Decision-Tree for MLRA 42.3 - Chihuahuan Desert Grassland		
I. Flooded (low-lying landscape position, evidence of water flow and/or high production, narrow inset fans, bottomlands, river flood plains or meadows; *Flooded soils group*)		
A. Bottomland/vegetated playa, water may sit for days		
1. Flooding is Rare to Occasional		
i. Soils are shallow to moderately deep to gypsum material. Surface and subsurface textures range from loam, fine sandy loam or sandy loam. Substratum is a dense layers of soft or cemented gypsum material and gypsiferous earth at various depths. Aspect is a grassland with patches of bare or lichen covered soil surface exposed between patches of vegetation. *Sporobolus airoides/Bouteloua eriopoda/Tiquilia canescens* are key indicator species.	Gyp Upland	R042XC006NM
ii. Soils are deep or very deep. Surface textures are clay loam, silty clay loam, silty clay or clay. Substratum textures are silty clay loam, silty clay or clay and may be stratified with very fine sand or fine loamy sands. This site consists of two separate elements, the arroyo channel and its associated floodplain. The arroyo channel has more shrubs and trees while the floodplain is more of a grassland.	Draw	R042XC008NM
iii. Soils are deep to very deep. Surface textures are ranging from loam, fine sandy loam or silty clay. Subsoil textures are ranging from clay loam, clay, silty clay loam, very fine sandy loam, fine sand, very fine sand, or loamy fine sand. Water tables are generally shallow but fluctuate within reach of deep rooted plants, and in most places are high enough that salts accumulate on the surface of the soil, Aspect is a meadow grassland. *Sporobolus airoides/Sporobolus wrightii/Distichlis spicata/Carex* spp./*Juncus* spp. are key indicator plant species.	Salt Meadow	R042XC028NM
iv. Soils are deep or very deep. Surface textures are loam, sandy loam, silt loam. Subsoil textures are silty clay loam, clay loam, loam, sandy clay loam. Some soils have stratified layers of very fine sandy loam or silt loam or sandy loam. Soils contain varying amounts of salt and alkali accumulations. Aspect is alkali sacaton grassland. *Sporobolus airoides/Allenrolfea occidentalis* are key indicator species.	Salt Flats	R042XC036NM
2. Flooding is Occasional to Very Frequent		

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i. The soils of this site are deep and very deep. Surface textures are loamy fine sand, very fine sandy loam, fine sandy loam, sandy loam, silty loam, loam, clay loam or silty clay loam. The underlying layers may be loam, silt loam, clay loam, silty clay loam, sandy loam, fine sandy loam or loamy fine sand. Aspect is a bottomland-grassland. *Sporobolus wrightii/Atriplex canescens* are the key indicator species.	Bottomland	R042XC017NM
ii. Soils are deep to very deep. Surface textures are clay, clay loam or silty clay loam. Subsoil textures range from clay, silty clay, silty clay loam, or clay loam. Some of the soils have stratfied layers of very fine sand or loamy sand and may be saline and/or alkali affected. The soil has electrical conductivity greater than 15 dS/m in some horizons 6 inches thick or more within 40 inches of the surface. Aspect is a grassland having noticeable shrubs evenly distributed. *Sporobolus airoides/Atriplex canescens* are key indicator species.	Salty Bottomland	R042XC033NM
II. Not Flooded (hills, convex portions of piedomont slopes, broad basin floors)		
A. Slopes generally <15%, no exposed rock, piedmont and basin floor landforms		
1. Soil suface is loamy sand to medium sand loam, subsoil is nongravelly and not finer than clay loam.(Sandy soils group)		
i. Soils are very shallow to shallow, less than 20 inches in depth. Surface and subsurface textures are gravelly loamy sand, gravelly fine sandy loam or fine sandy loam. Aspect is a grassland. *Bouteloua eriopoda* is the key indicator species.	Shallow Sandy	R042XC002NM
ii. Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam. Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches. This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Aspect is a grassland. *Bouteloua eriopoda/Muhlenbergia porteri/Paspalum setaceum/Setaria vulpiseta/Urochloa ciliatissima/Sporobolus contractus/Sporobolus cryptandrus/Sporobolus flexuosus/Artemisia filifolia* are key indicator plant species.	Loamy Sand	R042XC003NM

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iii. Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam. Substratum is a sandy loam, fine sandy loam, sandy clay loam, clay loam, coarse sandy loam, or coarse sand and Calcium carbonate equivalent of 15 to 40 percent. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches. This site is on uplands, plains, dunes, fan piedmonts, terraces and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands or calcareous alluvium derived from sedimentary rock. Aspect is a grassland. *Bouteloua eriopoda/Sporobolous* spp. are key indicator plant species.	Sandy	R042XC004NM
iv. Soils are deep or very deep. Surface textures are sand loam, fine sand or loamy fine sand, Underlying material textures are loamy fine sand, fine sand, sand or fine sandy loam. This site occurs on terraces, Piedmonts, dunes fields, or upland plains. Parent material consists of eolian deposits and alluvium derived from sandstone. Aspect is a grassland. *Sporobolous*	Deep Sand	R042XC005NM
2. Soil surface is fine sandy loam to clay loam, subsoil is non gravelly loam to clay (*Loamy soils group*)		
i. The soils of this site are deep to moderately deep. The moderately deep soils have either a petrocalcic, petrogypsic or gypsum horizon between 30 and 40 inches. Surface textures are loam, silt loam, very fine sandy loam, or clay loam. Aspect is a grassland. *Pleuraphis mutica/Bouteloua* spp. are key indicator species.	Loamy	R042XC007NM
ii. Soils are deep and very deep. Surface layers are fine sand, very fine sand, silty clay loam, very fine sandy loam, clay loam and loam. Subsoil textures are loam, clay loam, silty clay loam, sandy clay loam or silt loam. Aspect is a grassland. *Setaria vulpiseta/Sporobolus cryptandrus/Bouteloua* spp. are key indicator species.	Limy	R042XC030NM
3. Soil surface gravelly, soil profile gravelly to skeletal (*Gravelly soils group*)		
i. Soils are are are moderately deeep to deep. Surface textures range from gravelly loam, gravelly fine sandy loam, very gravelly loam, very gravelly loam, very gravelly fine sandy loam or gravelly sandy loam. many of the soils under this site have a shallow or moderately deep petrocalcic layer. Aspect is Shrub Savanna. Bouteloua eriopoda/Atriplex canescens are key indicator species.	Gravelly	R042XC001NM

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ii. The site consists of very shallow to deep, well drained, moderately permeable soils that formed mostly from gravelly alluvium of mixed sources. Aspect is Shrub/Grassland. *Bouteloua eriopoda/Muhlenbergia porteri/Larrea tridentata* are key indicator species.	Gravelly (Desert Grassland)	R042XC244TX
B. Slopes generally > 15%, often revealing exposed rock, soil depth < 50cm, pediments, hills, mountains, lava flows (*Lithic soils group)*		
1. Soils are shallow generally < 20 cm.		
i. Soils are very shallow and moderately deep to gypsum. Surface and subsurface layers are loam, fine sandy loam, and gravelly loam overlying dense layers of cemented gypsum material or gypsum rock at depths of 7 to 22 inches. Aspect is a rough, broken badlands, sparsely vegetated and highly dissected. *Tiquilia hispidissima/Bouteloua* spp. are key indicator species.	Gyp Hills	R042XC013NM
ii. The soils of this site are very shallow and shallow and well drained. The surface textures are very stony loam, very cobbly loam, extreamly cobbly loam. Limestone bedrock is at a depth of 8 to 20 inches. Limestone rock outcrop is a component of the unit. Aspect is a grass/succulent mix. *Bouteloua eriopoda/Muhlenbergia setifolia/Agave/Yucca* are key indicator species.	Limestone Hills	R042XC020NM
iii. The soils of this site are shallow to very shallow. Soils are derived from mixed calcareous eolian deposits derived from sedimentary rock. Surface layers are very cobbly loam, very gravelly loam, gravelly loam, cobbly loam, gravelly fine sandy loam or gravelly sandy loam. Aspect is a grass/shrub mix. *Parthenium incanum/Prosopis glandulosa/Bouteloua* spp. are key indicator species.	Shallow	R042XC025NM
iv. Soils range from very shallow to shallow over igneous bedrock. Aspect is grassland with few shrubs. Bouteloua curtipendula/Leptochloa dubia/Viguiera stenoloba are key indicator species.	Igneous Hill & Mountain (Desert Grassland)	R042XC247TX
v. Soils formed in colluvium and residuum weathered from limestone and are shallow to very shallow. Textures are very gravelly loams. Aspect isa grassland with a variety of perennial forbs and woody shrubs. *Bothriochloa barbinodis/Bouteloua curtipendula/Heteropogon contortus* are key indicator species.	Limestone Hill & Mountain (Desert Grassland)	R042XC249TX
2. Soils are generally deep, > 20 cm		

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i. Soils of this site are deep and very deep. Surface textures are fine sand or loamy fine sand. Subsoilis a fine sand or loamy fine sand to a depth of 60 inches or more. Aspect is a mixture of grasses, shrubs and forbs, with tall grasses dominating. *Andropogon hallii/Panicum havardii/Sporobolus giganteus/Yucca/Quercus havardii* are key indicator species.	Sandhills	R042XC022NM