, Otero Mesa of New Mexico, and the Delaware Mountains. Elevations range from 4,500 to 5,700 feet. The climate and soils support vegetation that is short and midgrasses with shrubs.

3.1. Bedrock Controlled- Soils shallow to bedrock. Landform a hill.

A. Landform a limestone hill with slopes from 3-20 percent. "Tread and riser" features can be present. ... R042AD744TX – Limestone Hill, Dry Mixed Prairie

3.2. Petrocalcic (Caliche) Controlled- Soils shallow to petrocalcic. Landform an alluvial fan or fan remnant.

A. Surface texture a very fine sandy loam. Essentially no surface gravels. ... R042AD006NM – Shallow Sandy, Dry Mixed Prairie

B. Surface texture a very gravelly loam, gravelly loam, or gravelly sandy clay loam. 20 to 45 percent surface gravels. ... R042AD007NM – Gravelly, Dry Mixed Prairie

3.3. Upland Gravelly Soil- Skeletal (contain more than 35 percent rock fragments) or very gravelly soil.

A. Site is an alluvial fan or fan remnant. 20 to 45 percent surface gravels. Skeletal soil (contain more than 35 percent rock fragments) that is shallow to a petrocalcic horizon. ... R042AD007NM – Gravelly, Dry Mixed Prairie

3.4. Upland Loamy Soil- Soil has few if any surface fragments and is deep. Surface texture is a loam, silt loam, fine sandy loam, or very fine sandy loam.

A. Surface texture is fine sandy loam or very fine sandy loam. Site has high lime content; calcic horizon is present between 7 to 19 inches. ... R042AD004NM – Limy, Dry Mixed Prairie

B. Surface texture is fine loam or silt loam. Site typically has more tobosa than other loamy sites. ... R042AD001NM – Loamy, Dry Mixed Prairie

C. Site is immediately downslope of the Limestone Hill site. Surface texture is silt loam. Soil has 27 to 35 percent clay in the control section (10 to 40 inch depth). Site typically has more alkali sacaton than other loamy sites. ... R042AD005NM – Clay Loam Upland, Dry Mixed Prairie

3.5. Upland Sandy Soil- Soil is at least 20 inches of sandy material over an argillic horizon. Surface texture is a loamy fine sand derived from eolian sands.

A. Soil is subject to the formation of low dunes. Sand sagebrush and Southwest rabbitbrush are indicator species. ... R042AD008NM – Loamy Sand, Dry Mixed Prairie

3.6. Water Receiving- Site receives significant additional moisture—either from run-on or throughflow. Surface texture is loam or silt loam.

A. Site is a floodplain in a concave drainageway. Site typically transects the Limestone Hills and Gravelly sites. Skeletal soil in the subsurface (contain more than 35 percent rock fragments). ... R042AD003NM – Draw, Dry Mixed Prairie

B. Site is not a floodplain. Occurs at the lowest locations of the landscape typically below the Loamy site. Soil in the subsurface contains few if any rock fragments. Dominated by alkali sacaton and typically doesn't degrade to brush. ... R042AD002NM – Loamy Bottom, Dry Mixed Prairie

4 Desert Grassland- vegetative zone's annual precipitation is 13 to 14 inches and is mostly at elevations of 3,500 to 5,000 feet. The climate and soils support vegetation that is co-dominated by grasses and shrubs.

4.1. Bedrock Controlled- Soils shallow to bedrock. Landform a hill or mountain.

A. Soil shallow to igneous bedrock with rock outcrop at surfaces in places. ... R042AC247TX – Igneous Hill and Mountain, Desert Grassland

B. Soil shallow to limestone bedrock with rock outcrop at surfaces in places. ... R042AC249TX – Limestone Hill and Mountain, Desert Grassland

C. Soil shallow to sandstone bedrock with rock outcrop at surfaces in places. ... R042AC255TX – Sandstone Hill and Mountain, Desert Grassland

D. Soil shallow to basalt bedrock with rock outcrop at surfaces in places. ... R042AC746TX – Basalt Hill, Desert Grassland

E. Soils shallow to chert bedrock with rock outcrop at surfaces in places. ... R042AC240TX – Chert Hill, Desert Grassland

4.2. Upland Gravelly Soil- Landform an alluvial fan, piedmont slope, or terrace. Soils deep or shallow to a petrocalcic horizon and very gravelly.

A. Landform a mountain-valley fan or stream terrace. Soils deep or shallow to a petrocalcic horizon. ... R042AC244TX – Gravelly, Desert Grassland

B. Landform an alluvial fan, piedmont slope, or terrace. Soils deep or shallow to a petrocalcic horizon. ... R042AC243TX – Foothill Slope, Desert Grassland

4.3. Water Receiving- Site receives significant additional moisture—either from run-on or throughflow. Site occurs on a floodplain or in a swale or playa bottom.

A. Site is a floodplain.

i. Skeletal soil in the subsurface. ... R042AC749TX – Arroyo, Desert Grassland

ii. Soil in the subsurface contains few if any rock fragments. ... R042AC242TX – Draw, Desert Grassland

B. Site is not a floodplain.

i. Landform is valley and basin floors. Soil surface has abundant trans-horizon cracks when dry. ... R042AC241TX – Clay Flat, Desert Grassland

ii. Landform is a slightly depressional enclosed playa. ... R042AC248TX – Lakebed, Desert Grassland

4.4. Gyp Soil- Soils contain visible masses of gypsum in the upper 100 cm.

A. Landform an escarpment shallow to gyp rock. ... R042AC752TX – Gyp Breaks, Desert Grassland

B. Nearly level to gently sloping alluvial flats. ... R042AC748TX – Gyp Alluvium, Desert Grassland

4.5. Upland Sandy Soil- Soils are rolling dunes derived from eolian sands.

A. Soil is deep and surface texture is a loamy fine sand. ... R042AC756TX – Basin and Range Sand Hills, Desert Grassland

4.7. Upland Loamy Soil

A. Surface texture is a clay loam. ... R042AC757TX – Clay Loam, Desert Grassland

B. Surface texture is a loam. ... R042AD001NM – Loamy, Dry Mixed Prairie

5 Hot Desert Shrub- vegetative zone's annual precipitation is 10 to 13 inches and occurs mostly along the Rio Grande. Elevations range from 1,800 to 4,000 feet. Soils are classified as hyperthermic (mean annual soil temperature at a depth of 20 inches is greater than 72 degrees F). With the exception of flood plains and drainages, this vegetative zone supports a sparse cover of plants in a widely-spaced pattern with abundant barren soil or desert pavement.

5.1. Bedrock Controlled- Landform a hill or mountain, soils shallow to bedrock.

A. Soil shallow to igneous bedrock with rock outcrop at surfaces in places. ... R042AB264TX – Igneous Hill and Mountain, Hot Desert Shrub

B. Soil shallow to limestone bedrock.

i. Landform a hill or mountain. Thick bedded limestone bedrock where it outcrops. Rock fragments are subangular. ... R042AB737TX – Limestone Hill and Mountain, Hot Desert Shrub

ii. Gently sloping to very steep uplands. Limestone bedrock is very fractured and platy. Flagstones and/or channers present either on surface, subsurface or both. Often exhibits “tread and riser” topography. ... R042AB585TX – Flagstone Hill, Hot Desert Shrub

C. Soil shallow to sandstone bedrock with rock outcrop at surfaces in places. ... R042AB586TX – Sandstone Hill and Mountain, Hot Desert Shrub

D. Soil shallow to basalt bedrock with rock outcrop at surfaces in places. ... R042AB263TX – Basalt Hill, Hot Desert Shrub

E. Soil shallow to weathered tuff bedrock; soil fine textured. ... R042AB739TX – Clay Hill, Hot Desert Shrub

F. Soil shallow to mudstone bedrock; evidence of salt accumulations on surface. Soil fine textured. ... R042AB734TX – Salty Clay Hill, Hot Desert Shrub

G. Soil shallow to fanglomerate bedrock. Found mostly on shoulders and backslopes of ballenas and fan remnants in intermontane basins. ... R042AB735TX – Gravelly, Hot Desert Shrub

5.2. Upland Gravelly Soil- Landform an alluvial fan, piedmont slope, or terrace. Soils deep or shallow to a petrocalcic horizon or fanglomerate. Soil is gravelly to skeletal.

A. Soil surface covered by more than 45 percent rock fragments. ... R042AB735TX – Gravelly, Hot Desert Shrub

5.3. Water Receiving- Site receives significant additional moisture—either from run-on or throughflow. Landform an arroyo valley or flood plain of a perennial river.

A. Landform a flood plain of a perennial river. Soils are non-gravelly. ... R042AB733TX – Loamy Bottomland, Hot Desert Shrub

B. Landform is alluvial fans and drainageways. Soils are very gravelly. ... R042AB736TX – Arroyo, Hot Desert Shrub

5.4. Upland Salty Soil- Evidence of salt accumulations on surface. Soil has granular structure.

A. Soil shallow to mudstone bedrock and fine textured with evidence of salt accumulations on surface. ... R042AB734TX – Salty Clay Hill, Hot Desert Shrub

B. Soil is deep. Found on alluvial flats of the Presidio Bolson. ... R042AB747TX – Salty Clay Fan, Hot Desert Shrub

5.5. Upland Sandy Soil- Soils are loamy sand or loamy fine sand.

A. Landform is an alluvial flat or fan skirt. ... R042AB742TX – Loamy Sand, Hot Desert Shrub

5.6. Loamy Soils- Soils are deep with few if any rock fragments.

A. Landform a flood plain of the Rio Grande. Typically, a thick woodland of mesquite and salt cedar. ... R042AB733TX – Loamy Bottomland, Hot Desert Shrub

B. Landform is alluvial flats and valley floors. Prone to erosion. ... R042AB738TX – Loamy, Hot Desert Shrub